EXPLORING THE USE OF EXISTING AND EMERGENT **DIGITAL TECHNOLOGIES + STRATEGIES** IN ENABLING A **GREATER SENSE OF PLACE** IN AN URBAN CONTEXT

a case study of Fort Kochi, Kerala

Master Thesis
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ABSTRACT

Digital media today enables people to connect easily with each other, no matter where they may be in the world. It is also a means of connecting with the world, particulary in contemporary urban environments. However, given the relentless and rather stressful nature of modern city life, digital media has often been perceived as a distraction, or as something that 'displaces' people, thus preventing the formation of fulfilling or more enriching connections with places. Thus, this thesis is an investigation into the potential of existing and emergent digital media in enabling a sense of place in an urban environment. This is achieved via a comprehensive review of literature pertaining to human experience of space and place, characterizing the role of technology and digital media as a mediator of human-world/environment relations, identification of relevant examples of media that can aid this process, followed by the contextualization of the study and the formulation of digital strategies that will enable the creation of a sense of place in the selected context. It was determined that the creation of an integrated digital platform will allow users to gain a sense of place by combining the potential of social, locative, and interactive media, which further creates a foundation for place awareness through exploration and experience, place attachment through participation and inclusion, as well as place memory - which in essence is a sense of place. In conclusion, it was determined that digital media can indeed aid the creation of sense of place in an urban environment.

KEYWORDS:

Digitization, digital media, Fort Kochi, ICT, placemaking, postphenomenology, sense of place.

TABLE OF **CONTENTS**

LIST OF **FIGURES**

1. INTRODUCTION

2. LITERATURE REVIEW

3. CASE STUDIES

4. IN CONTEXT FORT KOCHI

5. DIGITAL STRATEGIES FOR FORT KOCHI

LIST OF **MAPS**

1. INTRODUCTION

2. LITERATURE REVIEW

3. CASE STUDIES

4. IN CONTEXT FORT KOCHI

5. DIGITAL STRATEGIES FOR FORT KOCHI

LIST OF **ABBREVIATIONS**

ICT	:	Information and Communication Technology
AR	:	Augmented Reality
ARG	:	Augmented Reality Game
VR	:	Virtual Reality
LBS	:	Location Based Service
CG	:	Computer Generated
PDA	:	Personal Digital Assistant
GPS	:	Global Positioning Satellite
IR	:	Infrared
CBD	:	Central Business District
CCTV	:	Closed Circuit Television
KMC	:	Kochi Municipal Corporation
GIZ	:	Gesellschaft für Internationale Zusammenarbeit
C-HED	:	Center for Heritage, Environment and Development
TUMI	:	Transformative Urban Mobility Initiative
WRI	:	World Resources Institute
CSML	:	Cochin Smart Mission Limited
QR code	:	Quick Response code
RFID	:	Radio Frequency Identification

SECTION 1 // **BACKGROUND**

INTRODUCTION

> *"'Space' is more abstract than 'place'. What begins as undifferentiated space becomes place as we get to know it better and endow it with value."*
>
> Yi-Fu Tuan, *Place and Space: The Perspective of Experience,* 1977, pg. 6

> *"It is odd how a man believes he can think better in a special place. I have such a place, have always had it, but I know it isn't thinking I do there, but feeling and experiencing and remembering. It's a safety place — everyone must have one, although I never heard a man tell of it."*
>
> John Steinbeck, *The Winter of our Discontent*, 1961, pg. 34

A sense of place is a crucial aspect that determines the livability of a city. The character of a place, its identity, and its people's sense of rootedness are shaped by interactions within the place and with other places (National Research Council, 2002). Entire communities' identities take shape based on these interactions, and thus leads to the evolution over time of a distinct cultural landscape (or *urbanscape*), representing the 'combined works of nature and of man' (UNESCO, n.d.). A person associates with places subconsciously in their daily lives, so much so that it is perhaps fair to say that it happens naturally. As the boundaries between cities and technology start to blur, with technology playing an ever-larger role in modern, mostly urban life, the sense of place associated with it is often lost due to distraction, due to the sensory overload caused by both physical and digital elements that compete for people's attention within the built environment. Modern cities are chaotic enough, with sounds of traffic, people, machines, factories, music etc, smells such as exhaust, dust, fumes etc, and visuals in the form of lights, colours, advertisements, movement, to name a few. The idea of the "*partial loss of touch with the here and now*", as identified by Margaret Morse, takes into consideration the loss of sense of place that stems from activities such as watching television (admittedly an indoor activity but distracting all the same), using freeways, and visiting the mall. While contemporary urban experiences are defined by the pervasiveness of digital media within cities that, on one hand create new contexts for the production of public space, digital media paradoxically both places and displaces users on the other (Halegoua, 2019, pg. 9-10).

This has been accepted as normal in a city environment and thus it is not entirely inaccurate then to assume that modern technology (one may go so far as to say 'modernity', but this is a bit of stretch) is an impediment in acquiring or effectively developing a sense of place. Meyrowitz (1985) states that electronic media "*overrides the boundaries and the definitions of situations supported by physical settings*" (pg. 38). But should that really be the case?

According to Jan Gehl (1987), there are three types of outdoor activities in public spaces: *necessary activities, optional activities, and social activities* (pg. 11). With the advent of the internet, smartphones, and social media, a lot of this life shifted online and now the same types of activities may be undertaken utilising digital media. This is not to say that the digital world has replaced the physical world entirely, but the impact of interactions beyond the 'constraints' of the physical are palpable, especially considering the effect of the COVID-19 pandemic on the very nature of how one perceives and 'does' such interactions. Ther are now multiple options or choices in how interaction in the real or virtual world may be approached via digital media. Thus enters the idea of the metaverse.

> "*While we have yet to find solutions for the existential woes of the real world, many are already dreaming of life elsewhere. Some are seriously looking at building a city on Mars, while the likes of Mark Zuckerberg have already moved on to an entirely different universe... sorta. If tech giants like Facebook — I mean, Meta — and Microsoft have it their way, the future is in the so-called metaverse.*"
>
> Poon, 2021

Of course, the concept of the metaverse is still new, being as it is a hypothetical synthetic, or virtual environment parallel to the physical world, in which users interact through digital avatars – in other words, it doesn't exist as yet, even if the avatars do. The term was coined by Neil Stephenson in 1992 in a work of speculative fiction called *Snow Crash*, which projected the duality of the real world and a copy of digital environments (Hang Lee *et al*, 2021, pg. 1). Several video games such as the Sims franchise and other 'life' simulators such as Second Life launched in 2003 are examples of a proto-metaverse of sorts where there are "*no manufactured conflicts, no set objectives...it is an entirely open-ended experience*", as opposed to the more structured, sometimes narrative-driven structure of the Sims, or the more lore-based, objective-heavy World of Warcraft series (Kalning, 2007). These experiences rely on the power of user-generated content, where in-game users create the game 'world', as well as the experiences to be had within. Users can socialize, collaborate, and plan real-world events in-game, just like one would

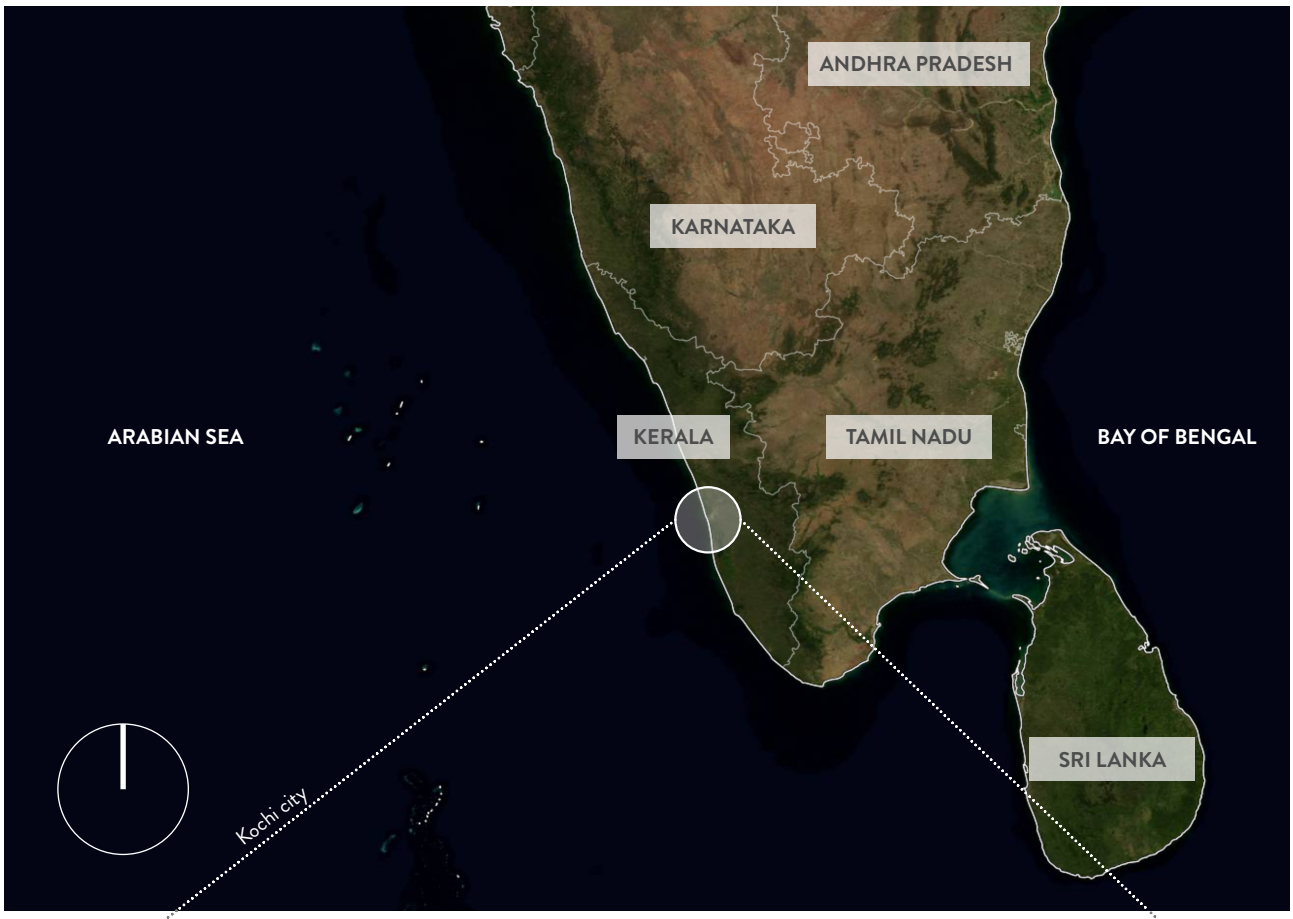
in the real world. That being said, the concept of the metaverse is well beyond the scope of this thesis, but it is easy to see the potential of digital media in enabling and improving human interaction. Naturally there are and will continue to be drawbacks to the implementation and use of such media in the real world, and these shall be examined thoroughly within the study.

As the current discourse on smart cities in the 21st century and beyond often pertains to the use of Information and Communications Technology (ICT) as a means to enhance livability, workability, and sustainability, the use of technology in monitoring and integrating critical infrastructure, and be, overall, an amalgamation of inclusive and sustainable elements with cutting edge, modern, interconnected technologies (Eremia *et al*, 2017, pg. 14), it is important to consider the inhabitants of the cities' experience navigating these smart cities, with modern technology as the fillip that enhances their perception of the 'places, not spaces' that they inhabit. As Don Ihde put it, we don't see *through* technologies but in partnership *with* them; "*being-in-the-world is deeply embroiled with mobile media*" (Hardley and Richardson, 2021, pg. 627) Is it thus possible that modern technology might help establish or improve a sense of place? The short answer is of course yes, but it doesn't qualify as reasoning substantial enough for an academic thesis! The long answer…is also yes, but it warrants a much more detailed explanation. To begin with, the objectives of the thesis are as follows:

1.1 OBJECTIVES

This thesis aims to study the use of existing and emergent digital media, tools, and technologies in an existing urban environment in order to establish a sense of place. It is based on a post-phenomenological framework that examines how people experience the world around them using digital media as a *mediator* of experience that may then be quantified. The location chosen for this study is a 420 Hectare (4.20 sq. km) portion of the historical, tourist-centric city of Fort Kochi, Kerala as shown in Maps 1-1 and 1-2 on page 5, a more detailed description, and exploration of which is provided in Chapter 4 of this thesis. The main question guiding the research in this thesis is **can existing and emergent digital technologies be utilized in enabling a greater sense of place in Fort Kochi, Kerala, and how might this be achieved?**

Several sub-questions that will steer the research along multiple chapters in this thesis. These will be answered sequentially. These sub-questions are as follows:


ANDHRA PRADESH
KARNATAKA
ARABIAN SEA
KERALA
TAMIL NADU
BAY OF BENGAL
SRI LANKA
Kochi city


VYPIN
KOCHI CITY
FORT KOCHI
WILLINGDON ISLAND

1. Why is a sense of place important in the urban realm? What is its relation to placemaking?

2. What is the theoretical background of the human experience of space and place?

3. What constitutes 'placemaking' in the 21st century urban context, and how has it changed over time?

4. What is the current state of knowledge (including in the digital field) pertaining to creating (and maintaining) a sense of place in modern cities?

5. What are the advantages of developing a greater sense of place? Relatedly, what impedes the development of a better sense of place?

The answers to these questions will help determine the types as well as methods of implementation of technological and policy/ strategic innovations within the chosen context, whilst keeping the overall objective of achieving a greater sense of place at the forefront.

Map 1-1

Satellite map of Kerala.

Source: author, from Zoom Earth (2022).

1.2 STRUCTURE OF THE THESIS

The thesis is split into two sections: the first section comprises the desktop study component, namely the introduction, research methodology, theoretical framework, and the current state of knowledge on establishing a sense of place using digital media. The second section comprises context-specific information and the field work component: on-site information, visuals, and interviews, and the final chapter that explores the implementation and implications of digital strategies in the area of study. A more detailed explanation of each section is as follows:

- *Section 1*:
  This section of the thesis is concerned with laying the groundwork for understanding space, place, and the relationship people have with the two. This relationship is coloured by inherently subjective nature of human perception, which is a concept that has seen a great deal of research, particularly in the field of philosophy. Chapter 2 of this thesis describes in detail the philosophical undercurrents that lend themselves to the establishment of the theoretical background of the study, rather how the inherently subjective human experience and perception may be understood objectively, through a discussion on the

Map 1-2

Context map of area of study, Fort Kochi.

Source: author, from Zoom Earth (2022).

concept of Phenomenology, thus forming the first half of the theoretical framework, in particular, the works of Edmund Husserl, Martin Heidegger, and Maurice Merleau-Ponty. However, the position of using digital media as a mediator of human perception necessitates the understanding of post-Phenomenology as well, which forms the second half of the theoretical framework. Finally, in Chapter 3, relevant case studies or existing examples describing the use of digital media in the real world in establishing a sense of place shall be reviewed as best practices.

- *Section 2*:
  This section of the thesis is concerned with the localization of the study in Fort Kochi, and the formulation of a vision and subsequent digital strategies for the place, and the conclusion of the study, with takeaways and implications. Chapter 4 begins with a detailed description of Fort Kochi: the history of the place, its urban structure/layout, nodes of activity or areas of interest, existing public/private developmental initiatives that may have a component of digitization, and finally a summary containing individual observations, information gleaned from interviews conducted, a SWOT analysis, and the rationale for selecting Fort Kochi. This is followed by Chapter 5, where the concept behind the digital strategies that are being proposed for establishing a sense of place using digital media in Fort Kochi is introduced, as well as the implications of the approach. Finally, Chapter 6 concludes with learnings/takeaways, pros and cons of the strategies, and future research potential.

1.3 SCOPE AND LIMITATIONS

Concerning the scope of this thesis, three specific categories of digital media shall be examined, namely social media, locative media, and two kinds of interactive media: video games and Augmented Reality. The area of the study is localized in Fort Kochi, north of Manthra Road (as shown in Maps 1-1 and 1-2 on the next page) – a detailed explanation of the context can be found in Chapter 5 of this thesis. The area is densely built, with diverse land usage patterns, and a great deal of historical and cultural significance, as well as burgeoning potential for tourism. Finally, this thesis is limited to the analysis and implementation of digital media as a tool in enabling a sense of place exclusively. Any kind of physical development, planning strategies involving large scale alterations to the urban form, formulation of strategies/public policy that do not concern digitization, and non-people centric approaches are outside the scope

of this thesis.

The key limitations of this study include the nature of digital technology as a constantly evolving field, which means some digital media concepts discussed herein run the risk of obsolescence rather quickly. Secondly, while the author was able to visit Fort Kochi in person, field research was limited by prevailing regulations concerning COVID-19, which affected tourism, local businesses, and other aspects unique to Fort Kochi. Time spent on site was also a limiting factor in conducting exhaustive field research, particularly with regard to interviews and other first-person information collection. Thus, data gathered from the limited set of interviews should be considered a proof of concept for a study that may be conducted in the future, where time and pandemic regulations are not a detrimental factor.

1.4 RESEARCH METHODOLOGY

The primary objective of this thesis was to determine if existing and emergent digital media can enable a sense of place, and the study was localized to Fort Kochi in the state of Kerala, India. In order to do so, it was essential that, to begin with, a deeper understanding of the concept of sense of place be achieved. Subsequently, a series of sub-questions that would guide the research towards the goal were formulated. These concerned the definition of the term 'sense of place', and its relation to placemaking as a concept. Furthermore, the concept of placemaking was expanded upon to understand its relevance and meaning in the 21st century. This then formed the basis for determining the current state of knowledge in the field of digital media and placemaking, as well as their associated advantages and disadvantages. Finally, all the information gathered was used to formulate a series of digital strategies for Fort Kochi in order to establish a sound sense of place.

For the purposes of clarity, the digital media in question were categorized as follows (a visual flow of logic is seen in Figure 1-1):

1. *Social media*, involving the use of (primarily) smartphone-based applications such as Instagram, Snapchat and TikTok, to name a few,

2. *Locative media*, concerning the use of digital tools as sources of location information on portable digital devices, or static, digital infrastructure that the public may use, such as smart panels, and integrated socio-locational digital media,

3. *Interactive media* in the form of video games, and applications using Augmented Reality, as digital media that fosters engagement with the aim of creating an awareness of the physical world through it, with notable examples such as Pokémon Go and Minecraft.

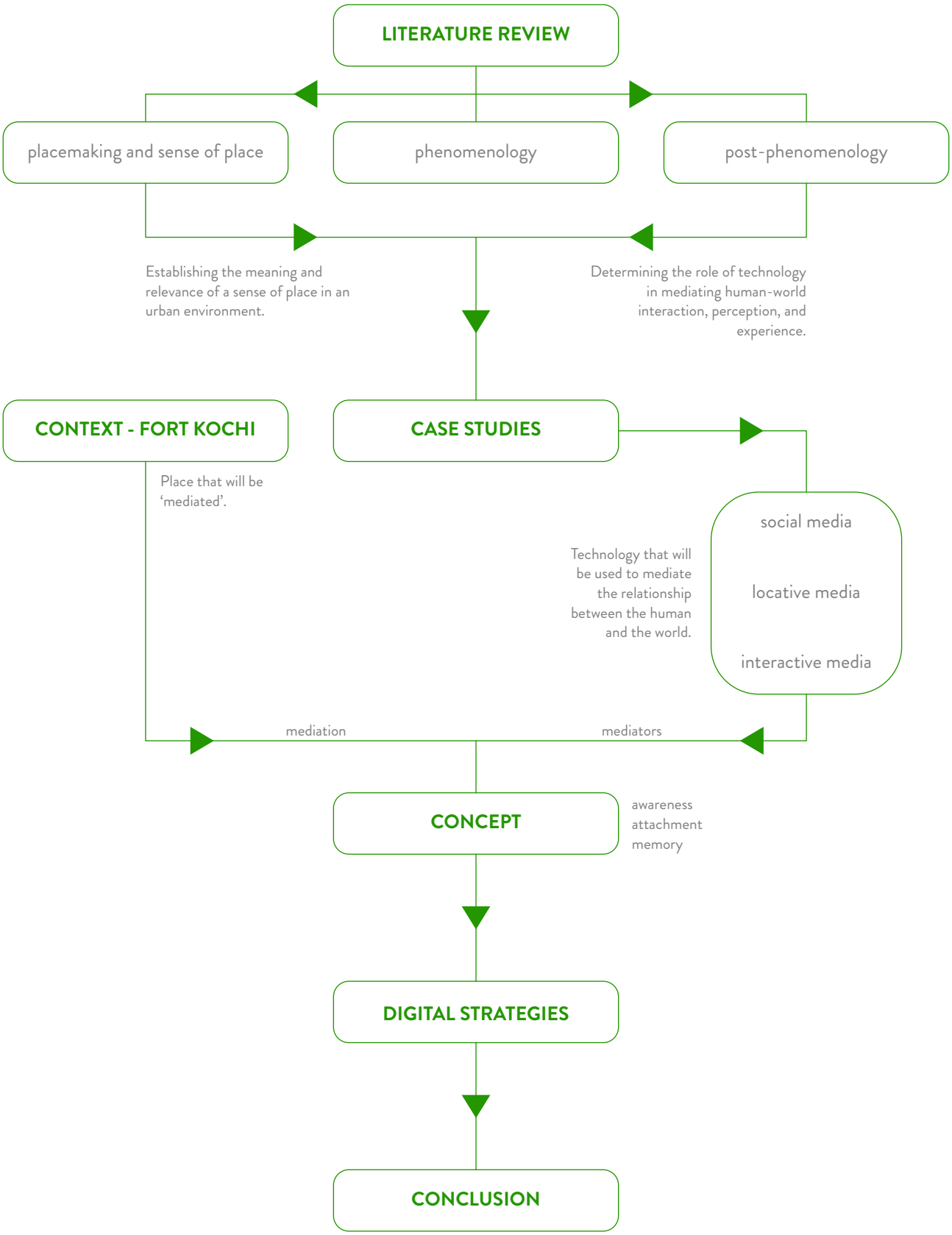
The approach to achieving the objectives of this research was mainly qualitative, involving the thorough review of literature dealing with the concepts of space, place, and how people experience and understand the two. This necessitated the creation of a theoretical framework that expanded upon how human experience may be understood objectively, as well as the nature of the experience when *mediated* using digital tools. This is where the concept of phenomenology and post-phenomenology were introduced via extensive review of mostly philosophical literature. Phenomenology offered a method for 'objectively analysing subjective experiences through demonstrated behaviours' (Purzycki, 2019, pg. 12), and post-phenomenology lent itself to understanding subjectivity in experience through the mediation of a digital device. Fyfe (2012) described her experience and perception of the world through the viewfinder of a camera as overcoming the "*limited subjectivism of phenomenology while reflecting the historical changes occurring during the late 20th or early 21st century*" (pg. 13). It was thus concluded here that post-phenomenological thought accommodated the significance of 'perspective' better than Husserlian phenomenology (explained further in Chapter 3) that "*separated the human perspective from the everyday world in order to better understand how the experience of the human and the world are inextricably connected to one another*" (Purzycki, 2019, pg. 12), thereby making post-phenomenology the legitimizing basis for determining the role and scope of digital media in establishing a sense of place.

Once the theoretical base was finalized, research into existing uses of digital media in the real world provided specific examples that could then be ascribed to each category of media explained on the previous page. To prevent the arbitrary selection of digital media, these examples were chosen on the basis of how they are used, who uses them, their popularity, and of course their applicability in the diverse urban scenarios defining Fort Kochi. Applicability in particular was gauged on the basis of extensive on-site information, collected between 11th and 17th of December 2021, mainly by way of actual app usage, photography, videography, and to a very limited extent, interviews (complete list of questions and transcripts in Appendix 1). This information steered the categorization of the digital media that, upon selection, were then analysed in order to determine how they may aid the creation of a sense of place.

Figure 1-1

Research methodology - flow of logic.

Source: author.


LITERATURE REVIEW
placemaking and sense of place
phenomenology
post-phenomenology
Establishing the meaning and relevance of a sense of place in an urban environment.
Determining the role of technology in mediating human-world interaction, perception, and experience.
CONTEXT - FORT KOCHI
CASE STUDIES
Place that will be 'mediated'.
social media
locative media
interactive media
Technology that will be used to mediate the relationship between the human and the world.
mediation
mediators
CONCEPT
awareness
attachment
memory
DIGITAL STRATEGIES
CONCLUSION

Takeaways from these examples were used to formulate a concept for establishing a digitally mediated sense of place in Fort Kochi. Of course, while the examples militate different modes of interaction and experience in a given environment, no *a priori* assumptions were made about their suitability in the chosen context. Once finalized, these examples lent themselves to the formulation of an overarching concept aimed at achieving the objectives of this thesis.

The proposal for enabling a sense of place using digital media in Fort Kochi was built on the basis of a concept conceived as a 'logical next step' in the digitization process, having built a theoretical base that was then explained further using relevant examples to create an integrated, digital platform that would aid in establishing a modern, highly user-centred, user-curated sense of place.

1.5 ADVANTAGES AND DISADVANTAGES TO APPROACH

At this juncture, it would be appropriate to clarify why the author chose this particular approach in understanding and establishing a sense of place. To begin with, the approach is entirely user-centric, in that the human experience is of paramount importance over all else. Unlike long established top-down approaches to participatory planning, this approach is built around the user and their requirements, starting from how and where they choose to use digital media and what they intend to do with it – in other words, a more bottom-up approach where the decision making is not left to a select few, and the public has a much greater say in how they experience their surroundings. Secondly, the users are not corralled into a series of pre-established 'showcase' spaces; sightseeing in Fort Kochi is no longer restricted to just the Chinese fishing nets, St. Francis Church, and the promenade at the beach. People can now curate their own experiences, rather than have it curated for them, should they so choose. And finally, this approach does not try to highlight Fort Kochi as a tourist destination simply by virtue of its rich, postcolonial heritage. Instead, there is an attempt made to reconcile both postcolonial and contemporary experiences of the place as a 'lived memory', thereby creating a modern identity for Fort Kochi that complements yet is showcased alongside its older, postcolonial identity.

Of course, this approach is not without its disadvantages/ weaknesses. At the outset, the approach will not gain much favour with the older sections of the population, or among sections that are not technologically proficient, or among those who cannot afford access to such digital media. Nor will it be appealing to those who prefer a more analog experience. Thus, the user group this concept

caters to is mostly the young, tech-savvy section of the population. Secondly, as is the case with the introduction of any new technology, in particular technology that has a strong social media component linked to it, will likely be met with backlash from people who have very valid privacy/security concerns. Work in this thesis is thus being done under the assumption that such backlash may not occur. Finally, as stated in the limitations section of the research methodology subsection, this thesis deals with digital media and, for the purposes of the research, it is assumed that the media in question will not see major upgrades to the extent that everything proposed herein becomes obsolete within a year of implementation.

1.6 SIGNIFICANCE OF RESEARCH

> *"We live in a place, we experience place, and place is part of our identity and is used to describe who and what we are. One of the first questions that people ask when they meet you is 'Where are you from?'. And, when you are travelling and you are talking to locals, this is often followed by 'Do you like it here?'"*
>
> Chen *et al, 2021*, pg. 1

Contemporary human experience is coloured by a mix of seen and unseen elements that add to or take away from how people perceive the world around them. As alluded to earlier in the opening lines of this chapter, a sense of place is an (admittedly subjective) indicator of how liveable a city is, but it is also a lot more than that. As Purzycki (2019) put it, "*rather than being one definite sort of thing, a given place takes on the qualities of its occupants, reflecting these qualities in its own constitution...places not only 'are', they 'happen'*" (pg. 8-9; adapted from Casey, 1993).

A sense of place is demonstrated by people when "*applying their moral or aesthetic discernment to sites and locations*" in the form of experience, memory, and intention. The result is a feeling of attachment to the place, called Topophilia by Yi-Fu Tuan, that is described as "*including all human affective ties with the environment*" (Chen *et al*, 2021, pg. 4; adapted from Tuan, 1974). It can be said then that people's attachment to place imbues it with value beyond what it displays outwardly by virtue of its physical location and affordances to visitors in material form; in a more metaphysical sense, it is imbued with value by simply *being* what it is to people. The importance of the concept is illustrated by considering the motivations driving tourism. If there were no place attachment, there would be no need for tourists to return to places they have visited once before, yet that is not the case. Tourists' motivations are

cognitive in nature (Gnoth, 1997, pg. 291), and rely on the recognition of a need, followed by a search of information, evaluating alternatives, decision making, and post-decision behaviour – all of which are influenced by cultural, social, personal, and psychological characteristics (Heitmann, 2011, pg. 32). On looking at the kind of tourists these influences produce, a key category is the tourist that possesses *wanderlust*, or a desire to explore and experience people and culture (ibid)…and also place! Creating a sense of place is a strong motivator for people to return and seek new experiences or relive old ones. Apart from offering emotional or psychological fulfilment to people, it is also beneficial for the local economy through tourism, domestic or international, whilst also, as will be explained in later chapters, fostering a strong desire to maintain, improve, and/or protect places.

This study builds upon existing literature in the fields of placemaking and sense of place in conjunction with emergent uses of digital media in the real world and seeks to address gaps in information with an integrated approach. As it stands, discourse on the use of digital media in creating or maintaining a sense of place is limited by the fact that there are very few approaches that integrate different kinds of digital media with the explicit aim of establishing a sense of place, least of all during the planning process. While existing digital approaches place emphasis on being democratic by encouraging participation and inclusivity at all levels, there are still hierarchical elements in them, in that they are still mostly top-down. This study considers a bottom-up approach and deeper levels of public participation, or public engagement and involvement in digital processes, to be the incontrovertible gold standard of digitization in the sphere of urban planning and research. It is aimed at urban researchers and planners seeking information on how digitization can help create enriching experiences in the built environment. It is aimed at local governments and municipalities that wish to implement digital strategies within their jurisdictions as an aid to democratic decision making. And finally, but most importantly, it is aimed at the public, as proof of the extent to which digital media is inexorably intertwined in everyday life, whilst showcasing the potential of the same media in creating and maintaining a sense of place.

In 1941, in the House of Lords, Sir Winston Churchill famously said, "*we shape our buildings, thereafter they shape us*" (Volchenkov, 2018, pg. 159). In the 21st century however, people are solely being shaped by their buildings and their environments and, in the author's opinion, this comes at a cost. As stated earlier in this chapter, a loss of sense of place is very real in modern urban environments. Being 'displaced' by technology and digital media that was not designed

keeping human experience and perception at the forefront is also very real in modern urban environments. But it is not impossible to prevent that from happening. It is hoped that the implementation of the ideas and concepts proposed in this thesis will augment Fort Kochi's existing allure as a tourist destination, a city that possesses a significant postcolonial heritage, and as a memory, by adding more ways of experiencing and remembering the place, mediated by digital technologies. This thesis aims to move forward with the idea that digital media is a potent tool in the urban researcher's toolkit that, if employed correctly, whilst keeping the target user group's needs at the forefront, enables the creation of cities that are smart, not only from a technological perspective, but also from a deeply human perspective.

This chapter aims at establishing a theoretical framework for further discussion on the usage of digital media in establishing a sense of place in urban environments. Here, the concept of space, place, and human experience shall be discussed, as well as how experience, a highly subjective concept, has been understood in the context of place and placemaking, as well as the philosophical foundation that describes how technology mediates a person's daily life.

2.1 PLACE // MAKING // SENSE OF PLACE

The world is huge, home to the cities, the parks, the restaurants and cafes, and to the places one connects with and considers safe. Some spaces are ephemeral, some persistent, some places memorable, others forgettable. Spaces can be large or small, places can be distinct or nondescript. Yet, aside from myriad subjective perceptions and experiences, Sen and Silverman (2014) contend that place is difficult to define conclusively. Space and place are terms that architects, urban planners and academics have treated with caution; space has traditionally been more "*abstract...a boundless, empty, three-dimensional abstraction within which existed a set of interrelated events or objects*" (ibid, pg. 2); it may exist as urban or architectural space, or as symbolic space that holds some form of social meaning; "*while we are necessarily surrounded by space that for its part defines our current state of existence, we are always in a place that constitutes a firm ground for our being*" (ibid, pg. 15). Places on the other hand, according to Relph (2007), can be defined as the stage where human activities are performed, and which are usually taken for granted by most people, or as "*the complex, obvious contexts of daily life, filled with buildings, cars, relatives, plants, smells, sounds, friends, strangers, obligations, and possibilities*" (pg. 1). Places can be considered a design problem, a part of a building, socially meaningful, someone's home, conducive to one's well-being, and simply existing (Vihanninjoki, 2021, pg. 15); "*when a space becomes more than the sum of its parts, it becomes a place*" (Abdel Aziz et al, 2015, pg. 488). The terms are often used interchangeably in creating a tangible context for where peoples' lives happen; one needs a safe space, or a happy place, or a place to call their own,

filled with space that comforts, protects and nurtures them. How are such places made?

In the context of urban research and study, the term placemaking is a movement that describes the role of citizens in creating and transforming the space that they inhabit so as to augment the relationship between the people and the places they share as a bottom-up, asset-based, person-centred process that emphasizes collaboration and community participation in order to improve the livability of towns and cities (Toolis, 2017, pg. 184-186). Placemaking "*inspires people to collectively reimagine and reinvent public spaces as the heart of every community. Strengthening the connection between people and the places they share, placemaking refers to a collaborative process by which we can shape our public realm in order to maximize shared value*" (pps.org, accessed 15.12.21). Put more simply, placemaking is the act of creating great places by making a public space a living space (Abdel-Aziz *et al*, 2016, pg. 488). The process has been an institutionalized, top-down approach for most of the 20th century, and community stakeholders' input was barely considered. However, placemaking at the turn of the century brought with it greater community involvement, participation at all levels, and inclusivity (Projects for Public Spaces, n.d.), when done right.

Cities are more than the built and lived environment, however. They are places full of sensory impressions and sensory stimuli. Everyone experiences them differently, but there are certain common patterns in these threads of experience, as well as in the effect that the 'multisensorial' urban spaces have on them (Schreiber and Carius, 2020, pg. 26). "*We see things, but also the meaning of things, and the meaning saturates the appearance*" (Vihanninjoki, 2021, pg. 21, adapted from Scruton, 1994, pg. xvi). In his seminal work The Image of the City, Kevin Lynch (1960) talks about imageability – the quality of a physical object that gives it a high probability of evoking a strong mental image in any given observer – in conjunction with the city, where "*a highly imageable city would seem well formed, distinct, remarkable; it would invite the eye and the ear to greater attention and participation*" (pg. 9-10). This engagement of human sensory faculties alludes to the creation of a 'sense of place', defined as a construct that is multidimensional and manifold, which is then used to describe the connection between people and spatial settings (Frank, 2005, pg. 590). She states:

> "*The term unites two related meanings of sense: (1) understanding and order, as in 'making sense', and (2) feeling and sensation, such as smell, taste and sight. As a concept, sense of place acknowledges that places are not merely points in space, but locations that assume the meanings that people*

assign to them based on experiences, memories and feelings. Having a sense of place, thus, means to know a place, not necessarily just its spatial structure, but also its functions, users, ownership, and so forth."

Frank, 2005, pg. 590

Generalizing the concept of sense of place is vague and often contested (Beidler, 2007, pg. 15), as it may perhaps be described as "*a personal connection with place, built-up over both years of residence and involvement in the community*" (Hay, 1988, pg. 160), or as a measurement of feelings, attitudes, and behaviour towards a place that varies between people and between scales, and comprises knowledge, feelings of belonging and attachment, as well as place commitment (Shamai, 1991, pg. 354). Sense of place is "*synaesthetic - it combines sight, hearing, smell, movement, touch, memory, imagination, and anticipation. It is a faculty that varies widely between individuals*" (Relph, 2007). One senses these places, engaging one's five primary senses of sight, smell, hearing, sometimes taste, and touch. However, there is a more primal, almost fundamental sense that is akin to a symbiosis of all the five basic senses, coupled with the knowledge of the place one is in at the moment that helps paint a unique picture of the place in one's mind. This sense of place is unique to every person, and because a place is never simply an object, but part of a 'whole' that is 'experienced as an event' through the engagement of all the basic senses (Shamai, 1991, pg. 348), it is rather difficult to do an empirical study of what, quantitatively speaking, constitutes a sense of place. Examples of misleading surveys conducted as part of empirical studies abound, with examples attempting to investigate the degree to which people felt they *belonged to* or *identified with* a region, presumably the ones they lived in (ibid, pg. 348 – 349). It is a subjective, deeply human interpretation of the characteristics of space: its atmosphere, its allure, its purpose, its vibe. And in order to understand how human experience may be analysed or quantified, we must understand the concept of phenomenology, and further, look at post-phenomenology to understand the role of digital media in human experience mediation.

2.2 PHENOMENOLOGY AND POST-PHENOMENOLOGY

"*There are two perceptual approaches to reality – one, by seeing it, and the other, by sensing it. The first approach corresponds to a subject that, in order to understand and discover 'everyday or degraded spaces', chooses to stop and look at them. Therefore, the act of seeing is moved by a conscious individual choice. The sensing of a space, however,*

can be motivated by a deep feeling of reverie and body awareness; an unexpected enchantment stimulated by the power of a scene."

Moya-Pellitero, 2011, pg. 63

Phenomenology can be described as an objective method of analysing experience and perception, both of which are subjective in nature, through a person's actions or behaviour. The concept was first introduced by Edmund Husserl circa 1900-1901, in the first edition of *Logische Untersuchungen* (Logical Investigations). It is, in philosophy, a method of understanding 'phenomena', but more specifically, how phenomena manifest themselves to a person, and how the person perceives or experiences it (Moran, 2000, pg. 4). There are various definitions of phenomenology – some describe it as a "*study of the development of human consciousness and self-awareness*", as a "*typological classification of phenomena*", and as an "*analysis produced by a phenomenological investigation*", with the last one not clarifying what the term itself could possibly mean (Wojnar and Swanson, 2007, pg. 172). Multiple definitions aside, phenomenology considers human experience in its entirety a subject of investigation and analysis (Todres, 2005, pg. 104). The concept, while developed by Husserl, was furthered by his colleagues such as Martin Heidegger, Max Scheler, Maurice Merleau-Ponty, Hannah Arendt, Hans-Georg Gadamer, among others (Moran, 2000, pg. 4). Heidegger and Merleau-Ponty, in particular, were critical of Husserl's view of human engagement with the world as "*too Cartesian and intellectualist*" (ibid, pg. 13), thus leading them to modify Husserl's core approach. Heideggerian phenomenology differs from Husserlian phenomenology in that Heidegger viewed context as paramount – "*the understanding of individuals cannot occur in isolation of their culture, social context, or historical period in which they live*" – as opposed to Husserl's contention that it was not as important (Wojnar and Swanson, 2007, pg. 174). Both these approaches, however, were unable to capture the importance of perspective in its entirety, which brings Maurice Merleau-Ponty's approach to the forefront, where he built upon Heidegger's notion of 'being in the world' (*in der Welt sein*) as a framework for examining experience, or *le sentir* (sense experience). In modern fields of research, especially concerning mediated spaces, Merleau-Ponty's theory is useful in that, through the "*positioning of the intentional* body as perceiving subject*", it is possible to establish how someone can experience a mediated space (Purzycki, 2019, pg. 13; Moran, 2000, pg. 13). But what are mediated spaces?

Post-phenomenology, introduced in the 1970s by Don Ihde, is described as a 'modified, hybrid phenomenology' that brings in an added layer of pragmatism into the mix (Ihde, 2009, pg. 19). Where

* Intentionality is the phenomenological argument that "*human experience and perception/ consciousness necessarily involves some aspect of the world as their 'object', thus providing a context for examining and quantifying experience and consciousness*" (Seamon, 2000B, pg. 160)

Husserlian phenomenology was 'transcendental' and Merleau-Ponty's phenomenology was more 'existential' (Seamon, 2000A, pg. 3), post-phenomenology used pragmatism as a means of overcoming the problems and misunderstandings of phenomenology as a subjective philosophy that was often dismissed as "*antiscientific and locked into idealism or solipsism*" (Ihde, 2009, pg. 19). More significantly, post-phenomenology offered a means to understand the role of technology in human life through the empirical study of technology itself as a mediator of human world relations (ibid). Mediated spaces thus are spaces that humans interact with or in via a mediator, which in this case is some form of technology or digital media. While the more nuanced theoretical underpinnings of phenomenology and post-phenomenology lie outside the scope of this thesis, the next topic of discussion is how the latter is related to sensing and understanding the built environment.

Ihde suggests that four kinds of technologically mediated 'I-world' relations exist ('I' as in 'myself' or a human):

a. *Embodied relations*, where technology is uniquely straightforward in its purpose, such as binoculars, cameras, glasses.

b. *Hermeneutic relations*, where space that needs interpretation is represented in understandable forms, such as maps, floor plans etc.

c. *Alterity relations*, where direct mediation of the world by technology "*suspends the relation*" between the world and perceiver, such as video games, virtual and augmented reality.

d. *Background relations*, where technology directly influences/alters the condition of the world, often physically, thus influencing one's experience, such as heating and lighting systems (Romele and Severo, 2016, pg. 27, adapted from Ihde, 1990).

Where place assumed a passive role in phenomenological schools of thought (due to phenomenologists' inability to reconcile perspective with context), it gains an active role in the post-phenomenological approach, thus making the observer and the place equal participants in the creation of the place experience (Talebian and Ulusu Uraz, 2018, pg. 17). While the phenomenological method sought to focus on the dynamic between the subject (person) and the object (place) and to describe the experience from the first-person point of view, the post-phenomenological approach focuses on "*relations between humans and their world, and particularly on things that effectively condition, steer, and form these relations*", which takes place "*via things or artefacts*" that mediates the world around them (Spinney, 2014, pg. 233; Vihanninjoki, 2021, pg. 36). The

interactions between the subject (humans) and the object (place/world/item of interest) are "*relational, in that they are not just based on and around interactions, but also co-constitutive, thus leading to only indirect relations between the subject and the object and bringing in technologies as the co-constituted mediators of those indirect connections*" (Walker, 2021, pg. 18). Hauser *et al* (2018) illustrate technology's role as co-constituted mediators of human experience in Figure 2-1 below, stating that technologies "*amplify and reduce human perception, whilst inviting and inhibiting human action*" (pg. 466).

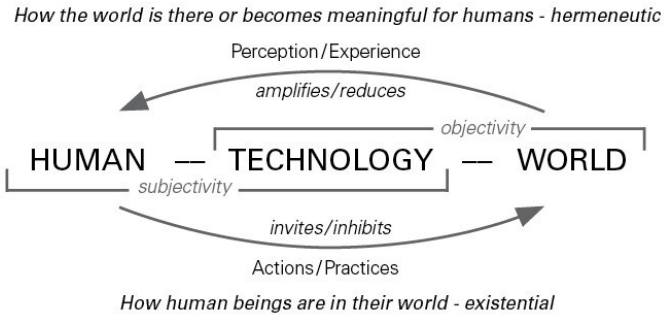


Figure 2-1

'*Technology as a mediator of human existence*'.

Source: *Hauser et al, 2018, pg. 466.*

Each of the relations mentioned above mediates the real world differently, and the experience of the perceiver is dependent on the degree of mediation, as well as what specific aspect of the perceiver's relation with the world is being mediated. As shall be seen in the case studies in the following chapter, each of the examples can be ascribed to each of the I-world relation categories mentioned above. This links the theoretical framework to real-world examples of digital media usage and thus enables an understanding of how digital media aids placemaking, which further enables a sense of place. Having determined the role of digital media as mediators in and of human experience, the next step is to exemplify the concept of technological mediation of the world, which is how digital media, technologies, and tools, can enhance our sense of place in any given context, most notably in the built environment.

In this chapter, examples of the implementation or review of existing digital media, tools, and strategies in the real world are examined so as to determine what constitutes 'best practice'. Building upon the post-phenomenological framework established in the previous chapter, the role of digital media here is purely that of the mediator in human-world relations. It is thus important that a thorough review of existing examples be done, and in clearly defined categories so as to cover as many examples as possible. For the purposes of this section, three categories of digital tools and media are defined: **social media, locative media**, and **other interactive media**. The question steering the research in this chapter is: what is the current state of knowledge pertaining to creating and maintaining a sense of place in modern cities, and what are the digital tools used to achieve this?

The manner in which people interact with the world has seen a paradigm shift in the last 20 years, whilst also altering the "*traditional opposition between the real and virtual*". People now have a real and a virtual identity, and social interactions now occur online (especially due to the impact of the COVID-19 pandemic), and most of the information that poeple consume is now dispensed via the internet. (Toscano, 2017, pg. 276). Connectivity aids societal development, and ICT as a field sees the most innovation as the "*fastest growing and most dynamic sector of the global economy*", with ever newer technologies spurring the rise of new industries and infrastructure. (Khanna, 2016, pg. 223).

In the fields of architecture, urban planning, and urbanism, these new 'connective' technologies have transformed the way we view urban space as well, most notably in the manner these new tools are employed, such as in the form of interactive maps, virtual platforms, networking, databases et cetera. These tools afford us a representation of urban realities in new, ground-breaking ways, whilst also bringing with them new challenges in data management and usage (Lazzarini and López Baeza, 2016, pg. 1). Key to the discussion on the impact of technology on urban environments and urban life is the concept of the smart city. This term has become more common in everyday parlance and, according to Derickson (2018), it refers to cities utilising conventions linked to smart growth/expansion, or to cities that contribute to the creation of a knowledge economy, or both (pg. 428). Smart cities however also refer to a new urban dynamic where data generated by interconnected devices drive

the monitoring, management and regulation of city processes, and are now so common that they are virtually indistinguishable in the built environment. (ibid). *"Cities are becoming knowable and controllable in dynamic ways, responsive to the data generated about them, which are then understood to be fundamentally linked as a desired outcome of data-driven urban governance"* (ibid). Furthermore, the availability of data on the public domain, advanced software and highly integrated or unified digital platforms enable cooperation and collaboration in planning urban systems, whilst also promoting participation among the local residents through rapid visualisation of multiple projects, alternative approaches or scenarios that are "*oriented towards the common good*" (Peterek and Bürklin, 2021, pg. 10).

This, of course, does not come free of its own challenges. Toscano (2017) talks about the dichotomy of postmodernity, wherein enhanced opportunities to connect and communicate created new relationships, lifestyles and work ethics that were not well received by many, thus resulting in a highly contested complexity that was met with feelings of nostalgia and the recalcitrance of those who were unable or unwilling to foresee the potential for innovation; *"the pessimistic positions towards the advent of new technologies.....fall into the trap of considering the dual realities of the physical and virtual worlds as separate, or even of imagining that a greater presence of technology in our daily lives will see virtual reality take the upper hand, replacing the physical"* (pg. 276). *"Cities are already smart by several measures"* (Halegoua, 2020 A, pg. 9). Urban environments, like people, are resilient, in that in many cases they adapt quickly to changes in infrastructural and technological conditions, whilst concurrently developing urban policy and managing the complexity of change at varying scales. Smart city, as a term is quite ambiguous which, as a result, is interpreted differently by different organizations aiming to use the term to tackle different areas of 'smart' development or innovation (ibid). Contemporary smart cities are *"meant to be simultaneously adaptive, anticipatory, responsive in real-time, and crucially, shock absorbing and resilient"* (Derickson, 2018, pg. 430). It stands to reason then that digital media act as a driver of all these factors in the modern smart city.

Now, a few examples of established case studies and (best) practices in different parts of the world shall be examined in order to understand how and why digital media have been used as a mediator of interactions, driver of change, or simply, an experiment in researching diverse urban futures. Information that lends credence to the overall concept that digital media can indeed enhance one's sense of place shall be highlighted and summarized as a set of inferences, or as best practices. Furthermore, within the post-phenomenological framework established in the previous chapter, each example shall be

further examined based on Don Ihde's categorization of 'I-World' relations. These are as follows:

3.1 THEME 1 | SOCIAL MEDIA

> *"Where someone is from, where they've been, and where they choose to spend their time have always been utilized as social signals, ways of shaping and articulating identity and reaching out to bond with others. Predigital examples of people archiving and exhibiting their personal mobility and place-based experiences abound. Diaries of urban flaneurs maintained as early as the Victorian era not only archive individual physical movement through urban environments but also document social and cultural change and serve as a window into relationships between social class, gender dynamics, and public and private spaces and the city. Curated photo albums, slideshows, or home-video footage detailing family vacations that can be displayed or shown to friends and family members are expressions of where someone was located both socially and spatially. Store-bought and "real photo" postcards with photographs of distant locales or familiar places annotated by the sender articulate something social and spatial about presence at particular moments in time."*
>
> Halegoua, *The Digital City*, 2020 B, pg. 111

People have always found ways to memorialize experiences they have had over time in different ways. From the humble written diary, photo albums, Polaroids, even paintings and sketches of places they have been to, interesting sights that they have seen, memorable experiences they have had, everything has been recorded in some tangible form for them to revisit or share in the future. Large prints of landscapes or urban vistas decorate living rooms and hotel lobbies, restaurants and cafes, streetscapes are muses for the traveling photographer. Since the advent of the internet and, in particular, the ubiquity of free Wi-Fi, the ability to create, share, and curate these experiences has seen an almost explosive growth, especially through social media such as Facebook (now Meta), Instagram, TikTok, Snapchat, and the like. Instagram, launched in 2010, is wildly popular among smartphone users since April 2012, and commands increasing power, attracting a lot of attention across a range of industries and sectors given its uptake in the general population and ease of accessibility (Budge, 2018, pg. 122). Short video sharing platforms such as Snapchat and TikTok have also seen a steady growth over time, owing to the short, 15-second long 'micro-narrative' model that these platforms provide, with TikTok in particular crossing 500

million users in mid-2018 (Choudhary et al, 2020, pg. 190). Other short video tools have been utilized across the world, such as the case of the short video platform *Douyin*, where videos showcasing local food, events, and scenery at the county level are immensely popular and the audience includes local residents from the same county or village, along with migrants coming from the same areas (Wang and Wu, 2021, pg. 3269).

This section shall examine the use of social media as a digital tool that augments digital placemaking, which, according to Halegoua and Polson (2021) may be described as the "*use of digital media to create a sense of place for oneself and/or for others – to embrace digital media affordances in order to cultivate or maintain a sense of attachment to place*" (pg. 574). Thus far, Instagram has been used to analyse perceptible patterns of urban processes, as well as the socio-cultural behaviours of its user base. (Lazzarini and López Baeza, 2016, pg. 4). There are studies that discuss the use of Instagram as a digital placemaking tool in different indoor contexts. What has not been explored, notably in the field of urbanism are the 'approach' and the 'scale', where the former concerns the compositional and qualitative study of the images (describing what the image portrays rather than where it was taken), and the latter deals with the use of Instagram to study the city at street-scale (ibid, 2016, pg. 4). It is important to note here that the category of social media leans heavily on the usage of photography as a post-phenomenological mediator in affording one a sense of place. In photographic practice, "*experience and perception of the world are attained through the mediation of the apparatus (and so I also consider) a post-phenomenological position, which aims to overcome the limited subjectivism of phenomenology...introducing a post-humanist viewpoint where we are encouraged to live amidst large shifts in how we understand the world and our place in it*" (Fyfe, 2017, pg. 13). Using post-phenomenological thinking, it is possible to develop a relational, non-deterministic approach to photography that explores the relations generated in the interaction of the photographer (or user), camera system (whether it is a smartphone camera, or larger independent camera system), and specific environment (de Klerk, 2020, pg. 202).

3.1.1 MUSEUM SPACES AND ART INSTALLATIONS

The first example presented here is the exploration of data generated from a digitally immersive interactive public space, namely the Immersion Room at the Cooper Hewitt, Smithsonian Design Museum in New York (Budge, 2018, pg. 121). "*Museums have tried experimenting with immersive spaces for a while now in order to foster greater engagement*", however the approaches have focused more

on spatial design when it comes to engagement, as opposed to focusing on what the public sees/experiences in these spaces via social media (ibid, pg. 122). That being said, the ubiquity of digitization has encouraged museums to broadcast activities/curations/events, whilst engaging with audiences, with the term 'engagement' now becoming a measurable sign of some kind of experential value. (ibid). In order to achieve engagement over social media and establish a sense of place via digital placemaking, it is important to understand museum dynamics. As Budge puts it, museums are 'choreographed' for maximizing viewer immersion, both physically and psychologically. These immersive experiences are 'multisensory', in that there is a clear loss of connection between the subject (viewer) and the object (exhibit), which requires "*the reconceptualization of placemaking considering the parameters of both pause and movement*" (pg. 123).

Another interesting example that can be presented here is of the art installations by teamLab, such as the example seen in Figure 3-1 on page 28, an international art collective that is described as "*an interdisciplinary group of various specialists such as artists, programmers, engineers, CG animators, mathematicians and architects whose collaborative practice seeks to navigate the confluence of art, science, technology, and the natural world*" (teamLab.art, accessed 12.01.2022). TeamLab's exhibits are widely posted on social media, with the *#teamlab* tag on Instagram seeing an average of 720,000 posts as of the time of writing as seen in Figures 3-2 to 3-4 (source: author, via Instagram).

> *teamLab aims to explore the relationship between the self and the world and new perceptions through art. In order to understand the world around them, people separate it into independent entities with perceived boundaries between them. teamLab seeks to transcend these boundaries in our perception of the world, of the relationship between the self and the world, and of the continuity of time. Everything exists in a long, fragile yet miraculous, borderless continuity of life.*
>
> teamlab.art, accessed January 2022

It is also interesting to note that teamLab's work can be viewed as an intersection between the actual, restricted bordered world, and the virtual, immaterial borderless space (Haslem, 2020, pg. 244). Intending to explore the relationship between the self and the world and new perceptions through art, the experience that the teamLab Borderless Museum provides is primarily *embodied* in unique ways, such as "*by positioning viewers centrally within the museum, potentially blurring boundaries between objective and subjective, plus outer and inner* worlds (ibid, pg. 244, 246). Another key ingredient is the creation

of a ritualized experience, one that is both futuristic whilst remembering its past, beginning with the museum's location in Odaiba, Tokyo, which was at one time one of six fortresses designed to protect Edo (the old name for Tokyo) from Commodore Matthew Perry's black ships (ibid, pg. 246). While a deeper analysis of teamLab's concept of experience is beyond the scope of this thesis, the role that social media plays in removing these 'borders' – such as the one between the author and the exhibit in Japan – is clear. Using social media as part of their curatorial practice, museums can now display "*previously restricted collections and communications to privilege participation by visitors and audiences*" (Russo *et al*, 2008, pg. 27). Hashtags are a 'semantic tool' that garner engagement and trigger thought on historical perspectives, with the selection of hashtags describing different concepts within the museum's curations, as well as mediating relationships between (historical) images and ongoing socio-cultural dynamics on social media such as Instagram (Stuedahl and Lowe, 2013, pg. 306). Research has demonstrated that audiences actively seek interactive experiences from museums, but that "*the shift from education to learning has required a refocusing on the visitor or user, not on the delivery systems*" (Russo *et al*, 2008, pg. 28). Within the post-phenomenological framework, it is clear that social media mediates users' experience of the world as a combination of both embodied and alterity relations. Social media is a straightforward means of showcasing the nature of the place that a person is in – an alterity relation – whilst also suspending the relationship between the world (museum) and other perceivers (people who see an image of the museum on social media), thus creating an alterity relation. This is how social media may create engaging experiences that mediate the relationship between the person and the world.

Figure 3-1

'wander through the crystal world'

Source: teamLab (2018)

This approach is not without limitations, however. According to Kidd (2010), a rift exists between the potential of social media usage and its use in and by museums (pg. 64). While social media can potentially help museums "*illuminate and explore the juxtapositions of public experience and private engagement, personal and communal pasts, singular narratives, and multiple viewpoints, subject and object, onsite and offsite, interpretation and representation, history, memory, and forgetting with visitors*", this can only happen but only if the use of social media to communicate these juxtapositions is understood clearly because without it, it is possible that the usage of digital media takes away from the experience instead of augmenting it (ibid, pg. 73).

Figures 3-2 to 3-4

different hashtags showcasing engagement at teamLab's exhibits

Source: author, from Instagram (2022)

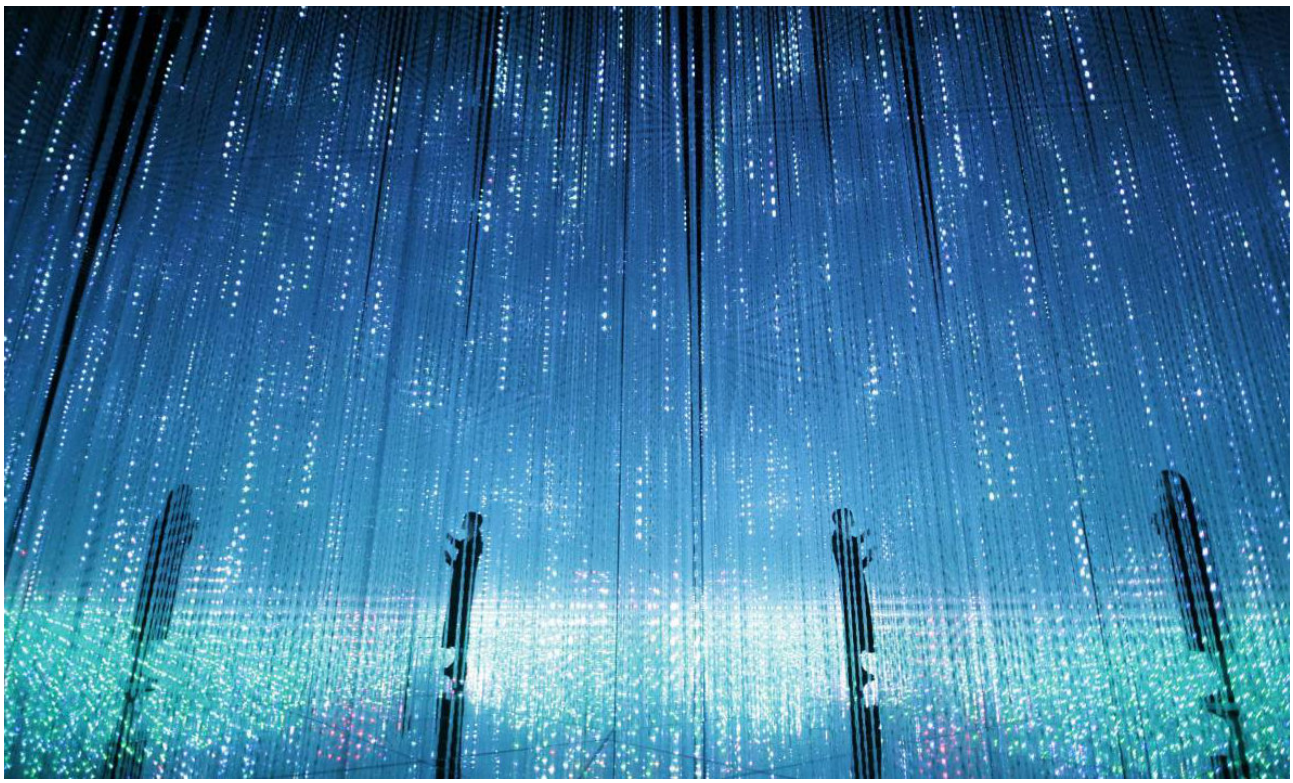


Figure 3-2

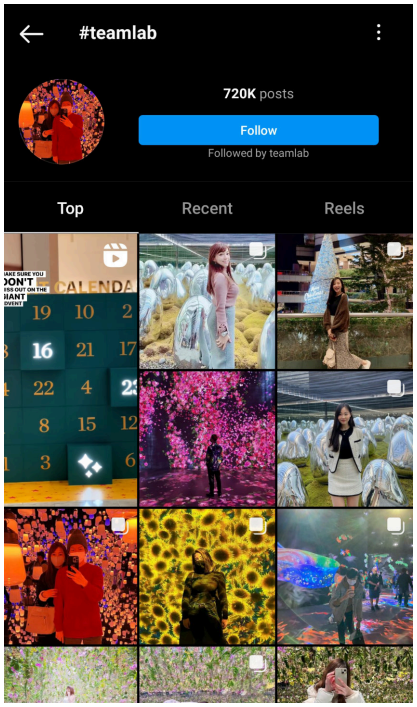


Figure 3-3

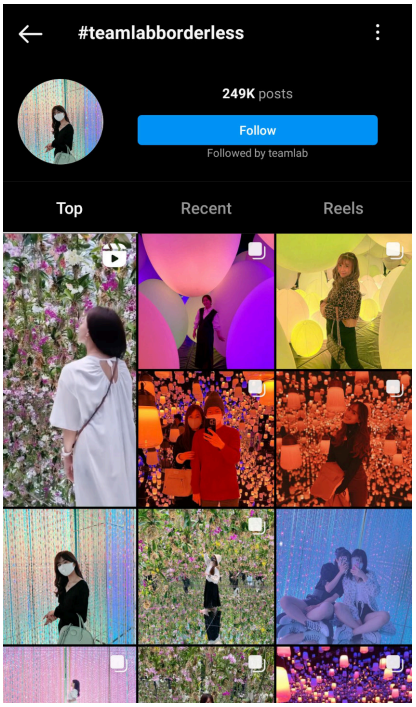
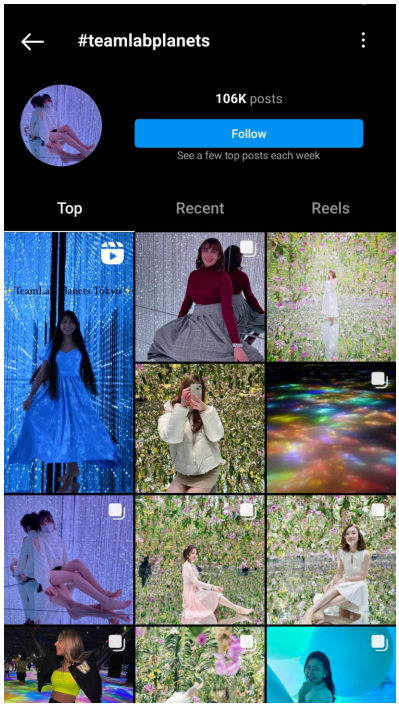


Figure 3-4



3.2 THEME 2 | LOCATIVE MEDIA

Another interesting area of exploration revolves around the concept of locative media, sometimes also referred to as geomedia (Halegoua and Polson, 2021, pg. 573). The term locative media The term locative media describes technology that uses or otherwise invovles location in some form, thereby creating and/or displaying information related to that location through devices such as GPS, smartphones, PDAs, laptops, and AR applications (Cornelio and Ardévol, 2011, pg. 313); it refers to "*mobile media that primarily rely on information about location in order to function and provide the user with an augmented sense of space and place*" (Halegoua, 2020B, pg. 111); "*every information about the physical location as well as other contextual cues*" (Nova, 2004, pg. 2). Locative media projects contain provisions for users to tag, annotate, highlight and share maps, photographs, videos, and notes of any place online so as to share their experiences, often in real-time (Halegoua, 2020B, pg. 111). The advent of GPS enabled phones has given rise to what today is referred to as 'locative media', with the first use of the term being traced back to Karlis Kalnins in 2003 (Bilandzic and Foth, 2012, pg. 66; Thielmann, 2010, pg. 2).

Digital placemaking is intrinsically linked to the "*presentation of place*", "*presentation of location*" or the "*potential to develop and access dynamic aspects of a location via location-aware technologies that influence physical mobility patterns and social decisions around where or how one travels*" (Halegoua, 2020B, pg. 114). Mobile users tag, review, and recommend places, which helps establish a well-connected digital information layer that augments physical infrastructure such as restaurants, hotels, public places and amenities and so on (Bilandzic and Foth, 2012, pg. 67). Enhanced connectivity via smart devices transforms urban environments into 'hybrid spaces,' also often called 'third spaces', where social interaction and communication exists on a plane of blended physical and digital spaces (ibid). This has of course yielded the notions that places are losing their significance and meaning through the development of digital (communication) technology, but it has been observed that using location-based technology can actually promote users to experience their locality through mobile games, "*facilitating the creation of third spaces, and better representation of the different dynamics of local social groups that operate in a city*" (Schwartz, 2015, pg. 88). People obtain, visualize, interpret, and reproduce several kinds of information from existing patterns in urban environments – a phenomenon known as 'description retrieval', which postulates that "*if people find different environments meaningful at an intuitive level, a meaningful exchange of ideas is possible*" (Maldonado Gil and Psarra, 2020, pg. 30).

The first generation of locative media offered users a more creative, playful, and experimental set of tools with which they could explore their environment, "*while the second generation focused on 'the shift from the subcultural to the mainstream'*" (Hjorth, 2012, pg. 238). In essence, the potential of locative media in connecting people and creating new forms of overlaying place with sociality, an alternative form of 'location awareness', was now receiving more mainstream attention (ibid). Within the ambit of the first generation of locative media, Nova (2004) states that this location awareness refers to information about the present, or synchronous awareness, or information about the past, asynchronous awareness (pg. 3). He further states that locative media may be filtered down into three components of awareness, namely *presence*, *location*, and *direction*, and that two positioning techniques are needed to gain location awareness:

a. *Absolute positioning*, which is the awareness of coordinates, the actual location, or place (examples include real world objects like buildings, rooms, cities, countries). This is mainly useful in the outdoor context, where visual impressions can be augmented by location information (ibid). Most cameras and photography applications enable this via GPS (modern AR tools allow for this as well, and shall be discussed in the next section).

b. *Relative positioning*, which is the awareness of other objects that are in proximity (using technologies such as Wi-Fi, Bluetooth, Infrared or IR). This is useful in the indoor (as well as outdoor) context, where devices may be localized using triangulation (ibid). In 2022, COVID-19 tracking and warning applications that rely on location and Bluetooth data to check (triangulate) if one has been in proximity to another person that has tested positive is a good example (of course, this relies on availability and transparency of information).

Next, a few examples of locative media and LBS in the real world shall be examined in greater detail.

3.2.1 DIGITAL WAYFINDING

One of the simplest examples of locative media in the urban environment is in the form of digital wayfinding tools. One can encounter them in shopping malls, where digital panels showcase per-floor information on shopping, recreation, food and drink etc. such as their location, opening and closing hours (and during the pandemic, digital check-in QR codes), and the like. On the street, it may be in the form of tourist information boards and transit information panels (Figure 3-5). Further innovation in the field has

shrunk all these modes of communicating location and its associated information into a smartphone – people are now used to having increasingly more detailed information available on-demand (Peña Miñano et al, 2017, pg. 207). Many of the examples shown here offer users free Wi-Fi, a place to charge their smartphones, and some others go even further in aiding users with transit choices, such as allowing them to book taxis, where the digital panel acts as a hub for pickup. More recently, smart panels and digital wayfinding tools have been employed in creating interactive kiosks. A relevant example here is the usage of interactive touchscreen kiosks in Shinto shrines that are then used to teach the public, especially international visitors, proper shrine etiquette so that they do not run afoul of local cultural expectations (Zytronic, n.d.). Called the 'Jinja Navita' system, it is installed on the grounds of over 20 Shinto shrines and provides multilingual information to the public on "*how to behave appropriately during their visit*", as seen in Figure 3-6. The supplier, Hyojito, is also responsible for providing public information and wayfinding solutions for the Japanese mass transit sector (Digital Signage Today, 2020).

Figure 3-5

VEOMO Mobility Info panel - Börneplatz/ Stoltzestrasse tram stop, Frankfurt am Main.

Source: VEOMO (2021)

One advantage of the smart panel approach is to instil a sense of place by providing historical and cultural information, such as in the case of the Shinto shrine example. According to Thielmann (2010), "*new media has been associated with a growing sense of dislocation over a long period of time, but contrary to the assumption of an erosion of sense of place, recent geographical and phenomenological studies on mobile media practices show a trend toward re-enacting the importance of place and home as both a geo-imaginary and socio-cultural precept*" (pg. 5). The idea of 'mediated localities', that "*global telecommunications have not led to the end of geography as much as to the rebirth of place*" (ibid, pg. 6), shows that locative media can and does establish a sense of place and creative interpretations of the media can be used to great effect in the urban realm.

The second advantage of this approach lies in creating a sense of place via certainty in movement and situational awareness. A study conducted among university students within the central business district (CBD) in Bendigo, Australia, showcased how feelings of safety varied among areas and environmental qualities, with the levels of urban facilities and services (such as lighting) provided having a significant impact on people's perception of safety and security (Ratnayake, 2017, pg. 82). A key point that was highlighted was the need to implement strategies and policies that "*enhanced feelings of personal safety through smarter and more sophisticated social and physical* environments for students' (ibid).

Figure 3-6

'Jinja Navita' interactive information panel

Source: Digital Signage Today (2020)

Finally, with location-based services (LBS) enabled smartphone apps


VEOMO MOBILITY INFO
VGF
10:14
BÖRNEPLATZ/STOLTZESTRAßE
18 Louisa Bahnhof in 0 min
11 Schießhüttenstraße in 0 min
11 Zuckschwerdtstraße in 0 min
CAR SHARING
Stadtmobil Station 2
SMART 4 min
Opel Astra Kombi 4 min
BÖRNEPLATZ 1 min
M36 Westbahnhof in 6 min
M36 Hainer Weg in 7 min
30 Bad Vilbel Bahnhof in 9 min
TAXI SERVICE
Taxi Deutschland in 1 min
FREE NOW in 1 min
UberX in 3 min
KONSTABLERWACHE 5 min
U5 Hauptbahnhof in 5 min
U7 Enkheim in 6 min
U4 Seckbacher Landstraße in 6 min
SCOOTER SHARING
TIER Scooter 1 min
Lime Scooter 2 min
Frank-e Roller 4 min
KONSTABLERWACHE 5 min
S3 Bad Soden (Taunus) Bahnhof in 6 min
S3 Darmstadt Hauptbahnhof in 7 min
S4 Kronberg (Taunus) Bahnhof in 9 min
BIKE SHARING
Call a Bike 2 min
nextbike 7 min
KONSTABLERWACHE
BÖRNEPLATZ/STOLTZESTRAßE
VGF

like Instagram, geotagging is less an option and more a default setting (Hjorth and Pink, 2014, pg. 40). This is true even in most modern digital cameras that have GPS built in, allowing easy geotagging of photos. In that sense, a combination of both absolute and relative positioning techniques can allow for a much more granular degree of location awareness and connectedness when integrated on a single digital platform, with accurate coordinate information becoming the base on which a host of proximity information may then be layered and subsequently retrieved as needed. The practical upshot of this approach is that in an urban environment, it facilitates the deployment of a 'soft-surveillance' mesh that may have benefits for community/neighbourhood security, foregoing the intrusive nature of current surveillance techniques that rely on imagery via CCTV cameras and centralized control. While beyond the scope of this thesis, it still raises several ethical questions about the legality of any mode of surveillance in the public sphere and further exploration is beneficial.

3.2.2 INTEGRATING SOCIAL AND LOCATIVE MEDIA

According to Wilken and Humphreys (2021), place is "*something that is continually enacted, negotiated, and renegotiated across multiple levels of media engagement*" (pg. 579), and it is important for understanding engagement with mobile technologies (ibid, pg. 580). Furthermore, there is an argument to be made that LBSs, or more specifically 'location-based mobile social media' use also encourages various forms of 'place attachment' (ibid). In this section, the integration of locative and social media shall be examined through two unique examples – the first, through the social media application Snapchat, and the second, through a proposal made for 'Access', an Amsterdam Metropolitan Area-centred application that works as an integrated, highly inclusive online communication tool that combines mapping, frequency monitoring, filters and layers of information, pandemic regulation updates, personalized hotspots, raw data, and publications on a single digital platform (Al Balushi *et al*, 2021, pg. 77-79).

The use of Snapchat as a digital placemaking tool is understood by considering 'where' people use the app (Wilken and Humphreys, 2021, pg. 581), in particular, while outdoors. Detailed analyses of patterns of the app's usage in Miami, Los Angeles, and New York in 2018 showcased a clear trend in locational clustering in inner urban areas, as well as specific 'temporal intensities' among certain age groups (ibid). As stated earlier, LBSs are more readily available as a default setting rather than as an option, even though users still retain the agency of choosing if they would like to share their location data

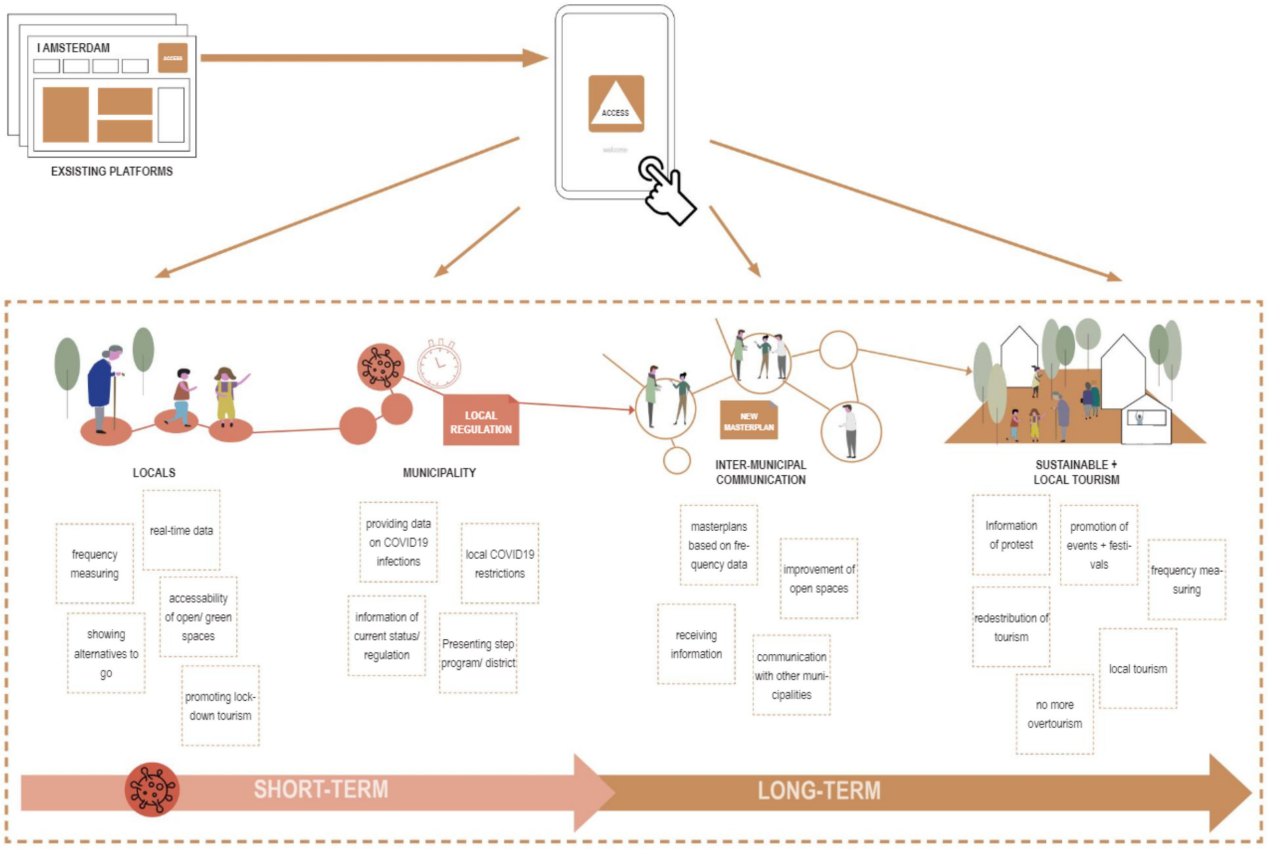
while using social media. The 2017 introduction of SnapMap made people more aware of Snapchat's place-based possibilities, thus increasing the *"performativity of identity through place"*, which incentivizes the geotagging of social media content (Wilken and Humphreys, 2021, pg. 581). The way SnapMap works is that it allows users to view snaps submitted by users from anywhere in the world (snapmap.com, accessed January 2022). The interface resembles a heatmap, with areas that are popular having a greater 'snap density' as opposed to other areas in the map. Upon calling up the SnapMap for the city of Kochi (see Map 3-1 overleaf), it is clear which areas see greater engagement overall on Snapchat. A detailed discussion about how this may be useful shall follow in the subsequent chapter on Fort Kochi.

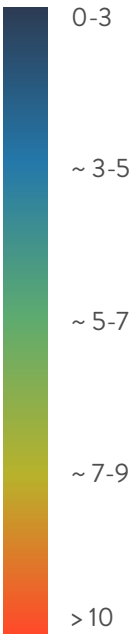
Conceived during the first lockdown of COVID-19 pandemic, 'Access' on the other hand works as a unified platform that allows for collecting and dispensing information as part of a "*participatory engine*" built upon an in-depth analysis of decisions made by people, as well as activity patterns during the lockdown, and simultaneously providing a platform for communication and evaluation on identified needs/challenges.(Al Balushi et al, 2021, pg. 136). Access works in a manner akin to *"smartphone convergence with mobile and social media"* (Hjorth and Pink, 2014, pg. 42), in that it enables local and municipal level cooperation that can then be utilised in two ways:

a. *The Short-Term Approach* relies on information gathered at the local level, whereby people contribute real-time data via the Access app, which may then be viewed, and corroborated or disputed by others who use the app. Information can vary from local COVID-19 regulations, frequency of visitation of different places, promoting tourism while remaining compliant with regulations etc. This data bank can then be accessed at the municipality level in order to publish data on COVID-19 infections, as well as provide updated information on regulations, as seen in Figure 3-7 (adapted from Al Balushi *et al*, 2021, pg. 136)

b. *The Long-Term Approach* relies on inter-municipal communication, whereby master plans can be proposed on the basis of available data. For example, open spaces can be improved based on frequency monitoring, while facilitating communication between neighbouring municipalities, promoting sustainable and local tourism based on information that has been sourced at the grassroots, events, and festivals, as well as allowing for redistribution of tourism, and restricting any actions that may be in contravention of existing regulations, as well as monitoring visitor frequencies at a much larger scale (adapted from Al


VADUTHALA
ELAMAKKARA
CHEMBUMUKKU
SONIA NAGAR
PADIVATTOM
Mulavukad
Puthuvype Beach
Lourdes Hospital
Yaghma Kababs
PALARIVATTOM
Thanthoniruttu Island
PUTHUVYPE
PACHALAM
Vypin Beach
PONJIKKARA
KALOOR
FRIENDSHIP NAGAR
Vallarpadam
ERNAKULAM NORTH
Holiday Inn Cochin
BOLGATTY
Cafe 17
KACHERIPADY
Saleem Javed Kaloor
Chillax
GOSHREE
KADAVANTHARA
Marine Drive
SHENOYS
GANDHI NAGAR
PONNURUNNI
Vypin
JETTY
Uruli
ELAMKULAM
Vyttila Mobility Hub
FORT KOCHI
Hotel Seagull
Willingdon Island
Chilavannur
ERNAKULAM SOUTH
Silver Sand Island
Kochi
PANAMPILLY NAGAR
AMARAVATHY
THYKOODAM
GOSRIPURAM
Cocoa Tree
CHAMBAKKARA
THAMARAPARAMBU
CHAKKAMADAM
KOOVAPADAM
Cafe Papaya
PERUMANOOR
Leisure Inn Kochi
Willingdon Island
CHULLICKAL
Bristow Road
Old NH 47
KONTHURUTHY
MOOLAMKUZHI
Nettoor PWD Road
Abad Nucl
THOPPUMPADY
THEVARA
KUNDANOOR
Cassia
VALUMMEL


I AMSTERDAM
ACCESS
EXSISTING PLATFORMS
ACCESS
LOCALS
real-time data
frequency measuring
accessability of open/ green spaces
showing alternatives to go
promoting lock-down tourism
LOCAL REGULATION
MUNICIPALITY
providing data on COVID19 infections
local COVID19 restrictions
information of current status/ regulation
Presenting step program/ district
NEW MASTERPLAN
INTER-MUNICIPAL COMMUNICATION
masterplans based on frequency data
improvement of open spaces
receiving information
communication with other municipalities
SUSTAINABLE + LOCAL TOURISM
Information of protest
promotion of events + festivals
frequency measuring
redestribution of tourism
local tourism
no more overtourism
SHORT-TERM
LONG-TERM



Source: author, from map.snapchat.com

Map 3-1

SnapMap for Kochi.

Source: map.snapchat.com

Balushi *et al*, 2021, pg. 136).

Of course, this approach is dependent on the presence of robust governance systems where "*there are clear paths of responsibilites and decision making during a time of crisis*" (Al Balushi *et al*, 2021, pg. 102). That said, this approach highlights how social and locative media can be used to great effect at a local level to provide users with a much greater sense of place through updated, if not real-time information about their surroundings that are not simply about restaurants and cafés, places to see and things to do. Within the post-phenomenological framework, the locative media examples showcase hermeneutic relations combined with embodied relations, whereby space interpretation through and representation in the form of maps or other geolocation information can be presented both individually in the form of digital wayfinding panels, as well as in combination with social media (embodied relations, as Snapchat, the example considered, requires active use of the camera) that enables the collection of geographical data on where social media engagement is the highest or the lowest. This makes identifying areas on the basis of the level of attraction and engagement easier. A sense of place is thus created on the strength of general awareness of one's own location, easy wayfinding potential meaning one is never lost, as well as awareness of which places are engaged with the most and the least. The last point is of particular importance to local governments, as it allows them to make informed planning decisions based on real-time place engagement.

3.3 THEME 3 | INTERACTIVE MEDIA

Having explored the use of social and locative media, the third category, interactive media of different types – more specifically, game-based media and Augmented Reality, or AR, shall be examined. At first glance, as Álvarez and Duarte (2017) put it, it may feel like placemaking and video games are not concepts that have anything in common; "*spatial design and placemaking create a vibrant urban life, whereas video games exist primarily for temporary amusement, something like an amuse-bouche to higher art forms*" (pg. 208). However, the affinity between video games and learning is a subject that is seeing renewed discussions as a topic of great potential across different industries (Cipollone *et al*, 2014, pg. 1). Video games provide millions of people the opportunity to visit and engage in virtual worlds nearly every day. But rather than being termed a "*form of entertainment or an escapist universe*", these spaces are geared towards challening existing notions of space and spatial experience and interaction. (Pearson and Youkhana, 2020, pg. 1).

Figure 3-7

'Access' platform

al Balushi *et al*, 2021, pg. 80-81

To begin with, AR, or Augmented Reality, is an overlay of an existing (real) situation in the environment with digital (virtual) content, like actual text, 3D models or figures, audio or even in-world video that 'augments' reality(Broschart and Zeile, 2015, pg. 111). Commonly also referred to as mixed reality, AR has transformed over the years from needing heavy equipment, stationary render and tracking units, cameras and monitors, to simply being in the palm of one's hand through a smartphone (ibid). AR differs from Virtual Reality or VR in that the visualization of elements is not completely in the virtual world. Current state-of-the-art visualization technologies exist primarily in the VR space (Carozza *et al*, 2014, pg. 1), with little to no information on how AR as a tool augments participation in existing planning methods or processes (Saßmannshausen *et al*, 2021, pg. 250). Most AR applications of today augments physical reality with two-dimensional data, whilst using onboard cameras, various optical and proximity- or solid-state-based sensors, wireless sensors (such as for Wi-Fi), RFID, accelerometers, gyroscopes, and so on(Cirulis and Brigmanis, 2013, pg. 73). Thus, data gathered from relative positioning techniques is then used to localize two-dimensional data (virtual content) in a three-dimensional environment (real world) to create mixed reality. With locative media comes an increased accessibility to AR, where instead of replacing the analog with the digital or the physical with the virtual, hybrid realities are now possible that "*need new conceptual tools and located frameworks to unravel the dynamics*" (Hjorth, 2012, pg. 239).

Video games' relevance in urban planning on the other hand reflects an ongoing approach to using ICT as a means of inspiring participation and cooperation in urban design, planning, and governance, particularly among the youth (UN-Habitat, 2015, pg. 1). Game-based learning activities are most powerful when they are "*personally meaningful, experimental, social, and epistemological, all at the same time*" (Cipollone *et al*, 2014, pg. 2). In the words of Pearson and Youkhana (2020), "*games offer us the opportunity to make tools that provide direct feedback for designers, and that non-designers can use, making them easily accessible for people without the means or voice to participate in the typical processes of architectural design*" (pg. 6).

Numerous examples of video games as learning tools exist, most notably in the case of the use of the 2009 video game Minecraft. One of the world's most popular video games, with over 100 million players across the globe, Minecraft is akin to a 'digital Lego' set, where players interact with and in a three-dimensional virtual environment, build structures, collect materials for construction, farm or hunt for food, and so on (UN-Habitat, 2015, pg. 3; Cipollone *et al al*, 2014, pg. 3). Minecraft's 'creative mode' allows users to create structures at a level that comes close to those that are created on

specialized 3D modelling software, and this may be done collaboratively via LAN (Local Area Network) as well via multiplayer over the internet (UN-Habitat, 2015, pg. 3-4). Prominent planning-specific games include 1989's 'Sim City' and its subsequent versions which, while initially designed for entertainment, came to be actively used in urban planning as an alternative to existing planning tools (Prilenska *et al*, 2015, pg. 2), and more recently, 2015's Cities: Skylines, which allows for third-party content such as 3D models from popular modelling software such as SketchUp or 3ds Max to be added to the game as needed (Jacobsen and Reigstad, 2020, pg. 34). While none of these games can completely replace established planning processes in the real world, their potential as learning/teaching tools, as well as media for enabling participation is palpable; "*the relationship between gaming and planning is multifaceted and multidirectional, and with the digitization of data, many tools of civic decision making, from urban dashboards to GIS software have begun to resemble games*" (Plumley, 2018, pg. 8).

Thus, what remains to be understood is how games, and AR technologies may be used in acquiring and/or enhancing one's sense of place in the urban environment. The examples presented here help shed light on the process, and they are:

3.3.1 Example 1: POKÉMON GO

Pokémon Go, an AR mobile game by Niantic, was the most popular app of 2016, reaching more than 500 million downloads and generating close to one billion dollars in revenue by the end of the year (Perez, 2016). Considered an ARG, or Augmented Reality Game, it's success affected how and when people use public spaces, including creating an upsurge in the use of public spaces that were otherwise underutilized (Potts *et al*, 2017, pg. 2), with people entering the augmented reality of the game, and wandering their neighbourhoods and public places in search of Pokémon and 'Pokéstops' (a place to collect 'Pokéballs' in which one can capture Pokémon), as well as competing with other players via virtual Pokémon gyms, as can be seen in Figure 3-8 (Hjorth and Richardson, 2017, pg. 4).

> "*In this hybrid reality, users are required to move through physical space as they tag, collect, trade, and battle for digital artefacts and player achievements, accessing a microworld through their smartphone via the digital overlay of game objects and virtual locations across the actual environment...far from coming out of nowhere, Pokémon Go brought together decades of*

mobile media, locative arts, gaming, and Japanese culture"

Hjorth and Richardson, 2017

Layering such digital information onto familiar surroundings such as the bathroom, kitchen, café, university etc. made the user's immediate surroundings irrevocably become part of the game's locus, as seen in Figure 3-9 (ibid). Due to the creation of illusory media experiences, and virtual objects appearing in the real world, these mediated spaces feel as though they are not mediated, a cognitive process called the "*perceptual illusion of non-mediation*", where users are provided with naturally realistic environments and near immediate feedback, thus making the them feel a sense of embodiment in the virtual world (Wang and Hsieh, 2020, pg. 2-3).

Based on studies conducted by Potts *et al* (2017), parks were the most popular place to play Pokémon Go at 24%, public spaces adjacent to water at 20% (due to the high rate of occurrence of specific types of Pokémon in such areas), and locations close to workplaces or homes coming in third at 16% (pg. 5-6). CBD areas, the beach, commuting between locations (transitional spaces), at work or university, nature-based locations, and no real preference, were all in the 13% or less range, with 'home' being the least favourite place of play (ibid). This is due to the fact that Pokémon Go incentivizes exploration outdoors where the chances of finding Pokéstops, as well as popular or rarer Pokémon are higher (ibid). The observations were that people favoured playing in public spaces that encouraged discovery (37%), passive engagement features were welcome (25%). Not as important were public space features that enhanced relaxation (16%), comfort (12%), and active engagement (10%) (ibid). The passive engagement features in particular are an important determinant of where and how long people choose to remain (see figure 3-10 on page 41); "*this reiterates the findings of numerous urban design theorists regarding the self-perpetuating nature of people in public spaces and people seeking chance encounters with them*" (ibid).

Figure 3-8

example of a 'Pokéstop'

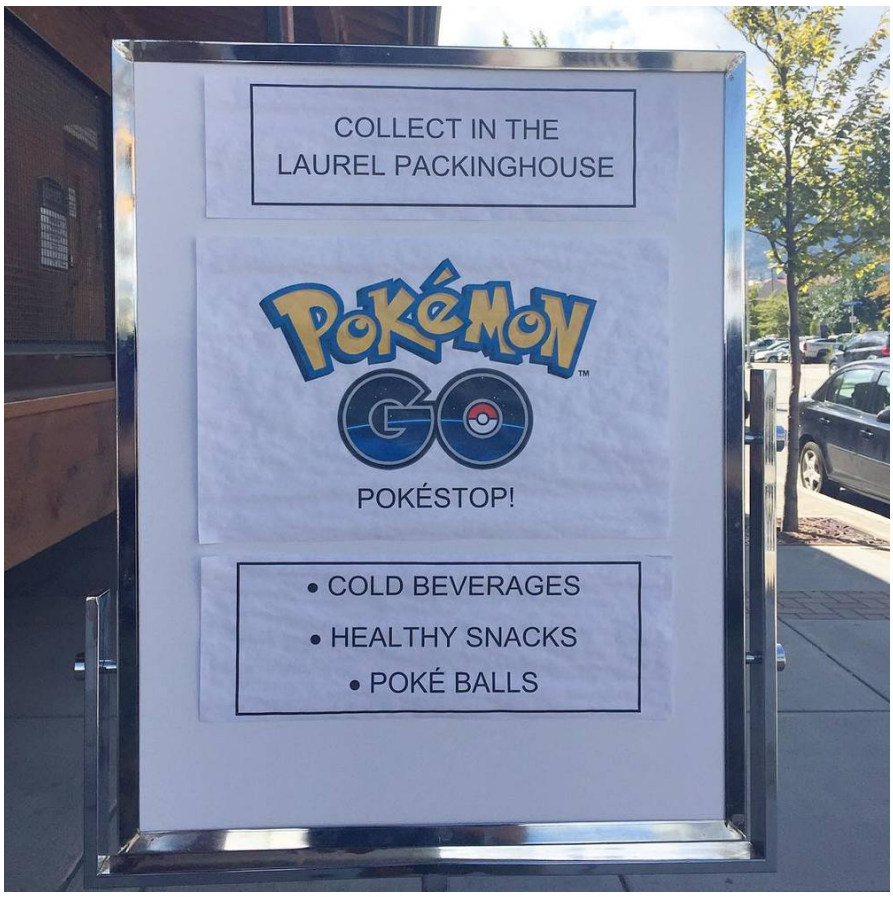
Source: Nova (2016)

Potts *et al* (2017) concluded with the observation that "*ARGs could be used to support placemaking efforts by adding greater depth to individual and group experiences of public spaces. They also provide an opportunity for urban planners and designers to understand, in real-time, the way in which people move through public spaces, and enable them to engage with the public regarding their experiences of specific urban environments*" (pg. 13). It can thus be concluded that greater levels of place engagement will help facilitate placemaking decisions, based on thorough analysis of data made available by suitable AR or ARG based platforms, which is a key component of creating a sense of place.

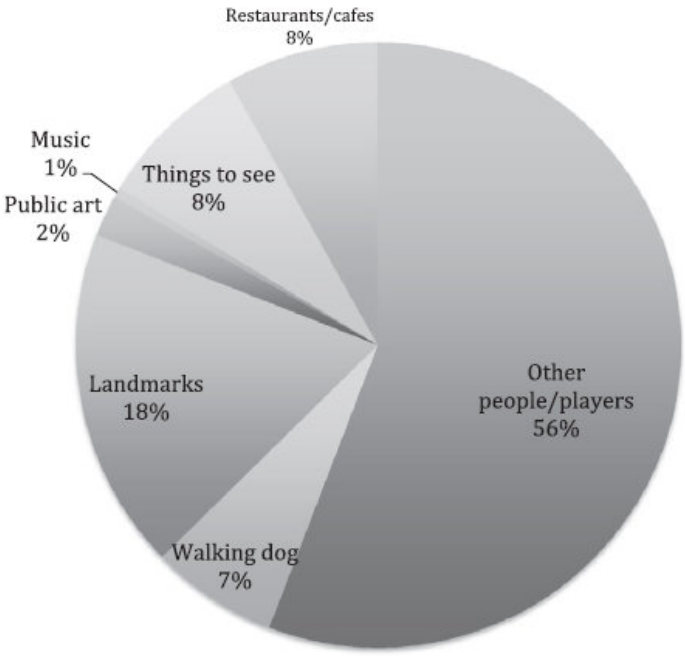
Figure 3-9

Pokémon Go AR interface.

Source: Holly (2017)


COLLECT IN THE
LAUREL PACKINGHOUSE
POKÉMON GO
POKÉSTOP!
• COLD BEVERAGES
• HEALTHY SNACKS
• POKÉ BALLS


9:08
Torchic
CP 494


Restaurants/cafes
8%
Music
1%
Public art
2%
Things to see
8%
Landmarks
18%
Other
people/players
56%
Walking dog
7%

3.3.2 Example 2: MINECRAFT

Minecraft is a game within a three-dimensional pixelated grid, where the terrain is a procedurally generated landscape, which in itself is a pixelated texture wrapped around modelled polygons (see Figure 3-11). These pixels form square textures that then make up the sides of cubic 'voxels' (a three-dimensional pixel), which are the fundamental building blocks of the game world (Quiring, 2015, pg. 2). It is the second best-selling video game in the world after Tetris, with more than 150 million copies sold. Mojang, the parent company that developed the game, was bought by Microsoft in 2014 for 2.5 billion dollars, on account of its tremendous success (de Andrade *et al*, 2020, pg. 3). The use of Minecraft as an educational tool, as well as a participatory planning tool, even as a tool helping preserve cultural heritage has been explored significantly (Slavova, 2020; UN-Habitat, 2015; Garcia-Fernandez and Medeiros, 2019). Images of the Minecraft interface and work done in it can be seen in Figures 3-12 and 3-13.

Figure 3-10

Passive engagement features that people appreciate while playing Pokémon Go.

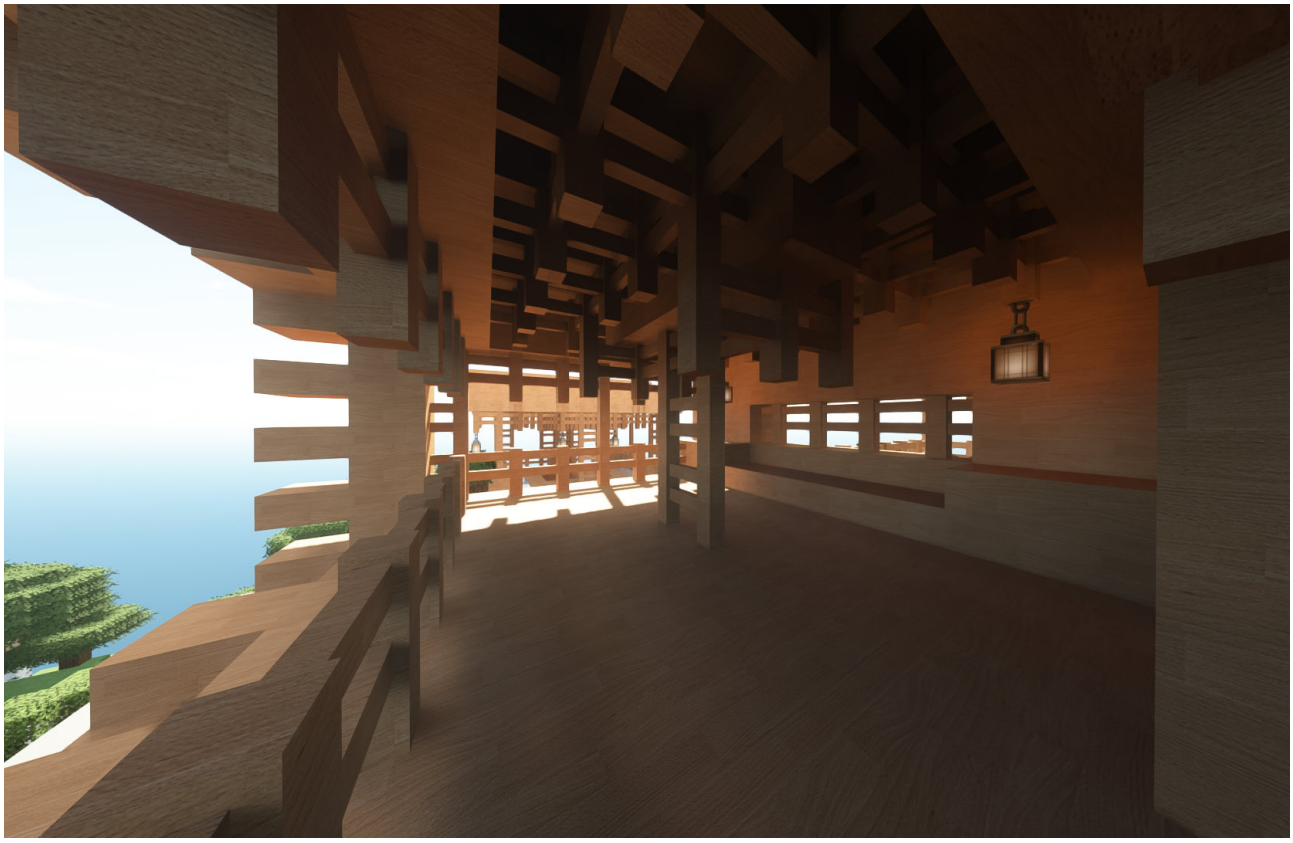
Potts et al, 2017, pg. 6

It has long been argued that video games are useful in studying and analysing the potentials of place, and Minecraft is an ideal example, because of "*three core qualities that exemplify place-making in Minecraft and highlight intersections between the place and video game/virtual world literatures*: (*a*) *alteration/change,* (*b*) *proximity, and* (*c*) *conflict/cooperation*" (Quiring, 2015, pg. 2). Due to the procedurally generated nature of the game world, any changes made to one seed (a randomized string of numbers fed to the algorithm that determines the generation of terrain) will not reflect in other worlds (or seeds), providing players the ability to freely *alter* their virtual environment (ibid, pg. 9). Online multiplayer functionality allows different people from across the globe to join the same virtual world to collaborate and participate in shared projects, and the possibility to extend this cooperation into the real world via organized conventions or meetups creates a *sense of proximity*, that fosters real-world social connections (ibid, pg. 11). Finally, *conflict* plays a role in placemaking in Minecraft through multiplayer game modes such as 'Last Man Standing' competitions. These conflicts are approached differently by different players and illustrate the ways in which they interpret the virtual world they are in, which also mirrors the way conflict outside the game world takes place, thus creating an interlinked understanding of place, both in the real and the virtual world (ibid, pg. 12). These competitions also often compel players to cooperate in order to negotiate the conflict and the battlespace, thus creating a shared understanding of the virtual-social space via "*community building and collective ownership of the server world*" (ibid, pg. 13).

Figure 3-11

Minecraft interface, captured on PC.

Source: author, on Minecraft (2022).



Video games and AR fit into the category of alterity relations almost exclusively (though AR can be an embodied relation). This may seem counterintuitive in that alterity relations suspend the relationship between the person and the world, which by implication would impede a person's sense of place. However, when viewed in conjunction with the real world, such as when Minecraft is used to contextualize a design in an actual physical space, or when AR can be used as a means of wayfinding or generating place awareness through exploration, the relations between the person and the world become more embodied whilst being mediated by the digital media, and thus catalysing the creation of a sense of place.

3.4 KEY TAKEAWAYS AND SUMMARY

All three categories of digital media mentioned in this chapter work independently of each other yet can be integrated onto a common digital platform that allows for much greater granularity, convenience, and transparency in creating, curating, and accessing information about a place. The dynamic outreach of social media in conjunction with the place information made available via locative media, that is now remotely accessible via AR or video games is an example of how absolute and relative positioning can work on a single platform in order to establish a sense of place. Google Street View has had this for many years, but it is hampered by the lack of availability of updated (if not real-time) information on places. As Purzycki (2019) states, "*the player's relationship to the place of play is always embodied and is the point of origin from which one perceives and negotiates that place*" (pg. 13), which, in a phenomenological sense, follows Maurice Merleau-Ponty's theory of perception (the positioning of the body as a subject that perceives) within a post-phenomenological structure of the world, that is a digitally mediated play space (ibid).

Figure 3-12

Created in Minecraft, Java Edition, on PC.

Source: author, on Minecraft (2022).

A key takeaway is that all the digital media mentioned in this chapter have the potential for creating a steady stream of place awareness, depending on their manner of usage. For example, a significant advantage afforded by ARGs is that due to the increasingly always-online nature of such games, widespread Wi-Fi distribution is incentivized, which, apart from providing rapid, free connectivity to users who then do not have to rely on cellular data for connections, also acts as a mechanism by which businesses and local governments can maximize engagement, both physical and digital, with users (Potts et al, 2017, pg. 13). This could be in the form of collaborations or partnerships between stakeholders such as the local government with phone companies, internet service providers or

Figure 3-13

Also created in Minecraft, Java Edition, on PC.

Source: author, on Minecraft (2022).

ISPs, and local businesses seeking to create an online presence as well as benefit from the vastly improved quality of public space (ibid).

The disadvantages of the integrated approach stem from problems specific to each digital medium, the age of the user being the primary area of concern – such users may find a highly integrated digital approach to place experience unnecessary, but perhaps more significantly, inconvenient. The digital approach is likely to appeal to the 'tech-savvy' section of the population, which comprises mainly the younger and the more digitally aware. Secondly, the digital approach may cause security or privacy concerns among people, which will need to be addressed prior to implementation.

The potential of soft surveillance and an integrated public security mesh idea is not likely to be free of criticism. Other disadvantages include the fact that game activity in the real world through AR is likely to "*defamiliarize the routine habits of urban mobility*" (Hjorth and Richardson, 2017, pg. 9). Furthermore, since bite-sized snippets of visual information, in particular, the micro-narrative model described earlier in the form of the 15-second-long video format, are now being widely adopted, 'time spent on location and on device' becomes another crucial factor in determining place engagement and the subsequent creation of place attachment, both concepts that shall be explained further in Chapter 6 of this study.

And finally, when considering video games as a mediator of place, players are not always free to do what they wish – a conundrum called 'emergence structures', that limits the player's *abilities* or *conveniences* via many small rules that altogether modify the game significantly, leaving the players to then strategize how they may best tackle these rules (Purzycki, 2019, pg. 11). In the real world, this may have a significant impact on player retention, insofar as the nature of the experience is concerned. Not all users will be willing to play by the rules and will want to create their own version of a real-yet-open-world experience that they envision.

SECTION 2 // **PROPOSAL**

In this chapter, we shall localize the study within an existing urban context. Fort Kochi, the historical, tourist-centric sea-port town in Kerala's Ernakulam district has been chosen for this purpose, and in the following sections, we shall go over its history, evolution, morphology, and rationale for selection, as well as identify areas or nodes of interest that suit the objectives of this study.

4.1 HISTORY

Fort Kochi is located on the shores of the Arabian Sea, on the western coast of India, across the backwaters and away from the main city of Kochi, Kerala's second largest city after the capital Thiruvananthapuram. The city of Kochi today is part of the Ernakulam district, and administratively part of the Kochi Corporation founded in 1967. It comprises the early municipalities of Ernakulam, Mattancherry, and Fort Kochi, along with four *panchayats**, and three islands – Willingdon Island, Gundu Dweep, and Ramanthuruth, within a single administrative division. Fort Kochi is a seaport and has historically served as an international harbour for vessels from Europe and the Mediterranean headed to India and beyond. A large settlement hosting a wide variety of traders from China to the Middle East had formed around Mattancherry, which was the seat of local rulers, by around 1440. Known as an important port for spices, cashew nuts, tea, coir, and local handicrafts, the city developed a trade relationship with Arab Greek, Roman, Chinese, Jewish, and later European traders. The prospects of safe docking for ships meant European trading companies wanted control of the harbour and the town. The Portuguese gained control of Fort Kochi in 1503, following skirmishes against the local kingdom, establishing the first large urban township with multiple civil buildings, warehouses, hospitals, and churches, most notably the St. Francis Church (Figure 4-1). They were followed by the Dutch in 1663, with the Dutch East India Company (the VOC : *Vereenigde Oost-Indische Compagnie*) consolidating Fort Kochi as an important political and commercial centre. The British captured this port town by 1795 and established control over the spice trade, thus making Kochi a part of the British Empire, that ruled India until 1947. Following independence, the urban and administrative activities of Kochi Corporation shifted east towards Ernakulam on the mainland. Mattancherry was designated a municipality in 1912, and Ernakulam

in the following year. Fort Kochi thus lost its importance and became a "sleepy town", until 1991, when the Tourism Development Board of Kerala declared it a heritage zone, leading to extensive restoration projects. Today, Fort Kochi hosts a significant portion of all major tourist spots in the city, and is one of the few cities in India which showcases precolonial traditions of cultural pluralism and globalisation, and is "*a confluence of heterogeneity, where more than 30 non-Malayali communities have over the centuries come to find refuge, trade, proselytize, and much else, only to develop roots and integrate into local society*" (Jeychandran, 2014, pg. 52; Kasthurba, 2013, pg. 926; Kuriakose and Philip, 2021, pg. 2; Venerandi *et al*, 2021, pg. 4404; Varghese, 2017, pg. 171; Merina and Menon, 2019, pg 214).

4.2 URBAN STRUCTURE

The Kochi peninsula has two principal foci linked by a commercial spine – the Fort Kochi neighbourhood, site of the old Portuguese fort, is bounded by the sea on three sides, and the centre of this colonial area is occupied by a large parade ground (Fels, 2006, pg. 68) as seen in Map 4-1. The layout of the old town is characteristic of most colonial settlements of the time, with multiple narrow inner streets, broad, tree-lined main streets, and typically dense, low to medium rise buildings, with the tallest buildings usually churches, office buildings, or other important colonial constructions. Recently however, large, medium to high rise apartments are slowly increasing in number within the area. Longer/main streets are mostly aligned east-west on the Fort Kochi peninsula, as opposed to the north-south configuration found on the mainland (Map 4-1). Furthermore, their well-connected nature in both residential and commercial areas appear to be characteristic cultural features of the settlement and the colonial authorities involved in its establishment (Raheem, 2013, pg. 10, 12).

Land use is mixed, with most of the residential and smaller commercial happening towards the middle of the island, owing mainly to the – peripheries are more commercial and institutional, with the commercial and most imp tourist areas located on the peripheries (because of the waterfront) – predominant land use is commercial at 65%, public/semi-public at 15% (comprising government, cultural, educational and religious structures), residential at 10%, open spaces at 5%, mixed use at a low 3%, and water bodies are the lowest, at barely 2% (UD Studio, 2018, pg. 57). Within the area of study, the residential and commercial land uses blend to a large degree, as seen in Map 4-2, as most commercial establishments occupy the ground floor levels, with residences on the upper floors. Even though they constitute only 5% of the total land

Figure 4-1

St. Francis Church, Fort Kochi.

Source: author.

use on the Fort Kochi peninsula, most open spaces such as the parade ground and parks within the heritage town area are well defined. The land use does not seem to correspond to blocks as a whole or to the intrinsic characteristics of blocks, rather it appears to correspond more consistently with streets as expected from the theory of movement economies (Raheem, 2013, pg. 5, as appears in Hillier, 1996).

Map 4-1

Street layout of Fort Kochi.

Source: author, with information from Google (n.d).

4.3 AREAS OF INTEREST / NODES OF ACTIVITY

The most visited parts of Fort Kochi are some nineteen heritage sites such as the St. Francis Church, the Santa Cruz Basilica, the Dutch East India Company Gate, the Dutch Cemetery, to name a few, as well as two small museums – the Indo-Portuguese Museum, that showcases the Christian heritage of Kochi, and the Maritime Museum, that gives a chronological account of the maritime history of India (Jeychandran, 2014, pg 53-55). Furthermore, the Chinese fishing nets, or *cheenavala* (Figure 4-2) and the Dutch cemetery (Figure 4-3) located on the northern shores of the Fort Kochi peninsula draw scores of tourists from India and abroad. Mattancherry to the east is home to the Dutch palace (the erstwhile Maharaja's palace) and the Jew Town (Figure 4-4), where old furniture, religious artifacts and metalwork, jewellery, perfumes, and a range of souvenirs are sold (Fels, 2006, pg. 69). There are a few vestiges of the once burgeoning spice market here, with godowns (warehouses) lining the length of the eastern waterfront. Further north towards Fort Kochi is where the larger godowns and wholesale stores selling spices, ginger, rubber, rice, cashew etc. may be found (ibid, pg. 69). Inner Fort Kochi is mainly residential, as seen in Map 4-2 and Figure 4-5. The author notes that in Mattancherry, pedestrian footfall is markedly different, owing to the impact of the ongoing COVID-19 pandemic, which also meant many shops and curio stores were shuttered on both weekdays and weekends.

Legend - Map 4-2

- Mixed use green space
- Public green space
- Educational
- Commercial
- Governmental
- Religious
- Institutional open space
- Heritage/Cultural
- Tourism
- Heritage green areas
- Commercial + Residential
- Undefined/Military

Map 4-2

Detailed Land Use map of Fort Kochi

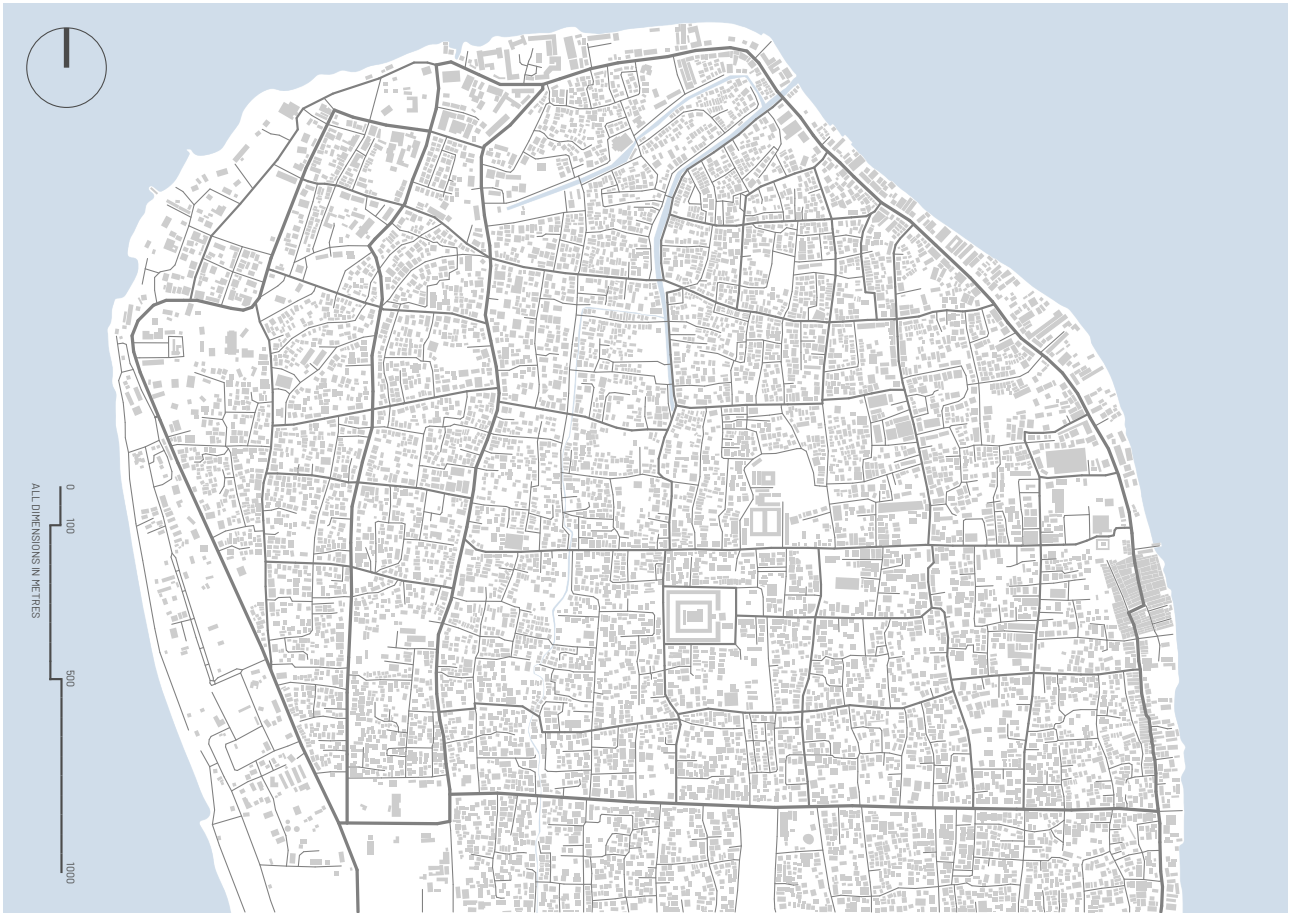
Source: author, adapted from UD Studio 2018.

4.4 EXISTING INTIATIVES

In this sub-section, existing digital or semi-digital initiatives within/ pertaining to Fort Kochi shall be examined in order to arrive at an understanding of what is already being done, and where attention is needed within the framework of digital tool usage.

4.4.1 'ENTEKOCHI' PROJECT

Currently, much work is being undertaken in Fort Kochi in the areas of e-mobility, integrated transport planning, heritage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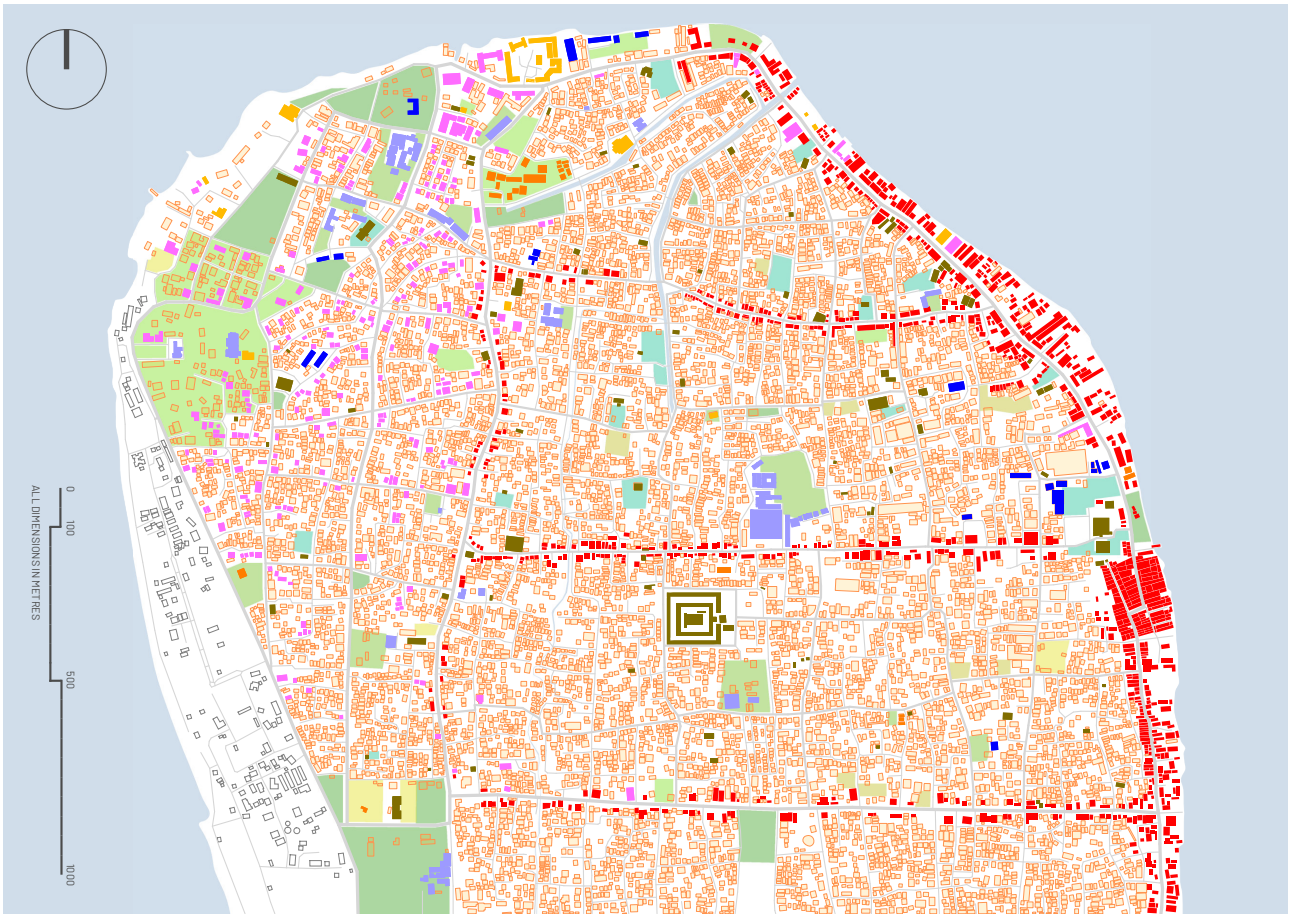

ALL DIMENSIONS IN METRES
0
100
500
1000

Figure 4-2: *Chinese fishing nets, or 'Cheenavala', Fort Kochi.* Source: author.

Figure 4-3: *Dutch Cemetery, Fort Kochi.* Source: author.

Figure 4-4: *Jew Town, Mattancherry.* Source: author.

Figure 4-5: *Inner Fort Kochi.* Source: author.

conservation projects, revitalisation, and others where digitization is a key component. Smart-city centric solutions for Kochi city, such as the Integrated Sustainable Urban Transport Systems for Smart Cities (SMART-SUT) technical cooperation project have been in place since 2020, and a significant example is the 2020 'EnteKochi' project that is being undertaken by the Kochi Municipal Corporation (KMC) jointly with the Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ) under their Sustainable Urban Development – Smart Cities (SUD-SC) project, supported by Urbanista, a German participatory urban development consultancy that focuses on co-creative urban design and spatial research, known for their experience in setting up interactive Urban Labs in Germany and India, as well as Urbz, a Mumbai-based experimental, cross-disciplinary collective working in urban spaces with associations, municipalities, and private clients across the globe (GIZ, 2020A, pg. 17). An Urban Lab is an experimental space where inhabitants and users are encouraged to participate in the making of their city, and for this initiative, an Urban Lab called EnteKochi (Malayalam for 'my Kochi') was implemented. This is a "*multi-stakeholder participatory planning process fostering creativity, innovation, and public awareness on issues of sustainable urban development*" (ibid, pg. 18). Digitization is a key component of this project; the EnteKochi project was conceptualized as a website optimised for use on both PC and mobile platforms (at the time of writing, this website was not accessible due to the domain not being available), with user-friendly operation a priority, and bilingual available information, user-interactive questionnaires or opinion polls and, in particular, using instagram to integrate all occurences of the hashtag #entekochi onto the integrated EnteKochi webspace (ibid, pg. 33). Furthermore, the use of 'CityScope', a multi-touch, open-source toolkit developed by HafenCity University, Hamburg, in cooperation with the MIT Media Lab, Boston, MA., allowed for citizen and stakeholder participation, as well as decision making in the planning process, with affordances for mapping, spatial query creation and analysis, scenario modeling, data-driven prediction and forecasting (ibid, pg. 33-34). While not directly related to acquiring a greater sense of place, the EnteKochi project showcases how a digital approach can be implemented effectively in the context of Fort Kochi.

Figure 4-6

Kochi Ithile + project partners.

Source: Kochi Ithile, 2021

4.4.2 THE KOCHI ITHILE PLATFORM

Kochi Ithile is a "one-stop platform for all things Kochi" (see Figures 4-6, 4-7, 4-8 and 4-9) that provides information on

Figure 4-7 & 4-8

Kochi Ithile, analog and digital versions.

Source: author.


കൊച്ചി ഇതിലേ


KOCHI ITHILE
RORO JETTY JUNCTION
Fort Kochi Beach
Vasco da Gama Square
Nehru Park
St. Francis Church
City Bus Stand
Kochi Taluk Office
EMERGENCY CONTACT


KOCHI ITHILE
കൊച്ചി ഇതിലേ
RIVER ROAD

attractions, landmarks, services, and amenities. This is a project initiated by the World Resource Institute India (WRI-India) and GIZ, called the 'Way Finding Project', in collaboration with the KMR and Center for Heritage, Environment, and Development (C-HED). The aim of this initiative is to create enhanced accessibility particularly in wayfinding (as seen in Figure 4-10), improve traffic flow and coordination between different modes of public or private transit including bicycles, as well as enhancing walkability for locals and tourists (Kochi Ithile, 2021). When centred at Fort Kochi, the website offers different kinds of wayfinding information as listed below:

a. *Transit information*, such as bus stations and stops, autorickshaw stands, jetties for the ferry and water metro services, taxi stands, bicycle rental and docking, as well as parking information.

b. *Tourism information*, such as information centres, architectural and heritage landmarks, heritage trails, biennale venues, accommodation, shopping, food and drink, nightlife venues, and viewpoints.

c. *Recreation opportunities*, such as parks, playgrounds, beaches, community centres, auditoria, cinemas, and theatres.

d. *Emergency services,* such as hospitals, clinics, pharmacies, police and fire stations, as well as emergency assembly points.

e. *Education information,* such as schools, colleges, and libraries.

f. *Administration*, in the form of government offices only.

g. *Places of worship.*

h. *Facilities,* such as toilets, ATMs, banks, free WiFi, post offices, drinking water facilities, day-care facilities, and petrol stations.

i. *COVID-19* specific information, such as testing and treatment centres, vaccination centres, helpline numbers and other relevant information.

Figure 4-9

'Kochi Ithile' interface

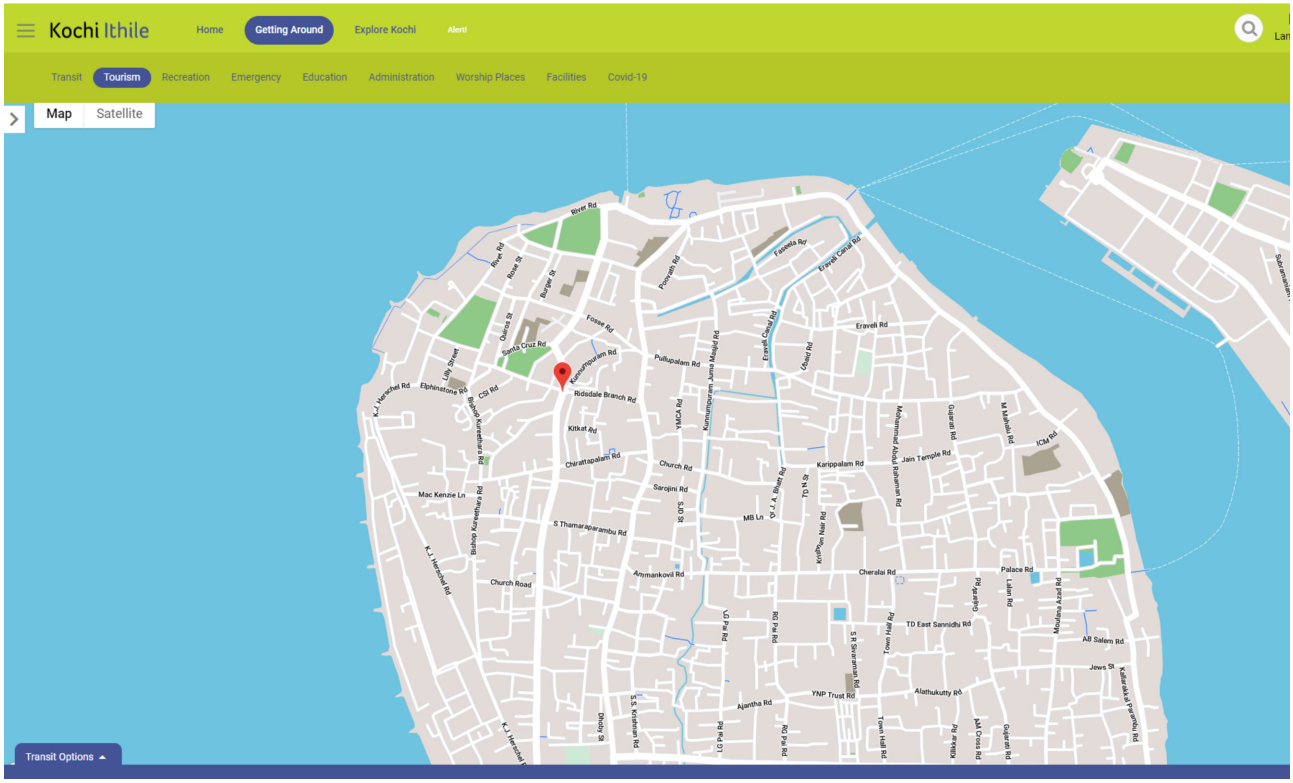
Source: Kochi Ithile, 2021

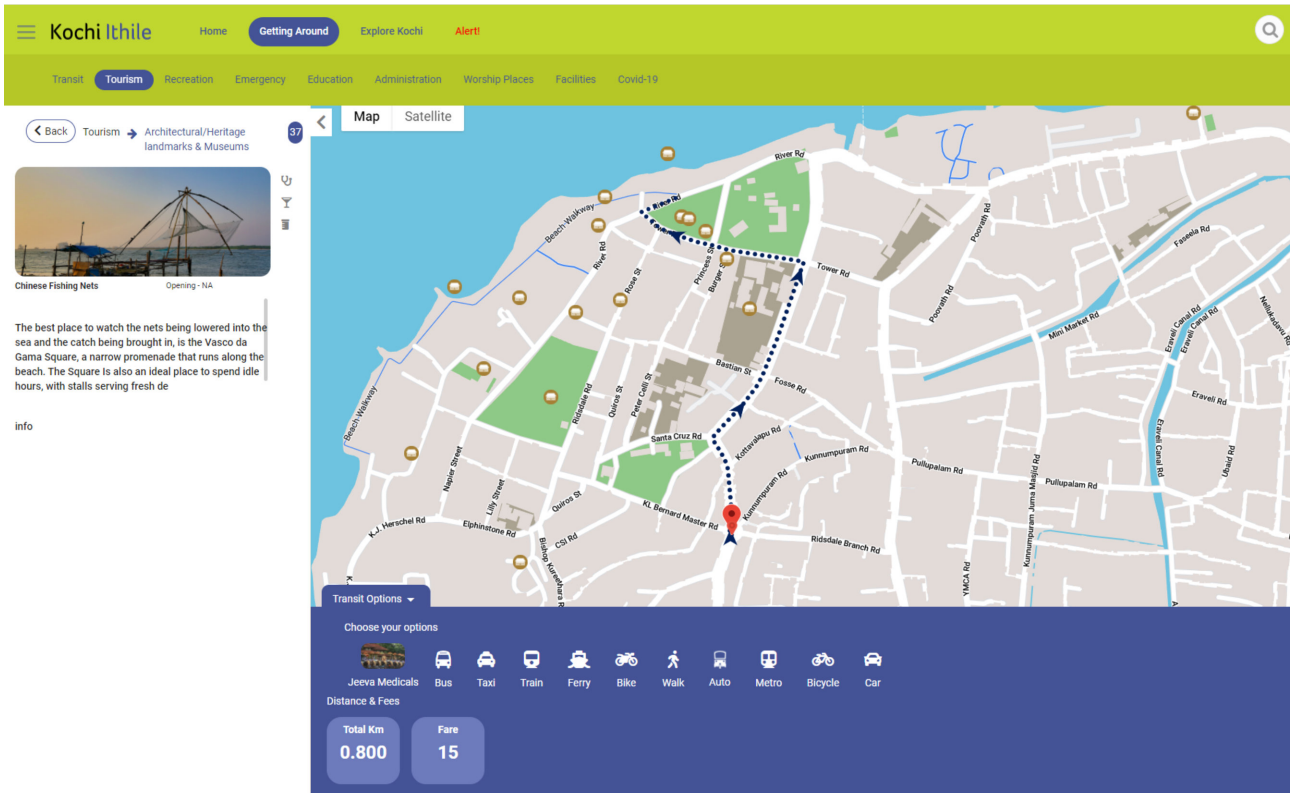
The author notes that, at the time of writing, the website is still missing a significant amount of information under multiple tabs. For example, the heritage trails tab offers no data at the moment. The MyByk bicycle rental service as seen in Figure 4-11, as well

Figure 4-10

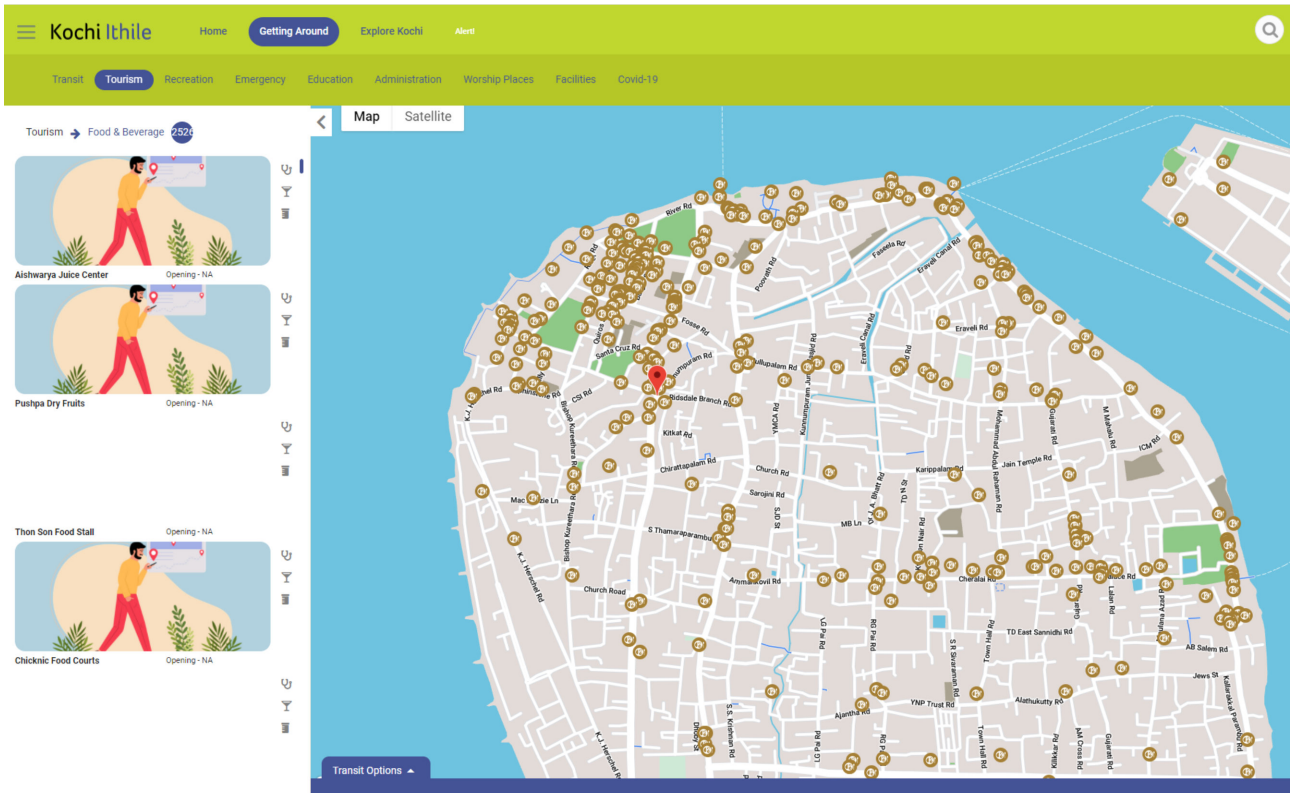
Wayfinding on Kochi Ithile.

Source: Kochi Ithile, 2021


Kochi Ithile
Home
Getting Around
Explore Kochi
Alert!
Transit
Tourism
Recreation
Emergency
Education
Administration
Worship Places
Facilities
Covid-19
Map
Satellite
Transit Options


Kochi Ithile
Home
Getting Around
Explore Kochi
Alert!
Transit
Tourism
Recreation
Emergency
Education
Administration
Worship Places
Facilities
Covid-19
Back
Tourism
Architectural/Heritage landmarks & Museums
37
Chinese Fishing Nets
Opening - NA
The best place to watch the nets being lowered into the sea and the catch being brought in, is the Vasco da Gama Square, a narrow promenade that runs along the beach. The Square is also an ideal place to spend idle hours, with stalls serving fresh de
info
Map
Satellite
Transit Options
Choose your options
Jeeva Medicals
Bus
Taxi
Train
Ferry
Bike
Walk
Auto
Metro
Bicycle
Car
Distance & Fees
Total Km
0.800
Fare
15


HOW TO MYBYK


Kochi Ithile
Home
Getting Around
Explore Kochi
Alert!
Transit
Tourism
Recreation
Emergency
Education
Administration
Worship Places
Facilities
Covid-19
Tourism
Food & Beverage
Aishwarya Juice Center
Opening - NA
Pushpa Dry Fruits
Opening - NA
Thon Son Food Stall
Opening - NA
Chicknic Food Courts
Opening - NA
Map
Satellite
Transit Options

as rental points and drop off zones are not listed. Furthermore, information that is available on Google Maps is yet to be seen on the Kochi Ithile platform, such as information on parks and playgrounds. Opening and closing hours are not provided for many of the services, and real-time wayfinding still requires Google Maps or other GPS applications, particularly on mobile devices. There also does not seem to be any way to filter search results – for example, when looking up 'food and beverage' under the tourism tab, the map displays 2526 results that are not limited to just Fort Kochi, but also the mainland. Not only does this affect the map's functionality in terms of loading speed and ease of access, but it also makes looking for options rather confusing, as can be seen in Figure 4-12. This may be attributed to the fact that the project is still in its infancy and will hopefully improve with time, as well as see release as a standalone mobile application for smartphones and/or other portable smart devices.

Figure 4-11

MyByk bicycle sharing app.

Source: author.

4.5 ANALYSIS + RATIONALE FOR SELECTION

The author visited Fort Kochi between 11.12.2021 and 16.12.2021 in order to acquire up to date imagery and information on the area, its history, as well as other information that is not available in the public domain, and conduct interviews. Due to several underlying factors, most notably the COVID-19 pandemic, as well as upcoming Christmas celebrations, the allure of the town was simultaneously uplifting as well as subdued, and this dichotomy was exemplified by the sheer difference in footfall in Fort Kochi versus in Mattancherry. The heritage town areas, as well as the architectural landmarks and waterfront promenade drew the most visitors, with people wading into the water, buying souvenirs and snacks from streetside vendors, with almost everyone taking photographs and selfies, the day of the week, and time of day notwithstanding. Several small events were also conducted on the promenades that drew in sizeable crowds. In contrast, the Mattancherry – Jew Town areas were eerily deserted, with many souvenir stalls, spice shops, and restaurants closed either for the day or perhaps longer. Here, construction and renovation works were being undertaken, taking advantage of the shuttered stalls to close down one of the pedestrian-only streets to lay electrical cables and replace paving (Figure 4-13). The few stalls that remained open attempted to vigorously entice the rare visitors to the area as best as they could (the author was offered perfumes and wooden handicrafts more than five times by two shops on opposite sides of the street that tried to outdo each other with price reductions). The Fort Kochi neighbourhood is also popular among couples and newlyweds (and soon-to-be newlyweds) for photo and video shoots,

Figure 4-12

Kochi Ithile, when searching for 'food and drink'.

Source: Kochi Ithile, 2021


Rayfeed
Rayfeed
India Post
Payments Bank
Synagogue
Ferry Service
www.keralatourism.org


VASCO
HOMESTAY

as the old colonial architecture of the old town makes for a suitably charming backdrop. The author also happened upon a movie or TV show shoot in progress; interestingly, one of the more frequently visited spots in the area is the Vasco Building, which was where the popular 2007 Malayalam language movie *Big B* was filmed, with people taking photos of the iconic staircase seen in Figure 4-14, or taking selfies in front of it.

The author also conducted interviews with different people, both locals and tourists alike. The aim of these interviews was to obtain a range of opinions on Fort Kochi, ranging from the interviewees' thoughts about Fort Kochi, to the role digital media and digitization plays in their lives (complete transcripts can be found in Appendix 1 at the end of the thesis). While not all interviewees were comfortable with being recorded on audio or video, a range of contrasting answers were obtained which helped inform what digital strategies would suit the context. On asking what they liked about Fort Kochi, some people responded with the fact that it was 'dreamy and quaint' and that it was fine the way it was, while others were of the opinion that more digitization would help keep people more informed about Fort Kochi, as well as events and other happenings in the city.

> *"So in the physical world you'll have a post with all the posters on it and people can see what's happening, what live music is there… Its kinda hard to find this, uh, common thread or board where you can see what all is going on. So, it's a lot about discovery and, you know, sometimes you discover stuff too late and you're here just for a few days and you feel bad, that 'I've missed out on this!' So that's something I'd like."*
>
> Varad, 27.

Figure 4-13

Electrical work in Jew Town, Mattancherry.

Source: author.

Figure 4-14

'Big B' shoot location, Fort Kochi.

Source: author.

Fort Kochi offers something for everyone to experience, irrespective of their age, their nationality, where their interests lie, and how much time they have at their disposal. As Jeychandran (2014) puts it, in its current existence as a heritage enclave and open-air museum space, Fort Kochi now resembles an *"exhibitionary complex in which places and people unfold in the most dramatic fashion"* (pg. 54). Using Edward Casey's analysis of places as receptacles of memory*, where place must be regarded as a keeper of memories like the human body or brain, mind or language, she goes on to say that Fort Kochi's heritage environments (place) are complex and dynamic spaces that house the memories of those that once inhabited them, as well as of those that now traverse them (keeper of memories) (ibid, pg. 57). Within a post-phenomenological framework, the author's experience of Fort Kochi, mediated by his own tools and other digital media, served not only to build upon Casey's ideas, but also immortalized it digitally. It is now possible to virtually revisit these places that are *"intended to*

* In his 1987 work 'Remembering: A Phenomenological Study', Casey proposes, *"memories are selective for place: they seek out particular places as their natural habitats...place is a mise-en-scène for remembered events within its self-delimiting parameters"* (pg. 189).

preserve narratives of the colonial past" (ibid), and relive remembered events via digital media, as well as showcase them to the world – in essence, a curated, post-phenomenological walk through the author's own experiences of space and place in Fort Kochi.

Herein lies the rationale for choosing Fort Kochi, in that it has much to show to the world beyond what is seen on the surface, where colonial history takes on a new form because of, and in symbiosis with "*popular postcolonial memory and interaction with space*" (ibid, pg. 59). Of course, Fort Kochi is, and will continue to remain a popular destination for tourists, both local and from around the world because it always has been one, since the early 1990s. But it is the idea that there is the potential for one to curate one's experiences through reliving histories whilst concurrently living in the moment and defining the future of their Fort Kochi experience that makes the context so compelling, and makes one want to return for more, in the hopes of the next visit being unique and refreshing. It is here that place **awareness** slowly gives birth to place **attachment**, which in turn creates place **memory**. These three concepts form the basis of the penultimate chapter of this thesis: Digital Strategies for Fort Kochi.

DIGITAL STRATEGIES FOR **FORT KOCHI**

In this chapter, a comprehensive proposal for utilising digital media, tools, and policy/strategy shall be discussed, built upon all the information collected and consolidated in the previous chapters of this thesis. The aim of this chapter is to determine how digital media will help improve one's sense of place, specifically in the context of Fort Kochi, as well as to determine the potential of this approach for the future.

5.1 VISION

A sense of place in Fort Kochi using digital media is achieved in the form of a smartphone (or tablet/other portable digital device) application, which forms the unified digital platform where everything Fort Kochi is curated in the form of pure information, curated experiences, data sets, location histories and alternative experiences like AR and games. This sense of place helps create a sense of ownership, which is the overall vision for Fort Kochi, as a place that eventually becomes a performance.

5.2 CONCEPT

Creating a sense of place using digital media in Fort Kochi will be done through an integrated digital platform that combines the features of social, locative, and interactive media. This will be in the form of a smartphone or tablet application that will be provided to users for free. But how does simply having an app that integrates these three categories of media translate into a sense of place?

As alluded to in Chapter 5, a sense of place increases with a person's knowledge and place attachment. Levels of sense of place appear to be "*positively correlated with people's willingness in terms of personal intervention or sacrifice to maintain, protect, or preserve a place's condition*" (Frank, 2005, pg. 591). Within Fort Kochi, this is conceptualized as a three-pronged approach to establishing and improving one's sense of place. The envisioned concept is built on the strengths of **awareness, attachment,** and **memory,** or as the author chooses to call it, the 'Fort Kochi Process'. A detailed explanation on how this concept translates into app usage is as follows:

5.2.1 Awareness:

Built upon exploration as an experience, this is the first step towards establishing a sense of place. The aim is to utilise social media, AR, and advanced photographic methods to document areas or nodes of interest in different parts of Fort Kochi to create a digital repository of different kinds of highly detailed information – something that is presently lacking in the public domain. This repository is made freely accessible so as to allow people to choose and curate their own explorations, which then leads to the creation of new and unique ways of experiencing what Fort Kochi has to offer, particularly on the smartphone app. The repository may also serve as a databank for information on existing problems or public grievances within the area.

Furthermore, exploration can be incentivized through gamification: reward-based exploration games, point collection at participating establishments such as museums, heritage cafes and restaurants, hotels etc. that can be exchanged for discounts or other benefits has the potential to generate interest among diverse groups. This can be extended to the approach outlined in the EnteKochi project whereby digitization is not limited to digital wayfinding, interactive polling, or map-centric participation. Rather, digital media-engagement is now all-encompassing, and a wider section of the population, independent from predetermined actors and stakeholders, can be involved in proposing creative placemaking solutions for Fort Kochi.

5.2.2 Attachment:

The second step in the process, attachment survives on people's sense of ownership of the place and everything they perceive it to be. Wang and Hsieh (2020) describe place attachment as an emotional affiliation between individuals and specific places, and that involvement in outdoor leisure activities can positively influence people's attachment to the places associated with those activities (pg. 22). The aim of this process is to answer the rather subjective question, "Where is **your** Fort Kochi?". In essence, the idea of manifesting the public realm as psychologically *private* will instil a desire to revisit, reimagine, reinvigorate, and most importantly, *remember* Fort Kochi in a more personalised fashion. The app is now the hub of all things 'attachment' related, where people invested in the Fort Kochi Process can get regular updates, keep track of changes, and perhaps even take on leadership or volunteering roles in the different areas where the process is active. Attachment aims to be inherently participatory – its strength lies in engagement. The more the number of people

actively interested in a place, the greater the overall sense of attachment is likely to be. Looking at the role of ARGs in the process, it is seen that places supporting passive engagement were considered the second most popular location for players (Potts *et al*, 2017, pg. 8) and, as mentioned in Chapter 4 of this study, many people were content being in the same location without engaging with other players (ibid).

5.2.3 Memory:

The third and final step in the process is the crux of the approach – it is at this stage that a strong, unshakeable sense of place is created. Now, Fort Kochi is no longer a just a place with a colonial past made evident through its architecture and heritage, but a place where the symbiosis of postcolonial memory and contemporary living is experienced holistically. Memory revitalizes the old identity of Fort Kochi whilst simultaneously imbuing it with a new, modern, more personalized identity – one that creates a sense of Fort Kochi as it exists today.

That said, memory is not exactly a 'step'; rather, it is a 'result'. It is built upon everything outlined in the two previous steps of the Fort Kochi Process. The manifestation of memory is in the analysis of how people use the app, what they do on it, and their decision-making processes. Starting up the app for the first time, the user is prompted to choose where they would like to begin – would they like to start with a pre-planned, highly curated experience? Or would they like to chart their own course, and find their own Fort Kochi? The idea of this approach is rooted in establishing sense of place through the dual concepts of lived memory, and of embodiment, which are described below:

a. *Lived memory* allows users to see others' curated experiences, recommendations, highlights, and avoidances, similar to how it would exist on Instagram, which itself can play a pivotal role in showcasing through Reels (Instagram's own 15-second micro-narrative video sharing platform) what can then be curated on the app, using unique, identifiable hashtags to aggregate all similar reels. For example, one could post a reel featuring the Chinese fishing nets and, among other hashtags use *#fortkochiorma* (*Orma* being the Malayalam* word for 'memory' or 'remember') as one of the identifying tags. Lived memory can host a blend of different kinds of experiences, especially those focused on highly specific themes. One can curate an experience exploring of the best wooden handicrafts that can be found, one can be based on the theme of Urbex (Urban Exploration) that curates

* Malayalam is the language of the state of Kerala.

experiences through old and abandoned structures within the area (with appropriate safety guidelines in place of course. The author did this while visiting the area, as seen in Figure 5-1). It may be possible for the local government to get involved by hosting existing heritage walks, well-known experiences and activities on the app as 'official recommendations'.

b. *Embodiment* makes for a more personal exploratory experience, where there is little to no handholding, instead, users are provided with tools for them to create their own 'memories' which they may then choose to share or curate on the app. That way, a unique set of extra-conventional experiences may be created on the app which can help improve an existing sense of place. As mentioned in the Lived Memory section, highly specific experiences may be created through the use of embodiment. The Urbex example is one of them – Fort Kochi has many abandoned structures that are in various states of disrepair and are often used as places of illicit activity or as shelters by the homeless (the author ran into a pair of homeless people in one of the abandoned structures) as seen in Figure 5-2.

Figure 5-1

Abandoned garages or shops in Fort Kochi.

Source: author.

Furthermore, ARGs can be used to incentivize local exploration. Potts et al (2017) identified that people who explore such areas via ARGs can "*temporarily claim ownership of those spaces through in-game actions*" and that "*the use of landmarks in many ARGs fosters a deeper sense of community and sense of engagement with local areas because it provides a low-cost and somewhat incidental mechanism for players to learn about the history and spatial qualities of the areas they are playing in*" (pg. 7-8). The possibilities of exploration via the Lived Memory approach are limitless and have the potential to be expanded beyond Fort Kochi limits.

5.3 IMPLEMENTATION

Each step in the Fort Kochi Process is localized in the area, depending on what needs to be established. For example, areas that are relatively unknown or don't see much pedestrian footfall/interest need to be tackled with digital strategies in line with the 'awareness' step in order to make the place stand out and get more people to visit it. Similarly, well known places that already see more engagement but don't retain many people will be subject to strategies in line with the 'attachment' step; places that slowly start garnering engagement will also eventually be added to the fold. 'Memory' will automatically

Figure 5-2

Abandoned decrepit buildings in Mattancherry.

Source: author.


Activa

follow, as it is not an active step, but the result of the previously applied steps. Most of the strategies in this step will focus on optimizing and refining existing digital strategies, as well as troubleshooting. A detailed discussion, with examples and localization on the map is as follows:

5.3.1 INCREASING AWARENESS

Tools used: Social, locative, and interactive media.

In this step, areas that are not commonly visited as part of an average trip to Fort Kochi can be determined. The most frequently used streets, and most visited areas are clearly identifiable using publicly available movement data such as GPS traces from OpenStreetMap (map 5-1). Furthermore, social media usage data from SnapMapshowcases areas that see the most engagement in Fort Kochi, as seen in map 5-2. Clearly, the north-western quadrant of the peninsula sees the greatest social media centred engagement. There is also a fair degree of movement around the Mattancherry – Jewish quarter areas of the city to the east as seen in Map 5-1. The areas that see the least amount of movement, and thus generates the least amount of engagement, are mainly towards the middle of the city, especially in the Karippalam, Amaravathy, and Cherlai wards (refer to Map 5-3 on page 71). The Calvathy ward (also on Map 5-3, Page 71)sees a fair degree of movement due to the presence of water-based transit options such as the ferry service and passenger boats to the mainland (as seen in Map 5-1). It can be concluded that inner streets towards the middle of Fort Kochi are primarily used by locals, either on foot, private transit, or autorickshaws (buses cannot enter these streets due to their widths). Main roads that run along the peripheries of Fort Kochi are also fairly heavily used, particularly on the eastern coast (Bazar Road, as seen on map 5-1) by larger trucks and other logistics service vehicles.

Map 5-1

GPS traces of movement in Fort Kochi - Mattancherry

Source: OpenStreetMap (2022)

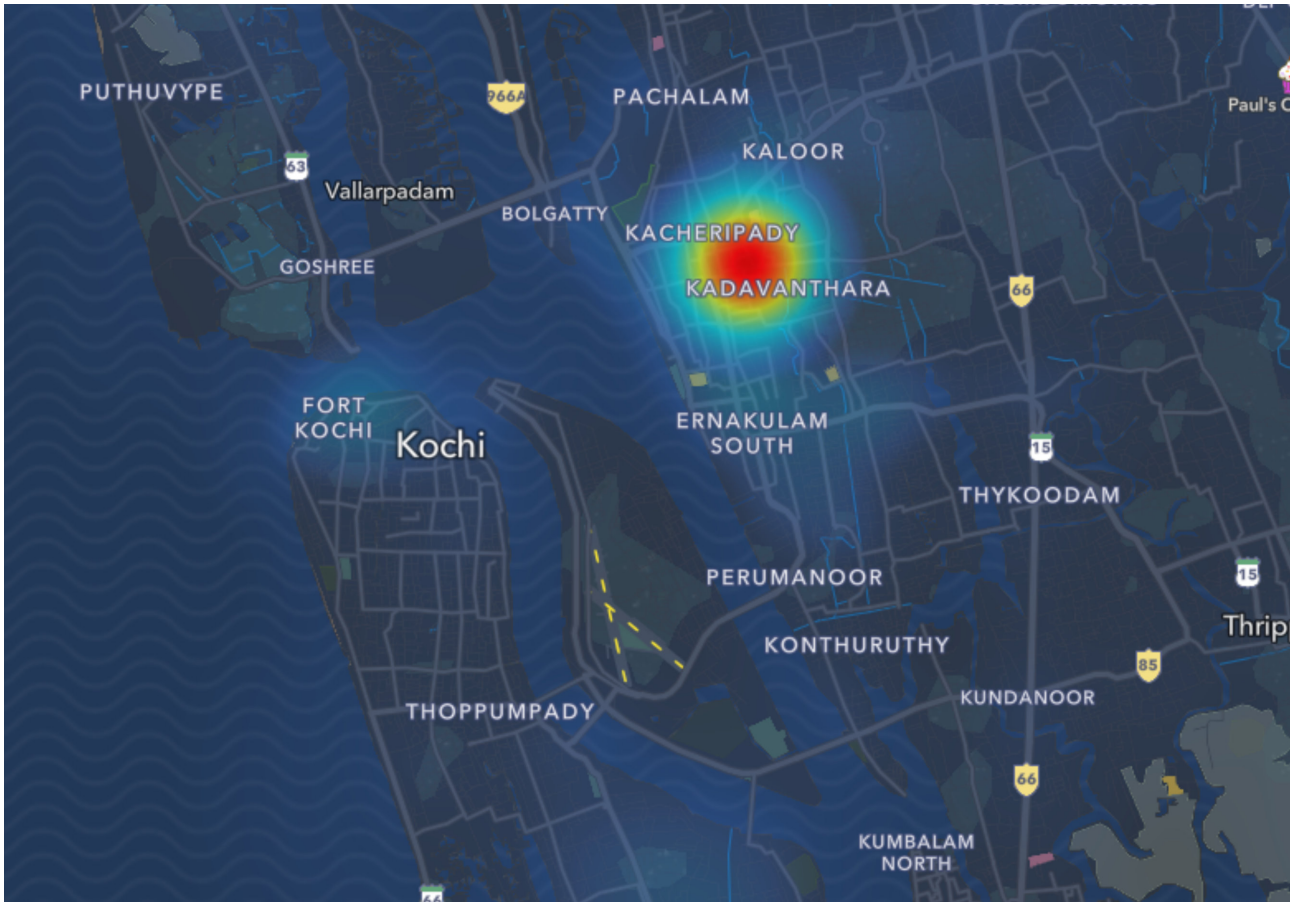
It is beneficial to incentivize exploration of the inner areas of Fort Kochi. On considering the detailed land use map of Fort Kochi (Map 5-4, page 72), it is seen that the land use pattern in the inner wards of Karippalam, Amaravathy, and Cherlai is predominantly mixed use, with some specifically commercial, religious, and institutional use. Open/green spaces, especially those accessible by the public, are few and far between, thus making the area unattractive for everyday tourism and exploration. This makes sense in predominantly residential areas, where there are little to no areas of interest interspersed in the urban fabric. However, within these areas, the author identified several areas of interest that have a great deal of potential for engagement. These are the Tirumala Devaswom (figure 5-3), the canals that snake their way through the heart of Fort Kochi

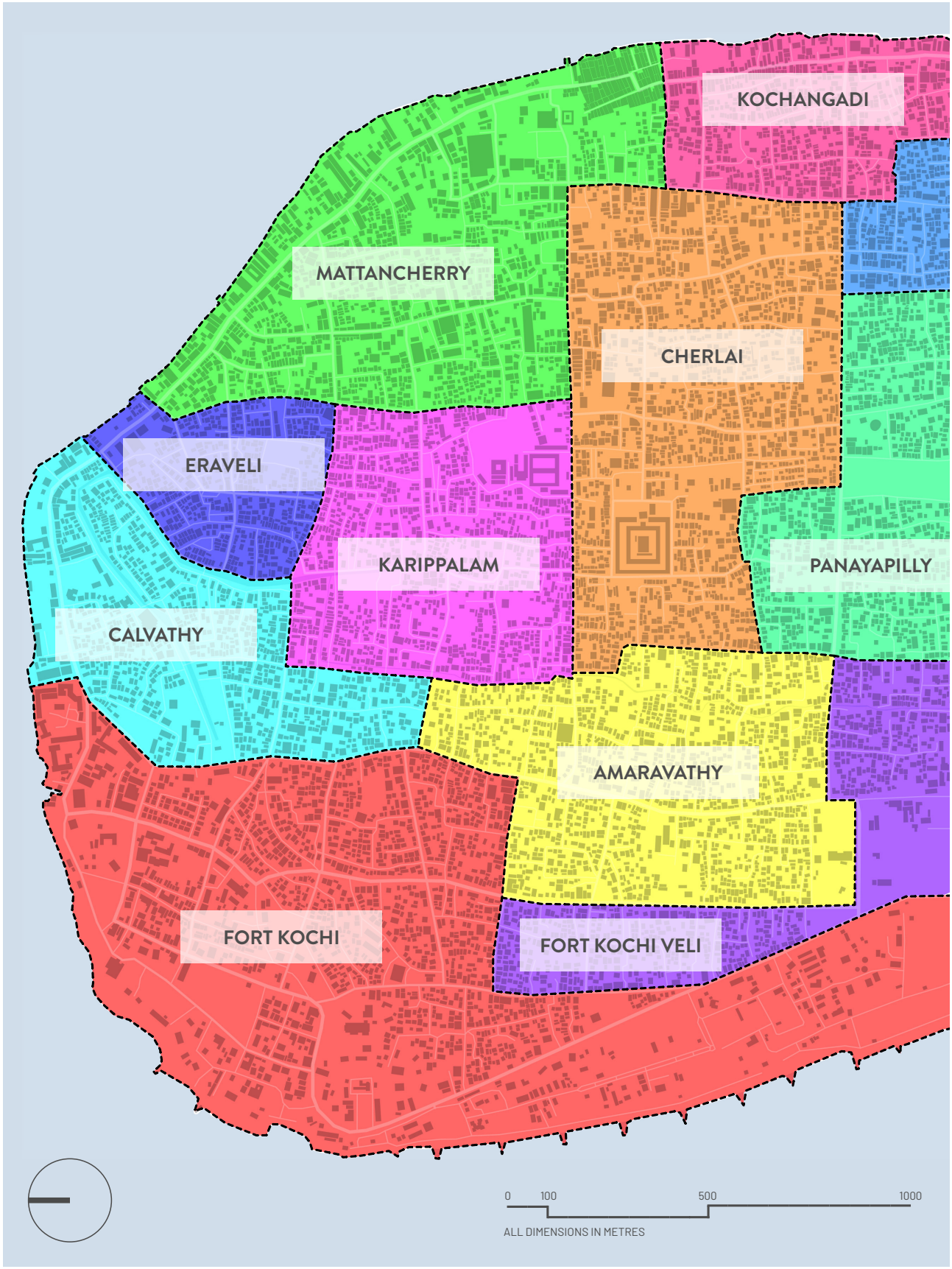
Map 5-2

Heatmap of Snapchat usage as of January 2022, Kochi, Kerala.

Source: SnapMap (2022)


KUNNUMPURAM
AMARAVATHY
GOSRIPURAM
THAMARAPARAMBU
Calvetty Road
Calvathi School Road
Police Station
Taluk Hospital
CP Thodu Road
Kunnumpuram
Pullupalam Road
PM Syed Road
MASS Road
Bazar Road
KITKAT Road
YWCA Road
Kunnumpuram Juma Masjid Road
Muhammed Abdul Rahiman Road
Chirattapalam Road
Chirattapalam
Pattalam Road
A Sivaram Road
Muslim Mahallu Road
New Road
Kockers
Amaravathi
Cheralai Road
Palace Road
T. D. East Sannidhi Road
Chakkamadam Bus Stop
Ajantha Road
R. G. Pai Road
Town Hall Road
Alathukutty Road
St. Jacob road
New Town Road
Amaravathi Road
SS Krishna Road
KB Jacob Road
Mother Teresa Lane
KJ Herschel Road
Bishop Joseph Kureethara Road
Lily Street
Rose Street
Y. N. P Trust Road
Manthra Road
Jawahar Road
Pandikudi
Koovapadam
Veli Road
Wellington Island

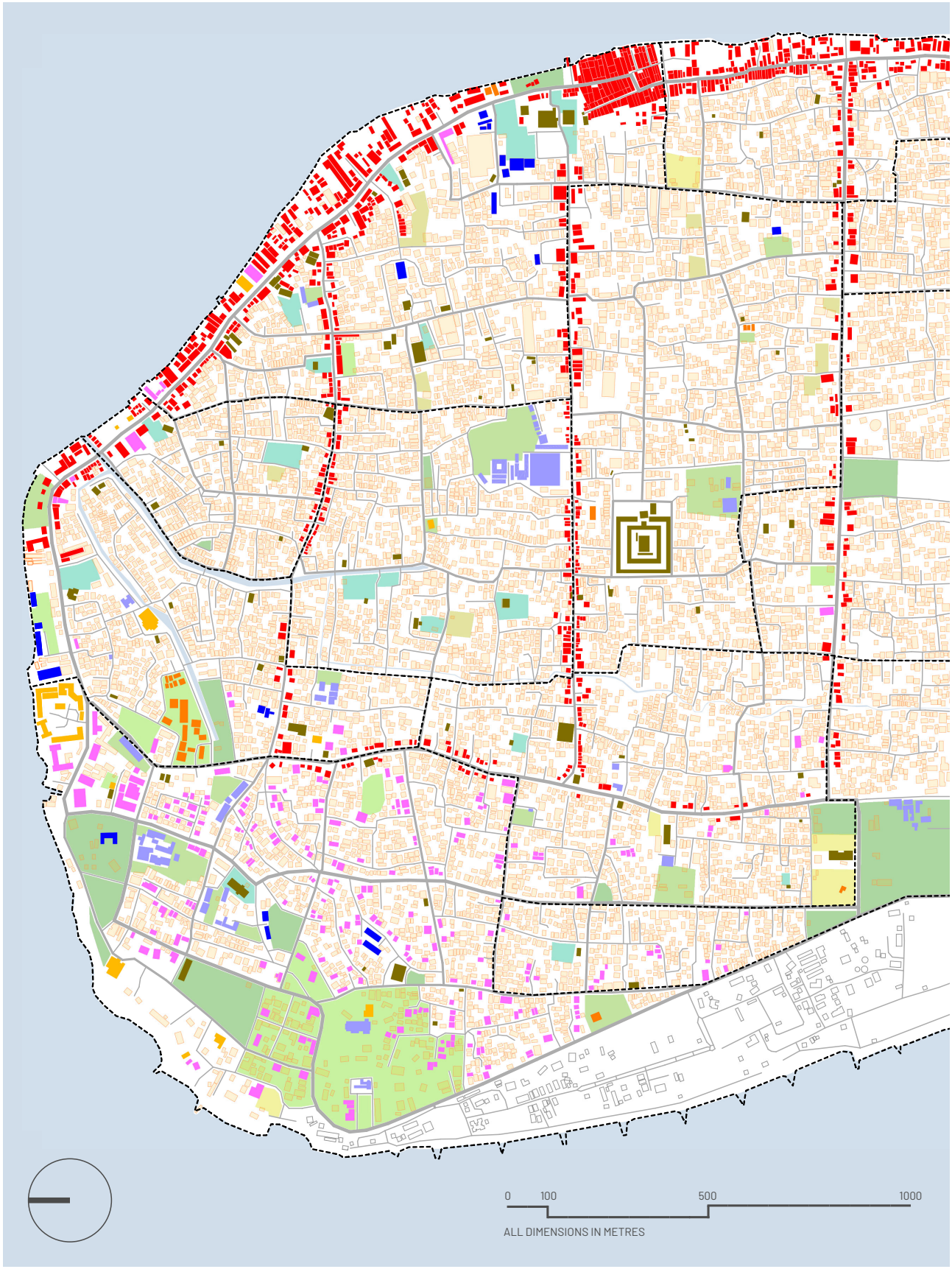

PUTHUVYPE
PACHALAM
KALOOR
Vallarpadam
BOLGATTY
KACHERIPADY
GOSHREE
KADAVANTHARA
FORT KOCHI
Kochi
ERNAKULAM SOUTH
THYKOODAM
PERUMANOOR
KONTHURUTHY
KUNDANOOR
THOPPUMPADY
KUMBALAM NORTH
63
66
15
85



Map 5-3

Ward names and boundaries, Fort Kochi

Source: author, adapted from UD studio, 2018.



Map 5-4

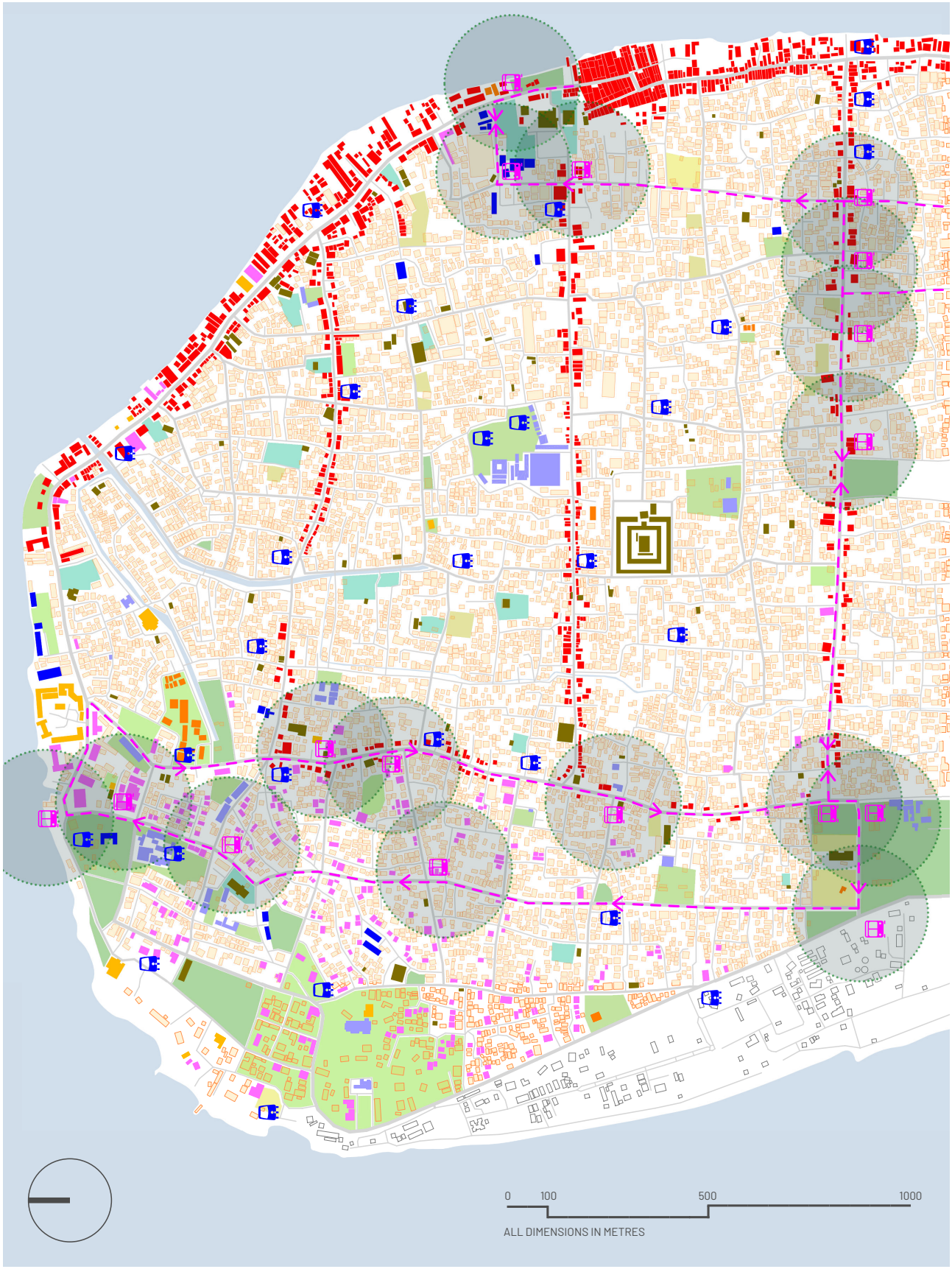
Detailed Land Use map with ward boundaries, Fort Kochi

Source: author, adapted from UD studio, 2018.

Figure 5-3: *Tirumala Devaswom, Fort Kochi.* Source: author.

Figure 5-4: *Canals in Fort Kochi.* Source: author.

Figure 5-5: *Abandoned colonial era structure.* Source: author.



Map 5-5

Detailed Land Use map with existing public transit service routes + 300m radius around each stop, Fort Kochi.

Source: author, from own photograph of 'Kochi Ithile' panel.

(figure 5-4), a host of abandoned colonial-era structures (figure 5-5), and many local restaurants that offer authentic Kerala cuisine at a fraction of the cost of the tourist-zone restaurants' offerings.

One way of incentivizing exploration within these areas is to reward people that do so with simple prizes such as discounts. For example, explorers must scan a total of six QR codes scattered across the area, one each at an area of interest. These QR codes are located on digital panels that offer information on each area of interest (they can also be accessed on the app, but the QR code is not available there). On scanning each code, they are encouraged to follow a certain route to the next code, or they may take a route of their choosing. On collecting all six QR codes, they are awarded a series of coupons or discounts that they may redeem at participating businesses, or share with others, as they choose. Furthermore, at each of these areas, an AR experience showcasing what the area would have looked like during the colonial era will add another layer of engagement to the place that will garner a great deal of interest, especially among people seeking a history-rich experience.

One important aspect of this step is to address the selection of areas depending on at least any two of the following factors:

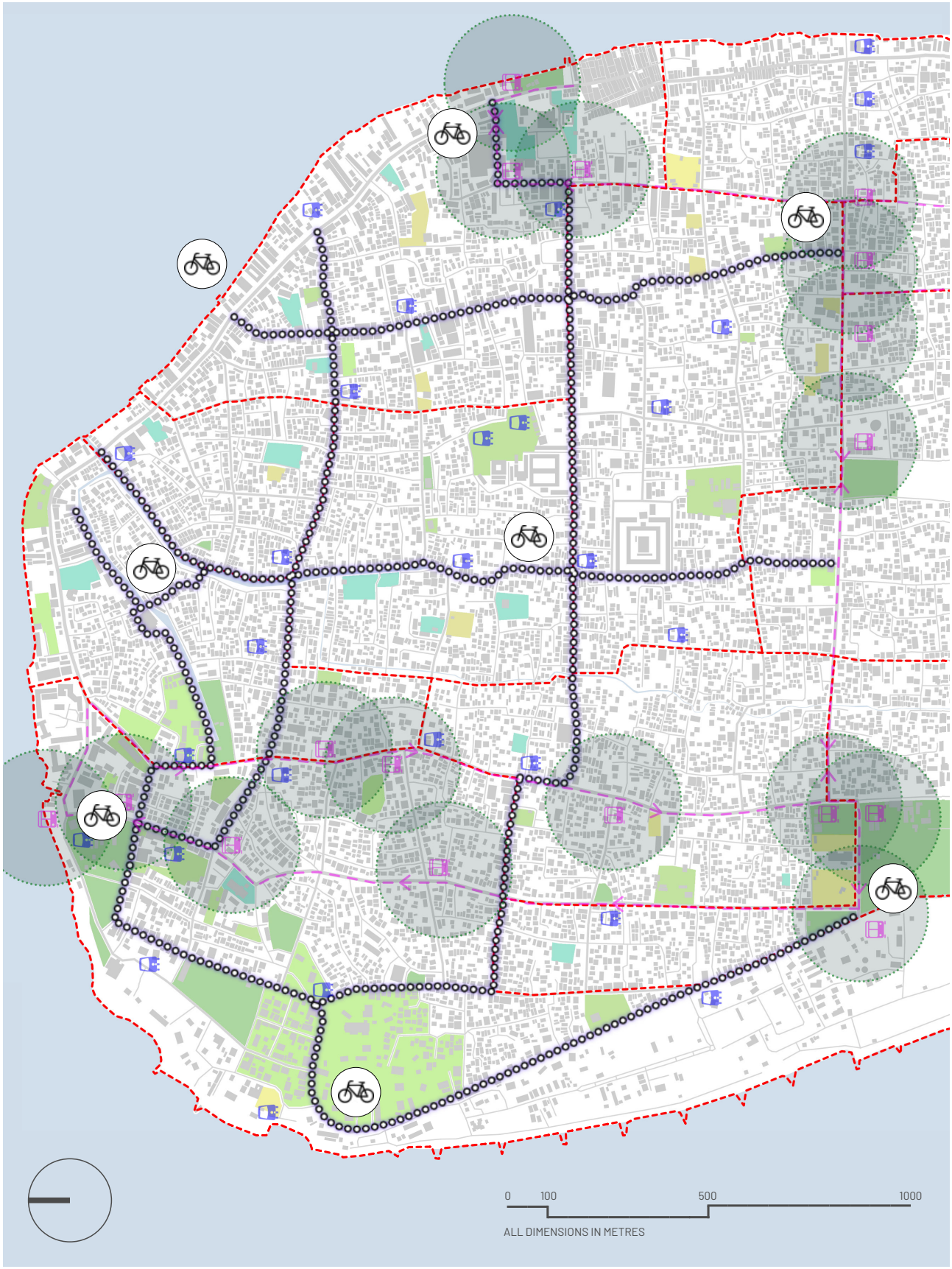
a. They must be more than 300m away (shown in green circles in map 5-5) from the nearest public transit stop.

b. Conversely, there must be at least one interesting landmark of significance within 300m of any public transit/bike sharing hub.

c. There must be at least one publicly accessible green zone in a 300m radius of a place of interest.

d. There must be an autorickshaw stand within 300m of an area of interest (where unavailable, a digital panel with a provision for hailing taxis or autorickshaws may be implemented).

This is done so as to ensure that while exploring, people always have multiple options for transit, as well as rest and relaxation available to them. Whilst according to the US Department of Transportation, the standard walking distance to transit is a five-to-ten-minute walk or roughly between 400 to 800m (Nabors *et al*, 2008), the author has chosen 300m as the maximum comfortable walking distance, taking Fort Kochi weather into consideration, where summers can get oppressively hot, and rain is often torrential. As there is no real winter in Kerala, especially near the shores, humidity and heat make walking in the sun an uncomfortable experience.



Map 5-6

Proposed bike share routes with stops and open spaces, Fort Kochi.

Source: author, adapted from UD studio, 2018.

Next, areas may be filtered on the app based on users' chosen activities, with options made available within 300m of their current location. A few examples include:

a. **Landmarks**: with categories for historical, religious, culturally significant examples, and so on.

b. **Transit options**: Bus, autorickshaw, bike sharing (MyByk for example), water transit options such as the ferry and passenger boat service to the mainland, car sharing and taxis (such as Uber and Ola).

c. **Food and drink**: can filter these based on cuisines, distances, price, and so on.

d. **Rest and relaxation**: this may include accommodation options and green spaces, but can also tie into the previous category of food and drink.

e. **Retail**: near limitless options – clothing, souvenirs, handicrafts, perfumes, incense, spices and so on.

f. **Customize option**: part of the curated experience approach, this allows users to customize how they interact with and experience the environment via the app, and the information it offers.

In each category, users can search for options within 300m initially, and gradually increment the search radius to suit their needs. They may also change search locations, radii, and other parameters based on what they need. In application, this is similar to how Google Maps functions, but localized to Fort Kochi, with more context-specific search functions and features that can utilize AR in wayfinding to the destination of choice.

Another example of how this may be implemented is in how bikeshare stations may be sited in Fort Kochi. As seen in Map 5-5 on page 75 earlier, there are areas towards the middle of the city where there public transit penetration is lacking. Thus, people must rely on autorickshaws or private transit modes for their mobility needs. The lack of public transit affordances also means that there is little to no degree of place awareness towards the middle of Fort Kochi among the non-locals, thereby resulting in a reduced degree of place attachment as well. Furthermore, as there are no incentives to explore the area, local planning and tourism development initiatives tend to leave out the area from tourist-centred development proposals (this is also in part due to resistance from the public towards any larger redevelopment proposals that may involve demolition or evictions).

Map 5-7

Proposed bike share routes with stops and Detailed Land Use map, Fort Kochi

Source: author, adapted from UD studio, 2018.

In order to increase engagement where public transit connections are lacking, a network of bikeshare stations (such as the MyByk bicycle share service as seen in Figure 5-6 below) can be implemented across the inner areas of the city. These can then be geolocated on the digital platform as needed and it allows for easy bicycle rentals across the city, with multiple pick up and drop-off points in the area as seen in Maps 5-6 (page 77) and 5-7. This increases engagement in the inner areas by enabling greater mobility through the areas, especially in neighbourhoods where narrower streets limit large vehicle mobility. Secondly, each bicycle 'hub' will have a digital panel that will offer a range of information on the location, sightseeing opportunities nearby, alternative mobility options, and so on.

The practical advantage of this system is that mobility is greatly improved for both the local population, who now have more mobility options, thereby generating place attachment, and non-locals, who can freely explore these areas and thus acquire a greater awareness of place, resulting in a deeper sense of place.

Figure 5-6

MyByk bicycle, Fort Kochi.

Source: *author.*

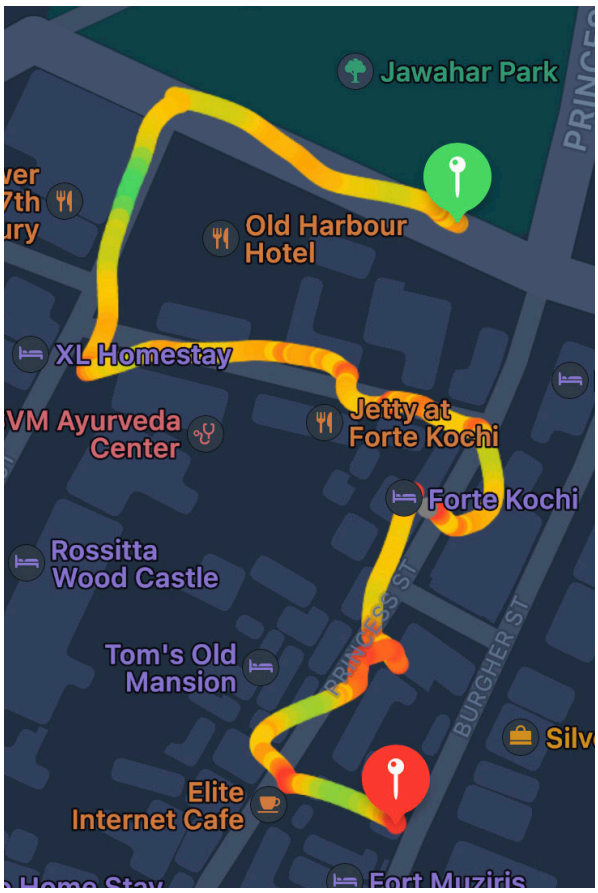


Figure 5-7

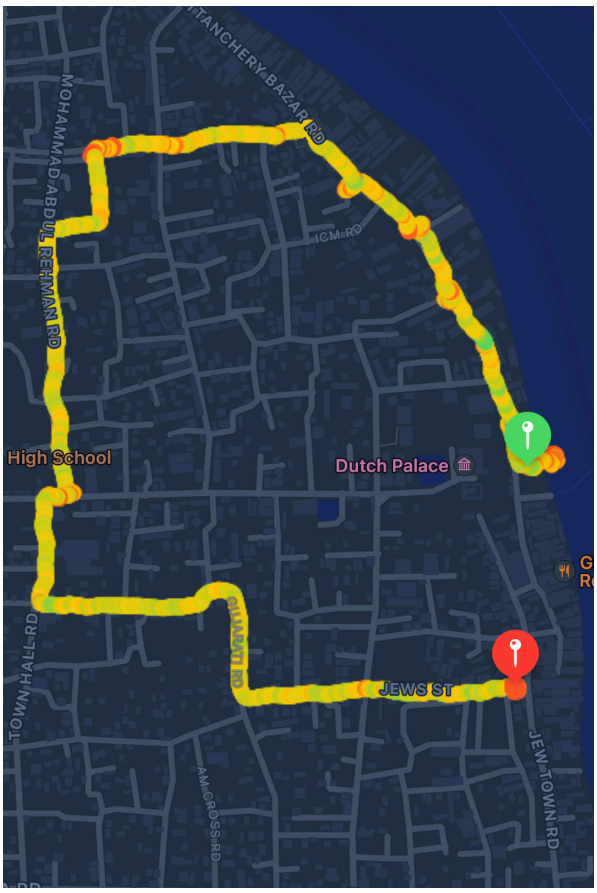


Figure 5-8

Figure 5-9

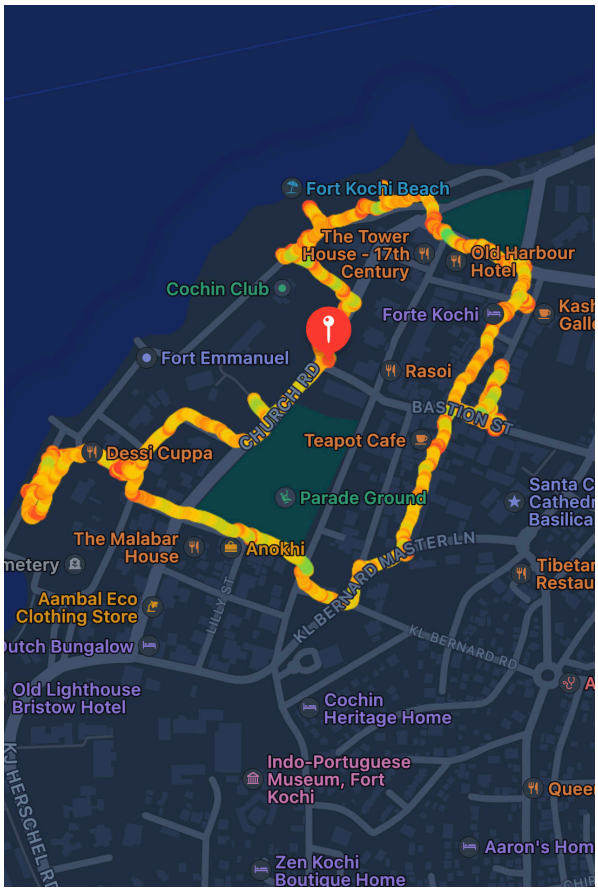
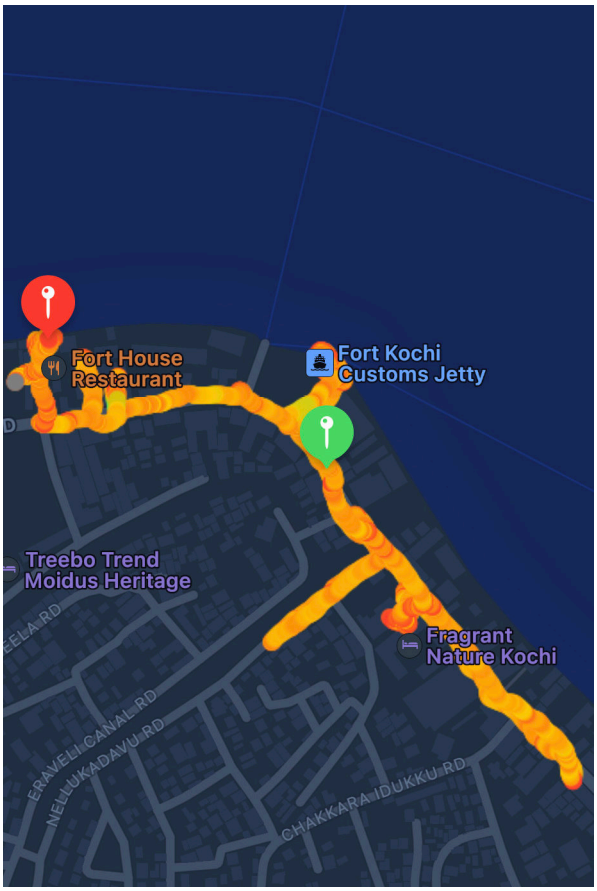


Figure 5-10



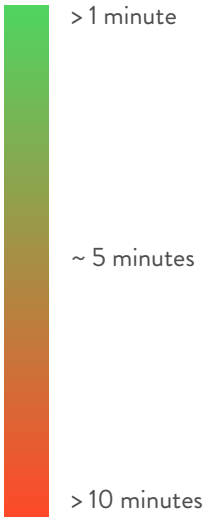
5.3.2 GENERATING ATTACHMENT

To quantify the degree of attachment to a place, it is crucial to have movement information as well as temporal information. Currently available free tracking tools, such as Google Maps' Timeline review only showcases routes taken, and a general idea about the time it took, as well as time spent at the destination. Apple Watch features such as the Fitness app can not only track movement, but also intensity of movement (as seen in Figures 5-7 through 5-10), creating a visual representation of where one spent more time (space with pause), and where one simply passed through (transitional space). Time spent at a particular location may also be visualized as a heatmap, as shown in the 'time spent at spot' scale. It is thus possible to integrate temporal tracking along with location and route choice. Implementing this on the app during mapping will help determine which spots in Fort Kochi generate a greater degree of attachment to place.

Figures 5-7 to 5-10

Apple Watch logs, tracking routes + duration of movement and pause in different spots in Fort Kochi.

Source: author.



Secondly, on the app, curated experiences that showcase activities involving areas other than the well-known, well-visited spots of Fort Kochi can help draw in more people and generate attachment via a well-developed sense of place awareness. The uniqueness of the experience is key here: the aim is not to make less visited areas as crowded as the well-known ones, but to instil a sense that 'this is *also* Fort Kochi'. This can be achieved by curating a series of unique or alternative experiences that target people of diverse interests, such as Urbex, street photography, religious tourism, and so on.

A greater degree of place attachment can also inspire the local population to showcase their neighbourhoods as distinct in creative ways. It will also inspire them to keep it clean, provide impetus to maintain it, as well as highlight safety issues and deficits in infrastructure. It can also be used as a conduit to propose and promote locally beneficial initiatives, such as cleaning up the Fort Kochi canal system, which will see a great deal of engagement online, and may lead to an increase in volunteering and cooperation. One way of achieving this is via interactive media such as Minecraft, which can also be used by the local population, in collaboration with the planning department/research teams/universities, to showcase how revitalization projects might be undertaken and thus establish a sense of place for the canal in the future.

This expanded outreach can also be used to connect with other app users and highlight popular suggestions for improvement and visitation. This could be done via AR tours of the area where historical versions of Fort Kochi may be experienced using the AR experience.

5.3.3 RE-LIVING MEMORY

As stated earlier, this stage is a result of the digital strategies implemented during the awareness and attachment stages of the Fort Kochi Process. Memory exists through the app, as curated experiences created by people, made for new users to discover new ways of experiencing Fort Kochi, or for the creators themselves to relive their experiences and perhaps create new ones. At this stage, all that needs to be done as far as digital strategies are concerned is periodic optimization, refinement of the app, and troubleshooting any problems, bugs, or glitches in the operation of the app.

The memory stage is where the digital platform is now a reliable repository of data on Fort Kochi, where new users can get enriching experiences at their fingertips, built on a robust and highly complex database, whilst returning users can constantly update information about the place, thus transforming Fort Kochi entirely – it is no longer just a *place* or a *city*, rather it is a *performance*. Digital media is now an intrinsic part of the city and how its inhabitants, permanent as well as temporary, go about experiencing it. Social engagement is amplified and can also bleed into other established channels such as well-known social networking services, locative media services and so on. Memory ensures that the locals have an opportunity to showcase their identities to the public and garner interest in local affairs from within and outside their communities. For example, the use of Minecraft as a media that can enable a sense of place was examined in Chapter 4. If it were to be used as a means of communicating local initiatives, such as canal revitalization (as seen in Figure 5-11), it is likely to haev far-reaching benefits in the long run, as it will allow the locals to get creative on Minecraft during the attachment phase, and develop new ideas for the area which then inspires greater involvement and collective ownership of the place in the memory phase. Furthermore, always knowing where one is, due to the ubiquity of digital panels and locative media affordances, as well as having a sense of security in knowing one is never really lost anywhere in Fort Kochi, a sense of place is established.

Figure 5-11

Minecraft used as a tool to convey canal revitalization ideas, Fort Kochi

Source: author, generated using Minecraft Java Edition,

Arriving at memory will take a long time and rely on users to constantly feed the app information on the place. It is thus the most difficult phase to reach, in that there is no real guarantee that many of the results of the awareness and attachment steps will be reached (discussed in detail in the Advantages and Disadvantages section below). The results envisioned here are essentially best-case scenarios, should everything fall into place and happen as intended. But what is important is that the sense of place that is generated is now augmented by a sense of ownership and pride in places that have

fostered a great deal of attachment. This results in the creation of new landmark spots, areas of experience and interpretation, as well as a general sense of contentment with the place as it exists, whilst also inspiring thoughts on how it may be improved and made even better.

5.4 USER GROUPS

What section of the population is this digital platform aimed at? Who *needs* a sense of place? Throughout the process of implementation, it is important to consider the answers to these questions, as understanding the different types of users/user groups will significantly influence the implementation strategies described earlier. The broad range of user groups that can use the app are as follows:

a. **Tourists**: Whether local/domestic or international, tourists are the primary demographic that the app is aimed at. Having a unified digital platform that can help them find something that is not a part of existing Fort Kochi tourism itineraries, not get lost whilst exploring, and enjoy a highly curated experience will be beneficial to any tourist that wishes to have complete control over their travels.

b. **Specific types of visitors**: These include people coming to Fort Kochi for highly specific reasons, such as photographers, filmmakers, travel vloggers/YouTubers, social media influencers, newlyweds looking for places where they can get photoshoots done, students and researchers working in the fields of architecture, planning, development, real estate, etc., among others.

c. **Locals looking to get involved**: People living in and around Fort Kochi can use the platform as a conduit that enables participation in community/neighbourhood affairs, take part in existing initiatives or help organise new ones. The app can help the local population stay informed about any new happenings or developments in their neighbourhoods by providing them with real-time information that is generated by other app users.

d. **Local business owners**: For shop owners, homestay operators, and other local businesses, the app is a useful means of promoting themselves and their services free of charge. Greater online engagement will translate into more customers for these businesses. Furthermore, considering pandemic regulations limit in-person contact, the app can allow them to sell their goods/

services online as well.

e. **Public transit service providers**: One of the key uses of the app is its integration with public transit services, allowing users to determine how to get around Fort Kochi with ease, what transit choices they have, where to find the transit hub that's closest to them, and much more. A future update may also see payments being made via the app, thereby eliminating the need for cash-based transactions in public transit entirely.

f. **Local municipal authorities/government**: Finally, all the user-generated data contained in the app can be made available to the municipalities/local governments, which can then use the information to make much more informed developmental decisions that take public opinion into account. The app also provides the government a platform for communicating with the public, inspiring participation in local affairs and increasing cooperation between themselves.

At this point, it is prudent to ask, how does the app help users? To begin with, real-time information is available at users' fingertips, allowing them to make informed decisions and stay updated all the time whilst exploring, or simply living in Fort Kochi. For tourists, the app is the perfect exploration tool, providing up-to-date information on all well-known landmarks, and reliable information on places that aren't well-known landmark destinations. YouTubers and travel vloggers can use the app to curate their exploration routes, while also reaching out to audiences well outside Fort Kochi and Kerala, perhaps even outside India. These routes can then be used by their subscribers to follow in their footsteps. For students and researchers, especially architecture students, the app is a goldmine of information: data that was once unavailable in the public domain, such as reliable historical information on old buildings, photographs and/or other relevant information useful for students' work in the field can be cumulatively made available on the app. This becomes a data bank for future students coming to the area on study tours or for field research trips. These are just a few examples, but it is clear that there are several benefits to be had by creating a unified digital platform that essentially becomes a digitized version of the entire city of Fort Kochi. And thus, it can be concluded at this juncture that digital media has helped establish a sense of place in Fort Kochi in the following ways:

a. **Spatial changes**: Improving users' spatial experience by providing them incredibly detailed information on the location,

such as sightseeing options, transit, food and drink choices, shopping affordances, as well as curated content such as things to see that are off the beaten path, unique experiences not listed in any existing travel guide or itinerary, and much more,

b. **Relationship to place**: Creating opportunities for place awareness that leads to place attachment, especially among the local resident population, creating a sense of ownership of the place,

c. **Open-ended usage**: Focusing on the users' needs from the moment of implementation by allowing them to determine the nature of their own experiences whilst giving them all the support they may possibly need,

d. **Identity factor**: Reimagining Fort Kochi's postcolonial identity in conjunction with a contemporary, 21st century identity built upon a greater degree of awareness, attachment, and memory,

e. **Cooperation**: Fostering teamwork and better dynamics between the public and governing authorities that is built upon the strength of participation and inclusivity via the digital platform.

5.5 ADVANTAGES AND DISADVANTAGES

The Fort Kochi Process benefits a wide section of the local as well as non-local population of Fort Kochi in many different ways. To begin with, the awareness, attachment, memory approach taps into several fundamental areas that could stand to be improved using digital media. This is not to say that conventional planning approaches sans a digitization component cannot achieve these goals, but the motivation for doing so is limited, and not many examples exist that cover a wide gamut of user groups, nor is the focus primarily human experience centric. Some of the different advantages of the Fort Kochi approach are outlined below:

a. The Fort Kochi process clearly establishes a sense of place utilizing digital media, which augments the existing, more analog sense of place that exists here in the form of Fort Kochi's identity as a postcolonial heritage town known solely for its history, a few sightseeing affordances, the Chinese fishing nets, and precious little else.

b. The implementation of the process is a highly inclusive, bottom-up, people's-experiences-first approach, thus setting it apart from conventional, top-down planning approaches that often disregard

the end user's needs and experiences.

c. There is a visible improvement to the image of the city, which has a positive impact on the local economy. As stated in the user groups section on page 85, local businesses that establish a presence on the digital platform stand to benefit from greater engagement, as well as more flexibility in offering their services, even during lockdowns or when pandemic regulations prohibit in-person business.

d. engagement, as well as more flexibility in offering their services, even during lockdowns or when pandemic regulations prohibit in-person business.

e. The Fort Kochi process will augment existing development initiatives featuring a digitization component, such as the EnteKochi project, and the Kochi Ithile initiative.

f. The Fort Kochi process is inherently modular – in different contexts, simply change the input parameters, that is the type and scope of digital media as required, apply it to the new context, and achieve a digitally mediated sense of place anywhere in the world.

g. The digital platform is easy to implement in today's rapidly digitizing world, where everything is slowly shifting online, coupled with an ever-increasing degree of smart device ownership.

h. The app will allow for extremely comprehensive data collection that is entirely user-generated. Governments can utilize this data to make informed planning decisions in cooperation with the public that is the owner of this data, thus fostering a great deal of cooperation and participation.

i. Fort Kochi's identity is now greatly improved and made prominent on the world stage.

Of course, it is not possible that the digital approach does not come with its share of challenges and disadvantages. While mostly related to the unpredictable nature of technology and human nature, some of the key disadvantages of the approach are listed below:

a. Technology, in particular digital technology, is the most rapidly evolving field of innovation today. This means that the integrated digital platform solution will become obsolete very quickly and

will need constant upgrades throughout its life cycle.

b. Costs for implementation can be extremely high if not managed properly. Acquiring, operating, and maintaining storage space and secure servers will increase operating expenses.

c. Perhaps the biggest disadvantage is public resistance to the idea of a unified digital platform, for reasons of privacy and security, added distraction in and subsequent disconnect from the real world, likely accidents due to people not paying attention to their surroundings, as well as resistance to the idea of greater proliferation of digital media in everyday life.

d. Building upon the previous point, digital media is not a substitute for real world experiences, and the approach thus acquires dystopian, metaverse-esque undertones.

e. Pushback from users of social media apps as an unnecessary when established digital platforms exist, even if they are not integrated solutions.

f. The need to regulate app use, implementing failsafe protection against data theft, hacking, as well as against other malicious intentions.

5.6 POLICY/STRATEGY CHANGES + IMPLICATIONS

"*There are primarily two types of urban policies*: *those that encourage economic development, and those that provide a stable environment for those areas and people left behind*" (Wang, 2018, pg. 6072; adapted from Hanson, 1983). Does the digital approach necessitate change in urban policy concerning Fort Kochi? Perhaps a creation of a third type of urban policy that deals with digitization in the urban environment? Whilst any form of digital media, social, locative, or interactive, does not directly impact how urban policy is formulated, it does offer insights for planning future smart cities, where policy recommendations aimed at regulating what goes on in the digital realm acquires much greater significance than it does presently. This could mark the genesis of a series of digital-urban policies that target the physical and digital contexts simultaneously.

Wang (2018) also states that "*because of the complex nature of urban problems to which urban policies are expected to be applied, there is hardly one urban policy that fits all scenarios, and there is little shared understanding about what constitutes urban policy*" (pg. 6070), and that

"*national or local urban policies have transformed, driven by the rapid process of globalization*" (pg. 6076). It is prudent then to discuss the implications that digitization will have on urban policy at the local level before extrapolating it to the national level. For Fort Kochi, digitization is likely to impact the following areas of local policy:

a. Existing policies pertaining to local planning/development, wherein increased levels of public participation become more important in the planning process. As the digital platform exists because of entirely user-generated data, it stands to reason that the public has a say in the usage of the data that they generated in effectuating real-world development. This ensures that relevant local policy is framed that makes planning a bottom-up, rather than a top-down approach.

b. Existing laws and policy regarding data security, privacy, and online safety, wherein robust data protection and preventing misuse of the digital platform is considered. This may involve amending existing Information Technology (IT) laws, by adding clauses that safeguard against misuse of generated data, as well as policies dealing with the mitigation of data theft.

c. Policies regarding the improvement of public infrastructure, wherein the aim is to encourage greater exploration throughout the city and providing adequate physical and digital infrastructure wherever needed. Furthermore, potential impediments to the process, such as local byelaws, coastal regulation zoning laws, and municipal laws regarding infrastructure development should be considered for revision.

d. Policies pertaining to the role of public transit in the area, especially with regard to established payment processes. Increased digitization due to the pandemic has already seen online payment methods being widely adopted in even the smallest of businesses in the Fort Kochi area. It is time that payments for public transit was also shifted online in order to fully integrate it into the digital platform.

e. Policy regarding the presence of businesses on the digital platform, wherein established economic policies may be amended as needed to cater to the requirements of smaller businesses garnering engagement online, as well as conducting transactions online.

f. Policies pertaining to digitizing events and perhaps entire places

themselves, such as the Kochi Muziris Biennale. Special permissions may be granted to host digital events, especially ones that use AR, so that the organisers' spatial needs may be met as required. For example, restricting vehicular access on a street where digital art may be displayed as part of an open-air-virtual exhibition.

These are just a few policy implications that may come about as a result of the digitization process. While economic policy implications, especially concerning stakeholders in the app's creation and implementation process are important to consider, a detailed discussion on the topic is outside the scope of the thesis and shall be considered as relevant for future research. The next, and final chapter of this thesis concludes the study, discusses results, potentials and implications, as well as avenues for further research.

chapter 6

CONCLUSION

As human life (in fact, it is safe to say 'humanity' at this juncture) slowly but surely shifts online, with every passing day bringing with it innovations in virtual experiences, the dematerialisation of human existence seems almost inevitable. People are now wholly dependent on some form of digital media in nearly every aspect of their lives: people maintain their social lives online, almost everything ranging from food and drink to real estate can be ordered online. The sum total of human existence can be stored on digital storage media. In cities, digital technologies and media are often the cause of increased levels of 'displacement'. As stated in the introduction, Margaret Morse's concept of the partial loss of touch with the here and now is exemplified by city life, which is made ever more chaotic and distracted because of digital technologies, thereby eliminating a sense of place. This seems strangely contradictory, in that most modern digital media aims to improve people's quality of life one way or another. Sense of place also improves quality of life, as people feel more in sync with their environment when they possess an unshakeable sense of place. With that said, is it possible that existing and emergent digital media can 'place' rather than 'displace' people? Can digital media help create a sense of place?

The short answer to this question is a simple yes. The long answer on the other hand necessitated an investigation into first defining space and place, understanding the relationship between the two, as well as the nature of human-world connection, before introducing digital media into the fold. It is not enough to say that sense of place can be established by simply analysing usage patterns of different digital media in an attempt to generate conclusive data on sense of place. The extremely subjective nature of human experience necessitates a different approach, one that is more philosophical. Existing research and scholarly thought that deals with human experience can be found in the concept of phenomenology, which aims to quantify human experience. This was followed by the relatively more recent concept of post-phenomenology, which focused on understanding the mediated nature of human-world relations. In this thesis, digital media assumes the role of the mediator (in line with post-phenomenological thought) and its role in establishing a sense of place was examined in detail through a series of case studies. This also legitimizes the importance of a sense of place as a human experience, and its relevance in the urban realm, as well as creating the theoretical framework for this thesis.

In these case studies, different kinds of digital tools, media, and applications were examined. Their applicability in the context of Fort Kochi was determined by way of desktop research on Fort Kochi, as well as on-site data collection by the author in December 2021. The media chosen were sorted into three categories: social media, locative media, and interactive media such as AR and video games. Under social media, the use of Instagram in two different scenarios was examined in order to understand the use of social media as a placemaking tool. Two digitally immersive exhibits, namely the Cooper Hewitt Smithsonian Design Museum and Borderless, an exhibition by teamLab, were considered, in part due to their immediate relevance to the kind of spaces that would be found in the Fort Kochi context (its postcolonial heritage could be seen as a city-scale museum, followed by the Kochi Muziris Biennale for the art). For locative media, the use of digital wayfinding panels and integration of social and locative media via Snapchat were examined as they fulfilled both data collection and presentation roles. Snapchat was an example of how a social media use can be geolocated to gain information on where users choose to use the app, and the use of digital wayfinding panels as a source of both location information, as well as historical or culturally interesting information about the specific location. Finally, for interactive media, the use of AR experiences such as Pokémon Go, and the massively popular video game Minecraft were examined as potential placemaking tools. Pokémon Go in particular was a useful example that quantified users' spatial preferences while using the app, clearly defining what they appreciated as opposed to what they felt was unnecessary. Minecraft on the other hand was an example that showcased its potential to enable participation and cooperation in community building and forging a collective sense of ownership of real-world spaces via actions in the virtual world. This section determined what constitutes placemaking, as well as the current state of knowledge in the field of placemaking using digital media. The next step was to contextualise all the information and propose a suitable set of digital strategies aimed at establishing a sense of place.

Fort Kochi is known for its rich postcolonial heritage and diversity borne of its multicultural demographic. As stated in Chapter 5, it is home to a significant portion of all major tourist spots in the Kochi Metropolitan Region, hosting visitors from both India and abroad. Some of the major attractions include the St. Francis Church, the Chinese fishing nets, the Dutch palace and cemetery, the Kochi Muziris Biennale, to name a few. Existing development and heritage conservation projects in Fort Kochi that feature a digitization component include the EnteKochi project by the KMC, GIZ, Urbanista, and Urbz, as well as the Kochi Ithile digital wayfinding

platform project, also by the GIZ, WRI-India, KMR, and C-HED. In addressing some of the shortcomings of these initiatives, a vision for achieving a digitally mediated sense of place was formulated, which involved using the categories of digital media defined earlier in enabling a sense of place through place awareness, place attachment, and finally place memory. A bottom-up, people-first approach was the most important aspect of the implementation of these strategies, so as to distinguish them from existing top-down planning processes.

The vision for Fort Kochi was to create a sense of place using digital media, which leads to an evolved sense of ownership and transforming the image of the city as a performance rather than just an urban environment. This was achieved by proposing the creation of a unified digital platform, an app for smart devices that integrated social, locative, and interactive media features that would then become a mediator of people's experiences in Fort Kochi. The approach hinges on the strengths of place awareness, attachment, and memory (called the Fort Kochi Process by the author). App users start creating a repository of information on Fort Kochi that is usually unavailable in public domain (for example on Google Maps). On the app, this is presented as location information which makes more people aware of new possibilities of exploration (awareness). Incentivizing exploration by gameifying the exploration process that results in small rewards for app users will be beneficial. This, in turn, generates real-world engagement with these new places, which increases people's attachment to them. A good example of a manifestation of place attachment is when people express a desire to revisit places that had an impact on them, increased levels of community volunteerism and the proposal of local initiatives aimed at place maintenance and upkeep. Finally, memory is the most advanced stage of the Fort Kochi process and is the result of the awareness and attachment steps undertaken previously. At this juncture, a sense of place has already been achieved through repeated cycles of awareness and attachment. Memory is where the use of digital media in establishing a sense of place helps people perceive Fort Kochi as a performance rather than a city or just another built environment with some heritage roots. There is a well-developed digital wayfinding network that works in tandem with other locative media affordances such as AR navigation, social media engagement for real-time updates, and a strong sense of identity no matter where one is in Fort Kochi. Furthermore, at this stage, user-generated data curated on the app is available to the app users, the public, as well as the government. Local municipal authorities or local governments are now able to utilise the app in order to make informed decisions based on the public's input, thus making planning processes more democratic, and promoting participation and inclusivity at all levels.

It is now possible to conclusively answer the main research question of this thesis. A few advantages of this process include the improvement of the image of the city due to a refined sense of place, augmentation of existing developmental initiatives that contain a digitization component, the modularity of the approach, and potential for government-public cooperation. Key drawbacks include public resistance to the idea due to privacy/security concerns, the need for strict regulation aimed at preventing misuse of the app, as well as the likelihood of technological obsolescence in the future.

To conclude, yes, existing, and emergent digital media can enable a sense of place via the methods described in this study. In Fort Kochi, this may be achieved through the use of a unified digital platform, deployed as an app for digital devices such as smartphones, tablets, laptops etc, integrating features of social, locative, and interactive media to create a sense of place by improving the spatial experience, creating and nurturing new relationships with places, allowing open-ended usage of the app to create personalized experiences, reimagining Fort Kochi's postcolonial identity, and fostering greater degrees of cooperation and participation.

6.1 FUTURE RESEARCH POTENTIAL

This thesis opens up possibilities for further research in the fields of urban digitization outside of the existing discourse on smart cities or the inevitably digital future of cities. Rather, it brings the spotlight back on the cities' inhabitants, and how digitization may be used to improve their lives. More research may be done on how this approach may be integrated into existing initiatives across the globe, where digitization is a key aspect of planning and/or public policy. Within the framework of projects being undertaken in Fort Kochi, this approach can add more nuance to digital processes that enable public participation. And while it is not possible to cover every single aspect of how digital media may be used in effectively fostering a sense of place, this study highlights key areas in the discourse that may benefit from further research, such as security and privacy implications of digitization, the actual implementation of the app sometime in the future, as well as more nuanced policy implications that may be useful in future smart city planning.

THE END

REFERENCES

Abdel-Aziz, A. A., Abdel-Salam, H., & El-Sayad, Z. (2016). The role of ICTs in creating the new social public place of the digital era. *Alexandria Engineering Journal*, 55(1), 487–493. https://doi.org/10.1016/j.aej.2015.12.019

Adams, S. (2007). Introduction To Post-Phenomenology. *Thesis Eleven*, 90(1), 3–5. https://doi.org/10.1177/0725513607079247

Al Balushi, A., Hoppmans, E., Kucharski, V., & Schwab, L. (2020). *Rethink, Restart, Recover, Resilient-Pandemic and Cities*: *A data-driven communication platform for spatially just planning in the Amsterdam Metropolitan Area* (Chair and Institute of Urban Design and European Urbanism Integrated Project III: Networked Urban Systems in Europe). RTWH Aachen.

Álvarez, R., & Duarte, F. (2018). Spatial Design and Placemaking: Learning From Video Games. *Space and Culture*, 21(3), 208–232. https://doi.org/10.1177/1206331217736746

Beidler, K. J. (2007). *Sense of Place and New Urbanism*: *Towards a Holistic Understanding of Place and Form* [PhD Thesis, Virginia Polytechnic Institute and State University]. Available at: https://vtechworks.lib.vt.edu/handle/10919/27571 accessed [01.01.2022].

Bilandzic, M., & Foth, M. (2012). A review of locative media, mobile and embodied spatial interaction. *International Journal of Human-Computer Studies*, 70(1), 66–71. https://doi.org/10.1016/j.ijhcs.2011.08.004

Broschart, D., & Zeile, P. (2015). ARchitecture: Augmented Reality in Architecture and Urban Planning. In E. Buhmann, S. M. Ervin, & M. Pietsch (Eds.), *Peer Reviewed Proceedings of Digital Landscape Architecture* 2015 *at Anhalt University of Applied Sciences* (pp. 111–118). Herbert Wichmann Verlag.

Budge, K. (2018). Visitors in immersive museum spaces and Instagram: Self, place-making, and play. *The Journal of Public Space*, 3(3), 121–138. https://doi.org/10.32891/jps.v3i3.534

Bürklin, T., & Peterek, M. (2021). Beyond Beauty or Urban Design of Responsibility. *Technical Transactions*, 118(1), 1–12. https://doi.org/10.37705/TechTrans/e2021020

Buttimer, A. (1976). Grasping the Dynamism of Lifeworld. *Annals of the Association of American Geographers*, 66(2), 277–292. https://doi.org/10.1111/j.1467-8306.1976.tb01090.x

Carozza, L., Tingdahl, D., Bosché, F., & van Gool, L. (2014). Markerless Vision-Based Augmented Reality for Urban Planning. *Computer-Aided Civil and Infrastructure Engineering*, 29(1), 2–17. https://doi.org/10.1111/j.1467-8667.2012.00798.x

Casey, E. S. (1993). *Getting Back into Place*: *Toward a Renewed Understanding of the Place-World*. Indiana University Press.

Chen, N. C., Hall, C. M., & Prayag, G. (2021). *Sense of Place and Place Attachment in Tourism*. Routledge. https://doi.org/10.4324/9780429279089

Choudhary, N., Guatam, C., & Arya, V. (2020). Digital Marketing Challenge And Opportunity With Reference To Tiktok-A New Rising Social Media Platform. *International Journal of Multidisciplinary Educational Research*, 9(10(3)), 189–197.

Cipollone, M., Schifter, C. C., & Moffat, R. A. (2014). Minecraft as a Creative Tool: A Case Study. *International Journal of Game-Based Learning*, 4(2), 1–14. https://doi.org/10.4018/ijgbl.2014040101

Cirulis, A., & Brigmanis, K. B. (2013). 3D Outdoor Augmented Reality for Architecture and Urban Planning. *Procedia Computer Science*, 25, 71–79. https://doi.org/10.1016/j.procs.2013.11.009

Cornelio, G. S., & Ardévol, E. (2011). Practices of place-making through locative media artworks. *Communications*, 36(3), 313–333. https://doi.org/10.1515/comm.2011.016

de Andrade, B., Poplin, A., & Sousa de Sena, Í. (2020). Minecraft as a Tool for Engaging Children in Urban Planning: A Case Study in Tirol Town, Brazil. *ISPRS International Journal of Geo-Information*, 9(3), 170. https://doi.org/10.3390/ijgi9030170

de Klerk, A. (2020). Photographer–camera–place relations: Reflections on postphenomenology and landscape photography practice. *Visual Studies*, 35(2–3), 201–215. https://doi.org/10.1080/1472586X.2020.1779608

Derickson, K. D. (2018). Urban geography III: Anthropocene urbanism. *Progress in Human Geography*, 42(3), 425–435. https://doi.org/10.1177/0309132516686012

Digital Signage Today. (2020, May 12). Japan enables touchscreen tech for Shinto shrines. *Digital Signage Today.* Available at: https://www.digitalsignagetoday.com/news/japan-enables-touchscreen-tech-for-shinto-shrines/ accessed [11.12.2021]

Eremia, M., Toma, L., & Sanduleac, M. (2017). The Smart City Concept in the 21st Century. *Procedia Engineering*, 181, 12–19. https://doi.org/10.1016/j.proeng.2017.02.357

Fels, P. (2006). *Setting Straight the Priorities*: *A Conservation Report from Kerala*. 18(3), 9.

Frank, A. I. (2005). Entries A-Z: Sense of Place. In R. W. Caves (Ed.), *Encyclopedia of the City* (pp. 590–591). Routledge.

Fyfe, J. B. (2017). *Meanwhile/becoming*: *A postphenomenological position exploring vision and visuality in landscape photography* [PhD Thesis, Manchester Metropolitan University]. Available at: https://e-space.mmu.ac.uk/620924/ accessed [28.12.2021]

Garcia-Fernandez, J., & Medeiros, L. (2019). Cultural Heritage and Communication through Simulation Videogames—A Validation of Minecraft. *Heritage*, 2(3), 2262–2274. https://doi.org/10.3390/heritage2030138

Gehl, J. (1987). *Life Between Buildings*: *Using Public Space*. Van Nostrand Reinhold Company.

GIZ. (2020A). *Ente Kochi*: *Multi-Stakeholder Participatory Planning and Public and Public Awareness Activities in Kochi Towards Achieving Sustainable Urban Development*. Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ).

GIZ. (2020B). *Integrated Sustainable Urban Transport Systems for Smart Cities (SMART-SUT)*. Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ).

Gnoth, J. (1997). Tourism Motivation and Expectation Formation. *Annals of Tourism Research*, 24(2), 283–304. https://doi.org/10.1016/S0160-7383(97)80002-3

Google. (n.d.). [Fort Kochi] Retrieved April 15, 2020, from https://www.google.com/maps/@9.9570714,76.2459202,15z

Halegoua, G., & Polson, E. (2021). Exploring 'digital placemaking'. *Convergence*: *The International Journal of Research into New Media Technologies*, 27(3), 573–578. https://doi.org/10.1177/13548565211014828

Halegoua, G. R. (2020A). *Smart Cities*. MIT Press.

Halegoua, G. R. (2020B). *The Digitial City*. New York University Press.

Hanson, R. (Ed.). (1983). *Rethinking urban policy*: *Urban development in an advanced economy*. National Academy Press.

Hardley, J., & Richardson, I. (2021). Digital placemaking and networked corporeality: Embodied mobile media practices in domestic space during Covid-19. *Convergence*: *The International Journal of Research into New Media Technologies*, 27(3), 625–636. https://doi.org/10.1177/1354856520979963

Haslem, W. (2020). Bridging Borders in Simulated Ecologies. *The Journal of Media Art Study and Theory*, 1(2), 242–263.

Hauser, S. , Oogjes, D., Wakkary, R., & Verbeek, P.P. (2018) An Annotated Portfolio on Doing Postphenomenology Through Research Products. In Designing Interactive Systems Conference 2018, 459-471.

Hay, R. (1988). Toward a Theory of Sense of Place. *The Trumpeter*: *Journal of Ecosophy*, 5(4), 159–164.

Heitmann, S. (2011). Tourist Beahviour and Tourism Motivation. In P. Robinson, S. Heitmann, & P. Dieke (Eds.), *Research Themes for Tourism* (pp. 31–44). CAB International.

Hillier, B. (1996). Cities as movement economies. *URBAN DESIGN International*, 1, 41–60. https://doi.org/10.1057/udi.1996.5

Hjorth, L. (2012). Relocating the mobile: A case study of locative media in Seoul, South Korea. *Convergence*: *The International Journal of Research into New Media Technologies*, 19(2), 237–249. https://doi.org/10.1177/1354856512462360

Hjorth, L., & Pink, S. (2014). New visualities and the digital wayfarer: Reconceptualizing camera phone photography and locative media. *Mobile Media & Communication*, 2(1), 40–57. https://doi.org/10.1177/2050157913505257

Hjorth, L., & Richardson, I. (2017). Pokémon GO: Mobile media play, place-making, and the digital wayfarer. *Mobile Media & Communication*, 5(1), 3–14. https://doi.org/10.1177/2050157916680015

Holly, R. (2017). The best places to use AR+ mode in Pokemon Go. *iMore*. Available at: https://www.imore.com/best-places-use-ar-mode-pokemon-go accessed [05.01.2022]

Ihde, D. (1990). *Technology and the Lifeworld From Garden to Earth*. Indiana University Press.

Ihde, D. (2009). What is Postphenomenology? In *Postphenomenology and Technoscience*: *The Peking University Lectures* (pp. 5–24). State University of New York Press.

Instagram. (2022). Discovery Page. *Meta*. Available at: https://www.instagram.com/ accessed [23.12.2021]

Jacobsen, A. B., & Reigstad, M. (2020). *Computer Games as a Tool in Public Participation Processes in Spatial Planning* [Master's Thesis, Norwegian University of Life Sciences]. Available at: https://nmbu.brage.unit.no/nmbu-xmlui/handle/11250/2678462 accessed [30.10.2021]

Jeychandran, N. (2014). Colonial Spaces, Postcolonial Narratives: The Exhibitionary Landscape of Fort Cochin in India. In I. Chambers, A. De Angelis, C. Ianniciello, M. Quadraro, & M. Orabona (Eds.), *The Postcolonial Museum*: *The Arts of Memory and the Pressures of History* (pp. 51–62). Ashgate Publishing.

Kalning, K. (2007, March 11). If Second Life isn't a game, what is it?. *NBC News*. Available at: https://www.nbcnews.com/id/wbna17538999#.U9uyeEi49yw accessed [30.12.2021]

Kasthurba, A. K. (2013). Sustainable Develoment of Urban Heritage At Fort Kochi, Kerala, India. *AEI* 2013, 924–933. https://doi.org/10.1061/9780784412909.090

Khanna, P. (2016). *Connectography*: *Mapping the Future of Global Civilization*. Penguin Random House.

Kidd, J. (2011). Enacting engagement online: Framing social media use for the museum. *Information Technology & People*, 24(1), 64–77. https://doi.org/10.1108/09593841111109422

Kochi Ithile. (2021). *Getting Around.* Fort Kochi Tourism App. Available at: https://kochiithile.com/#/wafi accessed [15.01.2022]

Kuriakose, P. N., & Philip, S. (2021). City profile: Kochi, city region - Planning measures to make Kochi smart and creative. *Cities*, 118, 103307. https://doi.org/10.1016/j.cities.2021.103307

Lazzarini, L., & Lopez-Baeza, J. (2016). The Mushrooms' Lesson: Instagram as a tool to evaluate users' perception of urban transformations. In *Urban Promo. XIII Edizione Progetto Paese*.

Lee, L.-H., Braud, T., Zhou, P., Wang, L., Xu, D., Lin, Z., Kumar, A., Bermejo, C., & Hui, P. (2021). All One Needs to Know about Metaverse: A Complete Survey on Technological Singularity, Virtual Ecosystem, and Research Agenda. *Journal of Latex Class Files*, 14(8), 1–66.

Lynch, K. (1960). *The Image of the City*. MIT Press.

Maldonado Gil, G. J., & Psarra, S. (2020). Placemaking in the Digital Media Era. *Bitácora Arquitectura*, 46, 28–37. https://doi.org/10.22201/fa.14058901p.2020.46.79047

Merina, N., & Menon, V. K. (2019). Perception Of Youth Towards Kochi-Muziris Biennale. *History Research Journal*, 5(4), 213–221. https://doi.org/10.26643/hrj.v5i4.7607

Meyrowitz, J. (1985). *No Sense of Place*: *The Impact of Electronic Media on Social Behavior*. Oxford University Press.

Minecraft [Computer Software]. (2022). Stockholm: Mojang.

Moran, D. (2000). *Introduction to Phenomenology*. Routledge.

Moya Pellitero, A. (2011). The Phenomenological Experience of the Visual Landscape. *Research in Urbanism Series*, 2, 57–71.

Nabors, D., Schneider, R., Leven, D., Lieberman, K., & Mitchell, C. (2008). *Pedestrian Safety Guide for Transit Agencies* (FHWA-SA-07-017). US Department of Transportation Federal Highway Administration.

National Research Council. (2002). *Community and Quality of Life*: *Data Needs for Informed Decision Making* (p. 10262). The National Academies Press. https://doi.org/10.17226/10262

Nova, N. (2004). *Locative Media*: *A literature review* (No. 2; Craft Research Report). École Polytechnique Fédérale de Lausanne.

Nova, N. (2016). Pokémoans: how various places try to take advantage of Pokémon Go. *Nicolas Nova.* Available at: http://www.nicolasnova.net/pasta-and-vinegar/2016/8/10/pokmoans accessed [24.09.2021]

OpenStreetMap. (n.d.). Retrieved January 10, 2022, from https://www.openstreetmap.org/#map=16/9.9605/76.2477&layers=TG

Pearson, L., & Youkhana, S. (2020). Videogame Urbanism: Using game spaces to challenge the future of cities. *The Site Magazine*, 40, 1–9.

Peña Miñano, S., Kirkwood, L., Court, S., Farnsworth, M., Orlovs, I., Shehab, N., & Tinworth, N. (2017). A Review of Digital Wayfinding Technologies in the Transportation Industry. In J. Gao, M. El Souri, & S. Keates (Eds.), 15*th International Conference on Manufacturing Research, Incorporating the* 32*nd National Conference on Manufacturing Research* (pp. 207–212). IOS Press.

Perez, S. (2016, September 8). Pokémon Go becomes the fastest game to ever hit $500 million in revenue. *TechCrunch*. Available at: http://tcrn.ch/2c1ildf accessed [11.12.2021]

Plumley, W. (2018). *Playing With People's Lives*: *How city-builder games portray the public and their role in the decision-making process* [Senior Honours Thesis, Ohio State University]. Available at: https://kb.osu.edu/bitstream/handle/1811/84868/1/Plumley_Playing_With_Peoples_Lives.pdf accessed [05.01.2022]

Poon, L. (2021, November 13). Navigator: After the Pandemic Comes … the Metaverse?. *Bloomberg CityLab*. Available at: https://www.bloomberg.com/news/newsletters/2021-11-13/what-the-metaverse-means-for-urban-life accessed [02.01.2022]

Potts, R., Jacka, L., & Yee, L. H. (2017). Can we 'Catch 'em All'? An exploration of the nexus between augmented reality games, urban planning and urban design. *Journal of Urban Design*, 22(6), 866–880. https://doi.org/10.1080/13574809.2017.1369873

Prilenska, V., Liias, R., & Paadam, K. (2015). Games in Communicative Planning: A Comparative Study. In *The 7th Nordic Planning Research Symposium PLANNORD*, 11.

Project for Public Spaces (n.d.). *Placemaking*: *What if we built our cities around places?* Project for Public Spaces, New York.

Purzycki, K. J. (2019). *A Player's Sense of Place*: *Computer Games as Anatopistic Medium* [PhD Thesis, University of Wisconsin-Milwaukee]. Available at: https://dc.uwm.edu/etd/2235 accessed [15.01.2022]

Quiring, T. (2015). From Voxel Vistas: Place-Making in Minecraft. *Journal of Virtual Worlds Research*, 8(1), 1–17.

Raheem, A. (2013). Towards a Social Logic of Cochin: Understanding the influence of culture on the spatial organisation of cities. In Y. O. Kim, H. T. Park, & K. W. Seo (Eds.), *Proceedings of the Ninth International Space Syntax Symposium* (Vol. 109, pp. 1–19). Sejong University Press.

Ratnayake, R. (2017). Sense of safety in public spaces: University student safety experiences in an Australian regional city. *Rural Society*, 26(1), 69–84. https://doi.org/10.1080/10371656.2017.1284616

Relph, E. (2007). Spirit of Place and Sense of Place in Virtual Realities. *Techné*: *Research in Philosophy and Technology*, 10(3), 17–25. https://doi.org/10.5840/TECHNE20071039

Romele, A., & Severo, M. (2016). Digital traces for a new know-space of the city: Some theoretical considerations. *Lo Squaderno*: *Explorations in Space and Society*, 39(5), 27–31.

Russo, A., Watkins, J., Kelly, L., & Chan, S. (2008). Participatory Communication with Social Media. *Curator*: *The Museum Journal*, 51(1), 21–31. https://doi.org/10.1111/j.2151-6952.2008.tb00292.x

Saßmannshausen, S. M., Radtke, J., Bohn, N., Hussein, H., Randall, D., & Pipek, V. (2021). *Citizen-Centered Design in Urban Planning*: *How Augmented Reality can be used in Citizen Participation Processes*. In *Designing Interactive Systems Conference* 2021, 250–265. https://doi.org/10.1145/3461778.3462130

Schreiber, F., & Carius, A. (2020). *Sense the City*. adelphi.

Schwartz, R. (2015). Online place attachment: Exploring technological ties to physical places. In A. de Souza e Silva & M. Sheller (Eds.), *Mobility and Locative Media*: *Mobile communication in hybrid spaces* (pp. 85–100). Routledge.

Seamon, D. (2000). *Phenomenology, Place, Environment, and Architecture*: *A Review of the Literature* (p. 30). Kansas State University.

Sen, A. & Silverman, L. (2014) *Making place*: *space and embodiment in the city*. Indiana University Press.

Shamai, S. (1991). Sense of Place: An Empirical Measurement. *Geoforum*, 22(3), 347–358. https://doi.org/10.1016/0016-7185(91)90017-K

Slavova, T. (2020). Exploring Minecraft as a Tool for Geospatial Education. In T. Bandrova, M. Konečný, & S. Marinova (Eds.), *8th International Conference on Cartography and GIS* 2020 (Vol. 1, pp. 378–386).

SnapMap. (2022). Search Page. *Snap Map*. Available at: https://map.snapchat.com/ accessed [23.12.2021]

Spinney, J. (2015). Close encounters? Mobile methods, (post)phenomenology and affect. *Cultural Geographies*, 22(2), 231–246. https://doi.org/10.1177/1474474014558988

Steinbeck, J. (1961). *The Winter of Our Discontent*. Penguin Classics.

Stuedahl, D., & Lowe, S. (2013). Design Experiments with Social Media and Museum Content in the Context of the Distributed Museum. In E. Brandt, P. Ehn, T. D. Johnson, M. Hellström Reimer, T. Markussen, & A. Anna Vallgårda (Eds.), *Nordes* 2013: *Experiments in design research* (Vol. 5, pp. 303–312). The Royal Danish Academy of Fine Arts.

Talebian, N., & Ulusu Uraz, T. (2018). The Post-Phenomenology of Place: Moving Forward from Phenomenological to Post-Structural Readings of Place. *Open House International*, 43(2), 13–21. https://doi.org/10.1108/OHI-02-2018-B0003

teamLab. (2018). Wander through the Crystal World. *teamLab Borderless.* Available at: https://borderless.teamlab.art/ew/crystalworld/ accessed [30.12.2021]

Thielmann, T. (2010). Locative Media and Mediated Localities: An Introduction to Media Geography. *Aether*: *The Journal of Media Geography*, 5(1), 1–17.

Todres, L. (2005). Clarifying the life-world: Descriptive phenomenology. In I. Holloway (Ed.), *Qualitative Research in Health Care* (pp. 104–124). Open University Press.

Toolis, E. E. (2017). Theorizing Critical Placemaking as a Tool for Reclaiming Public Space. *American Journal of Community Psychology*, 59(1–2), 184–199. https://doi.org/10.1002/ajcp.12118

Toscano, P. (2017). Instagram-City: New Media, and the Social Perception of Public Spaces. *Visual Anthropology*, 30(3), 275–286. https://doi.org/10.1080/08949468.2017.1296313

Tuan, Y.-F. (1977). *Space and Place: The Perspective of Experience*. University of Minnesota Press.

UD Studio. (2018). *Urban revival of Fort Kochi and Mattancherry through Biennale Urban Design Studio Report* 2017-2018. School of Architecture, Government Engineering College, Thrissur.

UN Habitat. (2015). *Using Minecraft for Youth Participation in Urban Design and Governance.pdf*. UN Habitat.

UNESCO. (n.d.). Cultural Landscapes. *UNESCO*. Available at: http://whc.unesco.org/en/culturallandscape/#1 accessed [05.01.2022]

Varghese, R. A. (2017). Past as a Metaphor in the New Utopian Imaginations of Heritage in Kerala. In T. Kuldova & M. A. Varghese (Eds.), *Urban Utopias: Excess and Expulsion in Neoliberal South Asia* (pp. 169–188). Springer International Publishing. https://doi.org/10.1007/978-3-319-47623-0

Venerandi, A., Romice, O., Chepelianskaia, O., Kalyan, K., Bhardwaj, N., Viese, V., Ugás, S., Raman, S., & Porta, S. (2021). Urban Morphometrics and the Intangible Uniqueness of Tangible Heritage. An Evidence-Based Generative Design Experiment in Historical Kochi (IN). *Heritage*, 4(4), 4399–4420. https://doi.org/10.3390/heritage4040243

VEOMO. (2021). *VEOMO.* Available at: veomo.com accessed [27.12.2021]

Vihanninjoki, V. (2021). *The Aesthetics of Everyday Urban Places: A Postphenomenological Perspective* [PhD Thesis, University of Helsinki]. Available at: https://helda.helsinki.fi/handle/10138/327391 accessed [21.12.2021]

Volchenkov, D. (2018). We Shape Our Buildings; Thereafter They Shape Us. In *Grammar of Complexity: From Mathematics to a Sustainable World* (pp. 159–190). Higher Education Press and World Scientific Publishing.

Walker, J. F. (2021). *Merging Citizens and Data: A Postphenomenological Investigation on Mediated Practices in Citizen Sensing* [Master's Thesis, University of Twente]. Available at : http://essay.utwente.nl/87656/ accessed [02.01.2022]

Wang, J. (2018). Urban Policy. In A. Farazmand (Ed.), *Global Encyclopedia of Public Administration, Public Policy, and Governance* (pp. 6070–6078). Springer International Publishing. https://doi.org/10.1007/978-3-319-20928-9

Wang, S. S., & Hsieh, C.-T. (2020). Ubiquitous Pokémon Go: Human–Environment Relationships and the Location-Based Augmented Reality Game. *Environment and Behavior*, 52(7), 695–725. https://doi.org/10.1177/0013916518817878

Wang, W., & Wu, J. (2021). Short Video Platforms and Local Community Building in China. *International Journal of Communication*, 15, 3269–3291.

Wilken, R., & Humphreys, L. (2021). Placemaking through mobile social media platform Snapchat. *Convergence*: *The International Journal of Research into New Media Technologies*, 27(3), 579–593. https://doi.org/10.1177/1354856521989518

Wojnar, D. M., & Swanson, K. M. (2007). Phenomenology: An Exploration. *Journal of Holistic Nursing*, 25(3), 172–180. https://doi.org/10.1177/0898010106295172

Zoom Earth. (2022). Base Map. *Zoom Earth*. Available at: zoom.earth accessed on: 22.01.2022

Zytronic. (n.d.). Touch technology offers a modern twist on teaching traditional etiquette at Shinto Shrines in Japan. *Zytronic.* Available at:https://www.zytronic.co.uk/case-studies/detail/touch-technology-offers-a-modern-twist-on-teaching-traditional-etiquette-at-shinto-shrines-in-japan/ accessed [04.01.2022]

APPENDIX

TRANSCRIPTS FROM INTERVIEWS

Interviewee: Meghna Ravoor, 27

Occupation: Teacher (Japanese language)

Resides in: Bangalore, Karnataka.

A: **Do you own a smartphone? iOS/Android...**

M: I own an Apple (phone).

A: **Do you use social media (Instagram, TikTok, Snapchat etc)?**

M: Yes. Instagram, (but I don't post much).

A: **Do you use your phone camera often?**

M: Yes, I usually take picture of…wherever I go, whatever interests me.

A: **Do you use maps on your phone often? If yes, how often on a daily/weekly/monthly basis?**

M: Very often. I use it to navigate to wherever I want to go, mostly when I'm walking around. I rely on it quite often when I'm in a new place, but once I'm familiar with the place, I tend not to use it.

A: **Do you travel a lot? If yes, how often (in a month, year etc)?**

M: At least thrice a year, mostly outside the state but within India.

A: **How often do you feel the need to use maps?**

M: Not very often...uh, sometimes.

A: **Do you prefer using maps (esp. while driving) or asking people for directions?**

M: Well, if I can I use maps, but I do ask people as well.

A: **Do you think smartphone maps are helpful or pointless?**

M: I do prefer using maps most of the time, but there are certain places where it's not probably…it doesn't show up in maps, so at that time I'd just ask someone around me.

ON THE USE OF DIGITAL MEDIA

A: **Do you use Wi-Fi, Bluetooth, NFC etc on your phone?**

M: I use Wi-Fi. NFC and Bluetooth, not much.

A: A**re you aware of the term AR?**

M: I have heard of the term, but I don't really know what it means.

A: A**re you aware of the term Locative Media?**

M: I don't know what locative media is.

A: **Do you use any kind of fitness tracking tools or other tracking media on your phones (like a fitbit for example)?**

M: I don't use any fitness tracking apps, nor do I own a Fitbit.

ON FORT KOCHI

A: **Please tell us what Fort Kochi is to *you*: how you feel about the place, what you like, what you dislike, what you would like changed, what shouldn't change, and the one best and one worst thing/feature about Fort Kochi.**

M: Lots of things: well, I really like Fort Kochi. It's a very dreamy place, nice and quaint. I love how the streets are narrow and winding and, it always feels like there's something beckoning you to go to a certain spot. I like that there are a lot of old buildings which are being reused for cafes or homestays and things like that. Well, I think its fine the way it is…uh, if it's more commercialized, I probably would not like it. the worst thing is maybe the climate – it's too hot for me. It's not too bad in winter…this is not winter but yes. And what should change, um…I like it as it is.

A: **Do you think Fort Kochi stands to benefit from further digitization?**

M: Uh I think in terms of digitization per se, its correct at the moment. I think it shouldn't go back to analog too much also, because most people do not have a lot of time on their end to stay here for a long time and explore, so a little amount of digitization helps in that way, but maybe if its more than this, then it just loses its character. Personally, since I swing more to the analog side, I wouldn't want that to happen too much.

Interviewee: Varad Vatsal, 27

Occupation: Policy Analyst

Resides in: New Delhi.

A: **Do you own a smartphone? iOS/Android...**

V: Yeah, I own an iOS smartphone.

A: **Do you use social media (Instagram, TikTok, Snapchat etc)?**

V: I think I use Instagram exclusively, not the others, mostly for stories, pictures, and stuff like that.

A: **Do you use your phone camera often?**

V: Oh, quite often. I'm constantly taking pictures, especially something like this where I'm on vacation, or sightseeing.

A: **Do you use maps on your phone often? If yes, how often on a daily/weekly/monthly basis?**

V: I don't use maps on a daily basis – its usually when I'm traveling and uh that too like I don't essentially navigate using maps, I look at interesting spots and I just mark them, and then I just see where I can walk, like I discover the route myself. Its just easier to not get lost with maps in the background. Yeah, maps is something of a lifeline for me. I'm often navigating the streets, and if I decide to just walk through the area like here in Fort Kochi, there's lots of small streets ending up in dead ends, so its nice to have google maps to just guide the way.

A: **Do you travel a lot? If yes, how often (in a month, year etc)?**

V: Yeah, quite often, uh, especially with my work, I'm usually gone around 14-20 days in a month. I don't need navigation then because it's usually all pre-planned.

A: **How often do you feel the need to use maps?**

V: Not a lot. When I'm on vacation I like to improvise.

A: **Do you prefer using maps (esp. while driving) or asking people for directions?**

V: I definitely prefer using maps. It's easier than relying on people, especially in touristy areas like these, because people just recommend stuff that they know and when you're using maps, you can see what places have good Wi-Fi, what places have air conditioning rather than, you know, asking someone if they know a place with good Wi-Fi or something like that..

A: **Do you think smartphone maps are helpful or pointless?**

V: They're definitely helpful but to a degree, like you can't trust it entirely. It's a good safety net to have if you're traveling and you want to get a basic idea of what its going to be like – maps do help, but if you count on it like "oh this place is going to be open because it says open till 8 PM", and you get there and it's not open... So, I would say that I would trust maps but, uh, I would recheck using social media, see their pages, if they're open, what the amenities are like, all of that.

ON THE USE OF DIGITAL MEDIA

A: **Do you use Wi-Fi, Bluetooth, NFC etc on your phone?**

V: Bluetooth generally, just for headphones or something. Yeah, Wi-Fi, like both my job and leisure depends on Wi-Fi. NFC is something that I haven't seen around here much, like I have these little NFC tags which I've programmed for stuff, at home, but it'd be nice to see something like that out in the open, you know? Maybe just to connect to Wi-Fi or using an NFC tag, like to find info about a place using an NFC tag – those I think are missing, but yeah, I've used all three.

A: **Are you aware of the term Augmented Reality, or AR?**

V: Yeah, I am aware of what it is. I can't say that I use it a lot. I mean, I have a few apps but again they're just for leisure. Um, I think Pokémon Go, I used to use that a while ago, that's also AR. But uh beyond that I'm not too sure.

A: A**re you aware of the term Locative Media?**

V: Yeah, again this is something I know in passing, like I personally haven't used it. Maybe one or two experiences, especially guided experiences where someone else is there to tell you what this is about, how you can use it – so, highly curated experiences. I don't know of any apps that would let me just explore something on my own. So, yeah, I would say that I don't have a lot of exposure to this.

A: **Do you use any kind of fitness tracking tools or other tracking media on your phones (like a fitbit for example)?**

V: Yeah, I mean I have a watch that tracks my general movements and workouts and stuff, so if I go for a run or something – like here I've been using it, it's been recording these little walks I've had, uh gives me how many steps I've done, calories, and stuff like that. So, yeah, I use it but uh not really into fitness or anything.

ON FORT KOCHI

A: **Please tell us what Fort Kochi is to *you*: how you feel about the place, what you like, what you dislike, what you would like changed, what shouldn't change, and the one best and one worst thing/feature about Fort Kochi.**

V: Uh, Fort Kochi…it's a difficult question to answer because my first experience with Fort Kochi was a few years ago, and while coming here I crossed a stretch of road with these giant trees – God knows how old they are – and went to David Hall, seeing these old Dutch houses…so to me that was Fort Kochi because I didn't have time to explore beyond that. But this time I'm really seeing a different side, I'm seeing the Jewish town, the Muslim settlements, and it's strange how diverse this area really is, because you can go down a street, take two turns and you'll enter an area that just does not resemble where you came from. So, I quite like the fact that Fort Kochi is that diverse, but at the same time, um, it's strange as a person, coming here, to know which places to see because there are all these small roads, and residential areas, and there's not much to see there, and most of the things are concentrated

at this area, near the beach, near the old settlements, and the cafes, the museums, the antique shops, all of that. So, I would like this to continue a bit. What I dislike is the fact that this place is extremely loud – I mean, I'm pretty sure it used to be more crowded than this before the pandemic, but yeah its quite loud, there is construction going on, there are cars moving – I mean I come from a policy background so if we had some electric transport within the island, because we already have lot of waterways that people can use, so at least within the island we are not hearing cars and bikes and all of this, that would make it better.

Other than that, what I really like about Fort Kochi is that you can have a very curated experience here. You can arrive directly from the airport and your host will take care of everything, you can experience varied cuisine that's quite diverse, and at the same time you don't have to leave the confines of Fort Kochi. So, it's nice that you have a lot of things to experience. I wish it was easier to you know just navigate, because I know there is social media, there are maps and stuff, but if there was one portal that you know…so in the physical world you'll have a post with all the posters on it and people can see what's happening, what live music is there…its kinda hard to find this common thread or board where you can see what all is going on. So, it's a lot about discovery and, you know, sometimes you discover stuff too late and you're here just for a few days and you feel bad, that "*I've missed out on this!*", so that's something I'd like. But other than that, I absolutely love the weather – I'm deathly scared of the cold so its nice to be here, have a sea breeze and 30 degrees in the middle of December, and uh, its nice to see lot of places where the architecture is preserved, or it has been retrofitted to include some modern amenities. So, this kind of experience is fairly limited in India, yeah that's something I'd like.

A: **Do you think Fort Kochi stands to benefit from further digitization?**

V: Um, kinda depends on what you mean by digitization because this place is already quite digitized. I don't speak the language, yet if I go up to a vendor, he has a little QR code, you can just point to that, and I can just pay using my phone, and I book my hotel online, I get my cab online so there is digitization there but what is lacking is the fact that there is no cohesiveness, like there is not one place where I can have it all go together. Um, like a travel card that you can use throughout, um, whatever traveling you're doing. Same concept but applied digitally – just a digital pass to go to multiple events, go to multiple restaurants, or make reservations too. That could really help. And, yeah, the problem with Fort Kochi is not that things aren't happening here, its just that its hard to find out what's going on. And its hard to find out how busy a place is going to be or, you know, how many people are interested in something. You have to log in to your social media and see that these many people are coming, or these many people have signed up. Its um…digitization, I think that would be helpful. Also, uh, signage! Uh signage…I don't think that's digitization, that's physical, but you were mentioning AR, so maybe using AR for signage or something, because it's hard to make head or tail of, you know, where things are or which turn you've got to take – you've got to rely on your maps again and again, and you got to take out your phone, and that kinda takes you out of the whole experience of just wandering the streets. So, uh, I can't really think of anything else in terms of digitization that this place needs.