

An isometric illustration of a teal brick building with several windows. Three stylized human figures are standing on a light-colored sidewalk in the foreground, looking towards the building. The scene is set against a light teal background.

GAMIFY DETROIT

Redefining Gamification Through The Implementation
Of Videogame Design

Omari Crume

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Of Videogame Design

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ABSTRACT

The task of this thesis is to reignite user engagement in public space by redesigning the public realm through the lens of a game designer. There were many designers who attempted to reinvent public space. Notably the Situationists International who declared a primary reason for why users go outside, which was for capitalist desires like purchasing goods and services or simply to work to gain the ability to pay for goods and services rather than for leisure. The primary area this thesis tasks itself to solve is: “by redesigning spaces with activities and user customization will it cause strangers to connect and socialize?” To achieve this, the method of research used has been designing games and activities that could be placed in the context of Detroit, Michigan. In order to re-engage the public the thesis establishes an app-like framework that can be used within the city of Detroit to engage the public. The primary findings from the methods are to keep the activities simple yet engaging for users, allow for games to be finished quickly, and to have their activities to be modular and able to swap in order to keep the spaces enticing for repeat visitors. This study is valuable as designers have attempted to redesign public space to be more enticing, however the typical route omits the public’s opinion. With this thesis the goal is to integrate users into owning and designing the public realm, being able to participate and tweak spaces to their liking akin to a game designer.

“To any one person, strangers are far more common in big cities than acquaintances”
-Jacobs 30

THESIS STATEMENT

GAMIFYING SPACE

Redefining Gamification Through The Implementation Of Video Game Design

The task of this thesis is to create more engaging and interactive spaces by taking influence from video game design elements. Through this thesis I believe gamifying spaces with design elements inspired by video games can enhance public spaces with user engagement. Currently in public space gamification can be shown via implementation interactive activities such as such as piano keys which adds audio cues to a mundane set of stairs in order to make the usage more engaging. However this thesis aims to push how users can create and design their own spaces in reality similar to how game developers create immersive virtual worlds today.

The idea of creating interactive spaces is not a novel concept as multiple groups such as the Situationist International who delved into creating more engaging public space. This group created the term drifting to better illustrate that an ideal city would have its people wander and enjoy the city without the desire to purchase or work in order to engage their users. Conversely a key reference to this thesis, Delirious New York was the antithesis of the Situationist ideals, desiring to use the marketing strategies presented in capitalist societies to make interactivity more appealing to users using lights and games as seen in Coney Island. Taking the ideas of engaging public space, the thesis also began to look at combining the design ideas of public space and interactivity of video games.

Jane Jacobs establishes that strangers are more common in cities than friends. (Jacobs 30) This ideal is a primary goal this thesis wishes to solve in where the task is to create activity frameworks to break the social barrier between users in large urban sprawls like Detroit.

DEFINITIONS

Action-Adventure: video game genre where the player has to solve puzzles or succeed in actions to achieve their goal.

Augmented Reality Game (AR/ARG): an experience where designers enhance parts of users' physical world with computer-generated input.

Escapism: the tendency to seek distraction and relief from reality, especially by seeking entertainment or engaging in fantasy.

Gamification: the use of integrating game playing concepts into non-gaming contexts.

Interactive Needs: Needs acquired by interacting with another or the environment.

Social: Need to **communicate**.

Physical: Need to be **physically** challenged.

Platformer: a video game genre where the objective is to move the player character between points towards a goal.

Mental: Need to be **mentally** challenged.

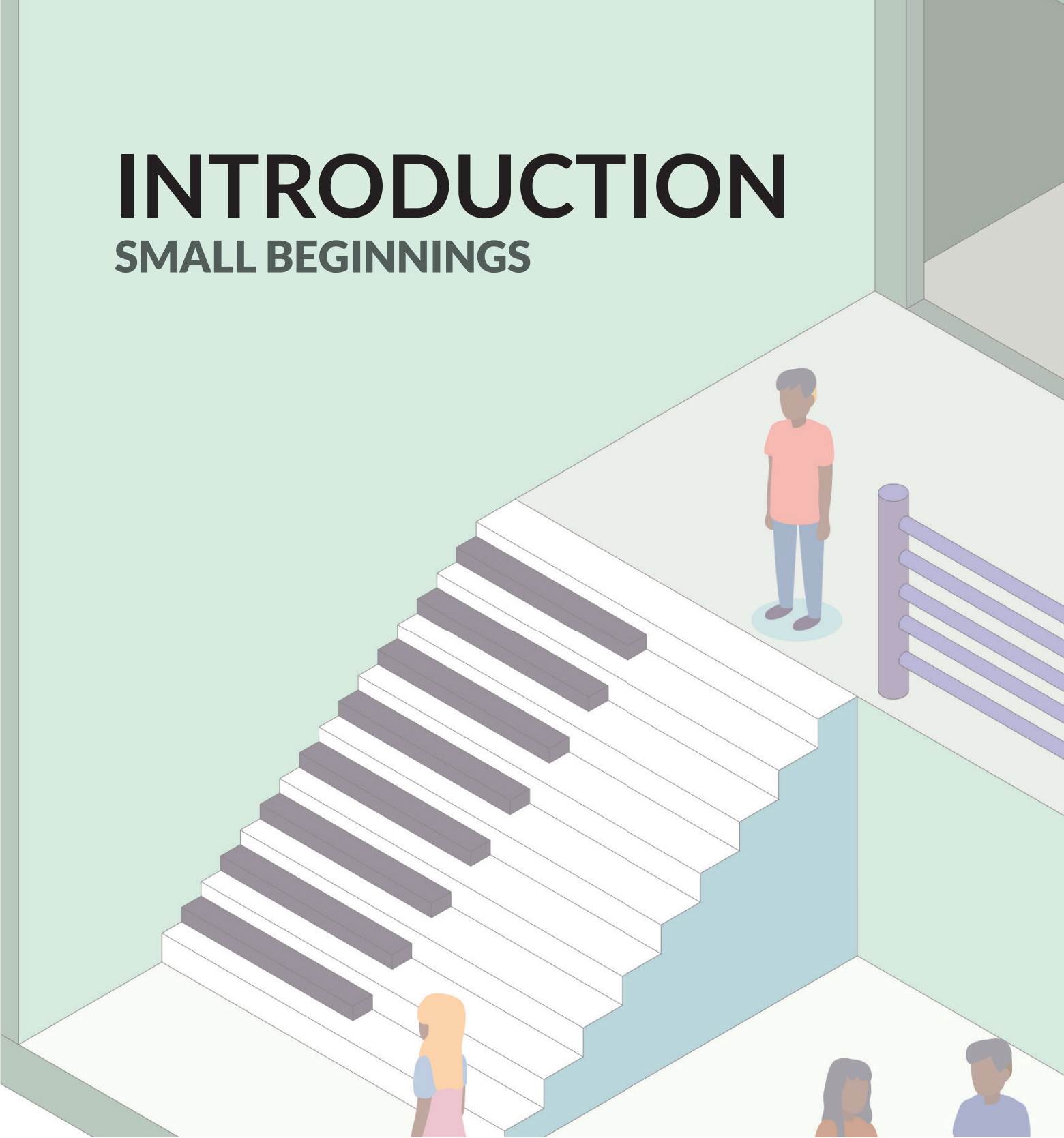
Player: The user participating in the game or activity.

Virtual Reality: a computer-generated environment with scenes and objects.

Video game: an electronic game that involves interaction with a user interface or input device

INTRODUCTION

SMALL BEGINNINGS



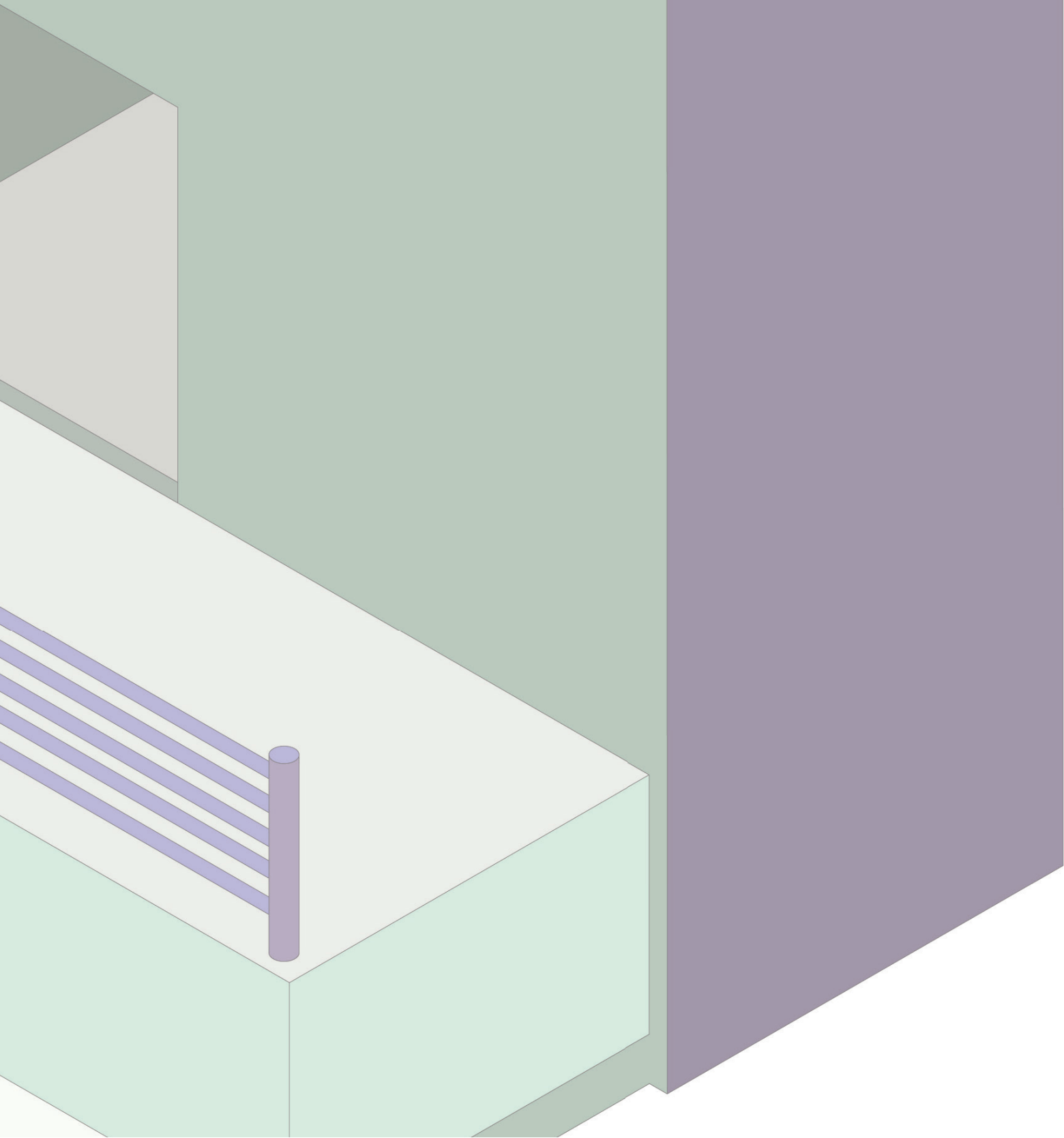


Figure 1.1
Isometric diagram of gamified piano stairs.
Photo Credits: Omari Crume



Figure 1.2
Isometric diagram of VR User at home.
Photo Credits: Omari Crume



Figure 1.3
Isometric diagram of VR User immersed in a video game
Photo Credits: Omari Crume

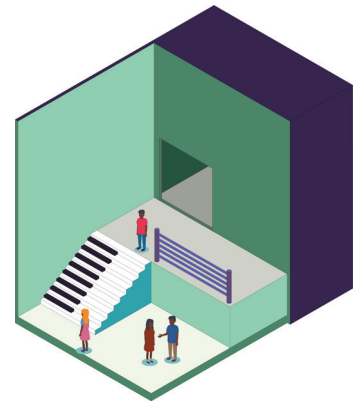


Figure 1.4
Isometric diagram of gamified piano stairs.
Photo Credits: Omari Crume

Recreational spaces are plentiful in every urban city, from small parks to outdoor dining areas. Each of these are used to fulfill one's innate needs. Certain places like the DIA were designed to fulfill mental needs, while places like Campus Martius meet the needs of physical and social. Some recreational spaces however fail to meet any of these needs, instead becoming abandoned and unused. In addition to these lots, there lies countless mundane spaces in the City of Detroit. The lack of engaging spaces has been a concern for Detroit citizens who wish they did not have to travel outside of Detroit to have their needs met. Thus, sparking the original idea for this thesis to bring video game elements into the real world. As the thesis progressed however the realization came that video game elements can be used to solve the problem of vacant lots and the lack of engaging spaces in the city of Detroit. Video games are the pinnacle of the crossing between user interaction and design, making it the perfect candidate to reshape these spaces thus by combining their interactive nature with public design techniques it presents the idea that current levels of gamification and user engagement in public space could be enhanced.

Video games possess worlds designed to fully cater to the users' needs and aid in their desire to escape. This feeling defined as escapism is the tendency to seek distraction and relief from unpleasant realities, especially by seeking entertainment or engaging in fantasy. The ability to escape and immerse oneself into a variety of characters and situations is one of the many reasons video games are so popular today, its ability to immerse those who play into worlds beyond whatever space they are playing in turning a simple living room into a legendary castle, or a relaxing farmland also contributes towards this (Siricharoen 5-6) (Figure 1.1, 1.2). This idea of being able to immerse yourself or engage in activities despite limited space has been shown in public space through the term gamification. Gamification involves adding game-like elements into a non-gaming context. An example of this shown by Fuchs, Mathias, et al. in Rethinking Gamification is, " In the basement floors of the Disneyland hotels, large flat screens showed leaderboards pitching the working speeds of the laundry workers against each other". Gamification can allow non-gaming contexts to become game-like in nature, allowing the possibility of fun to invade the mundane reality of common tasks such as work or commutes. This idea can be further referenced in various ways such as, piano stairs (Figure 1.3); stairs that create audio cues as users walk up and down in their everyday passing. Gamification has the potential to allow one to play with the space in a way that induces the same dopamine rush that escapists cling towards as they indulge in video games, however instead of needing to focus on a simple screen or head mounted display, a gamified space can satisfy the needs of an escapist while still being rooted in reality. Previous related strategies can be linked towards Augmented Reality (AR) games where activities occur in the user's environment through a device such as a smartphone rather than being limited to a tv or monitor cemented towards a single spot. Conversely this can also be an advantage when compared with VR gaming as VR still has its users not indulge in the environment around them instead they mask it with the world inside their head mounted display. Regardless of the limitations of a space AR games can be tweaked in their design to make an activity work. For example, Minecraft Earth by Mojang is an Augmented Reality app that has its users use a smartphone to place signature elements from the popular game in the environment around you. These AR games can fulfill all the needs of someone who needs to escape the mundane nature of the space they reside in if designed well. The question then became how does one integrate a large-scale AR game to make mundane spaces in Detroit to fun custom spaces for the community to enjoy?

BACKGROUND

OLD CONCEPTS, NEW RESULTS

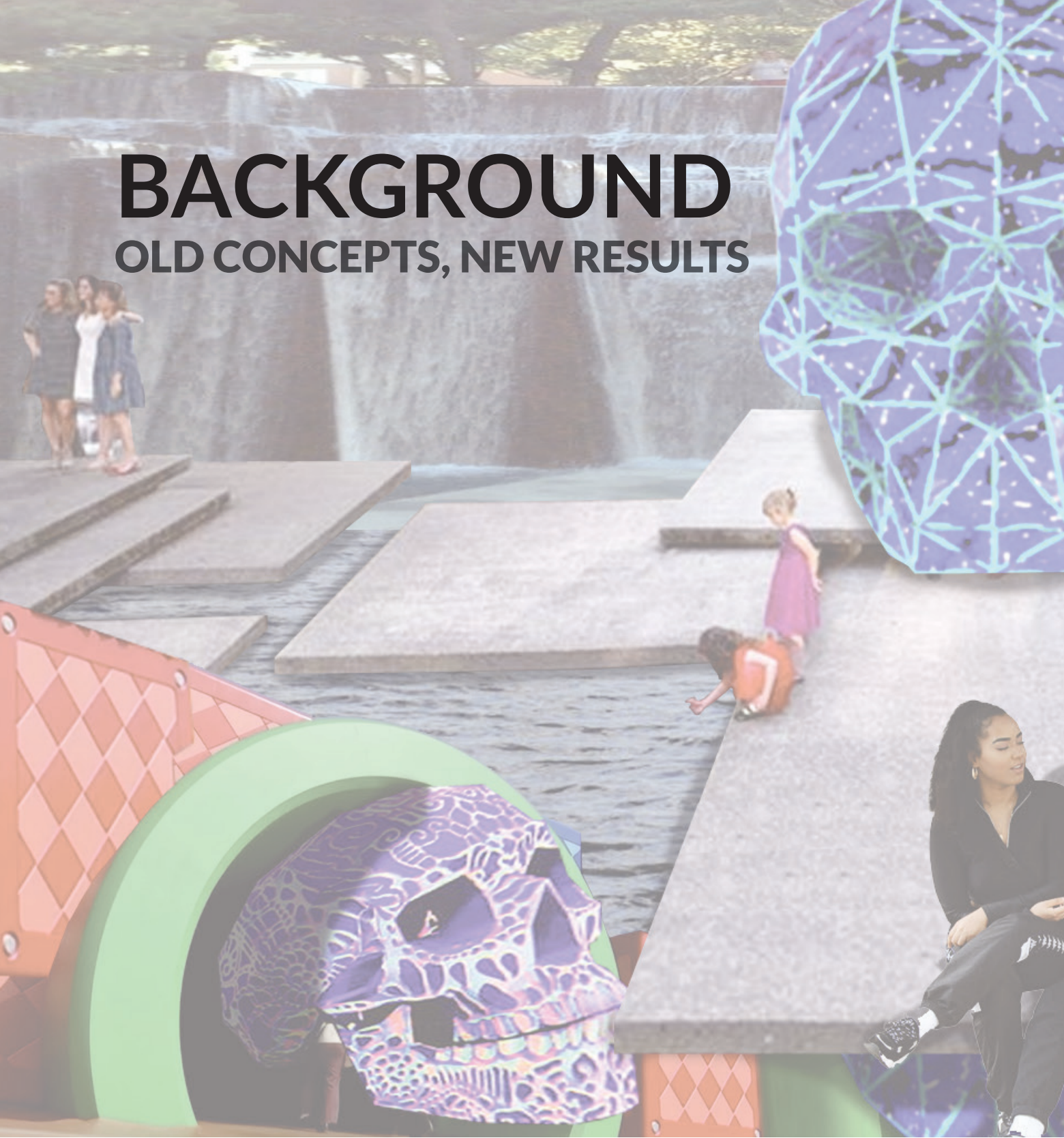




Figure 2.1
Collage of precedents
Photo Credits: Omari Crume

“To any one person, strangers are far more common in big cities than acquaintances”

-Jacobs 30

In order to properly understand public space design, multiple precedent books were examined, primarily ones that possess contrasting ideas on the goals of public space design. There have been movements to help re-engage public spaces by questioning the way in which they could be designed and through these readings two conflicting examples were found within the books, *The Situationist City* by Simon Sadler and *Delirious New York* by Rem Koolhaas. To begin with the *Situationists*, they were an anti-capitalist group who desired cities to become engaging without the need to spend money. The group created the term “*drifting*” for this goal in that users would ideally leave their homes and meandre or drift around their cities and communities to find engaging environments without the need of spending money or going to work (Sadler 93). Conversely in *Delirious New York*, Rem Koolhaas discusses areas of New York like Coney Island where citizens wishing to escape the busy nature of the city could go and enjoy the activities. While the *Situationists* turned away from public space engaging with capitalist gains, *Delirious New York* exposed an example where a public space can become engaging and iconic despite the financial and purposeful boundary. A third primary book referenced was *Death and Life of Great American Cities* by Jane Jacobs in which it explains the framework of public design referencing multiple cities of the United States. The primary comments the book pulls is questioning how cities can engage users to interact with strangers. Jacobs references how we encounter more strangers than friends in a city therefore public space should allow us to engage in social communication with these strangers. Public space needs to be able to facilitate the interactions between strangers and create bonds between neighbors. Jacobs references that designers need to listen to the city, its users, and communities to properly understand what it needs rather than giving what designers want.

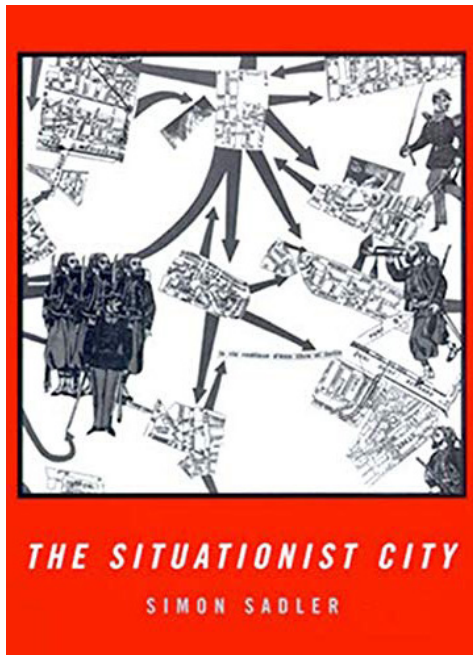


Figure 2.2
Book cover of *The Situationist City*
Photo Credits: Simon Sadler

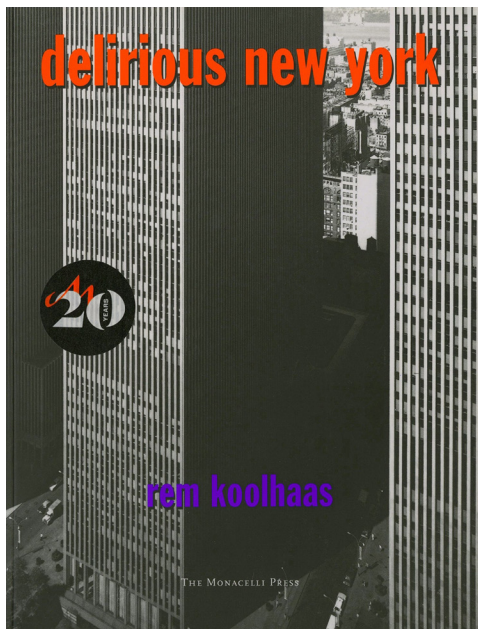


Figure 2.3
Book cover of *The Situationist City*
Photo Credits: Rem Koolhaas

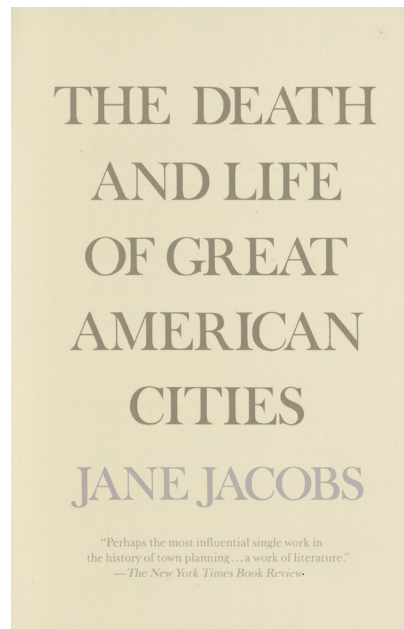


Figure 2.4
Book cover of *The Death And Life Of Great American Cities*
Photo Credits: Jane Jacobs

Additional precedents used during this stage of the thesis were ones that engaged users in the Augmented Reality space where users participating could still be immersed in the real world while playing the various games or activities offered by these different apps. Examples of mobile games with this concept are *Pokémon GO* by Niantic and *Minecraft Earth* by Mojang (Figure 2.4, 2.5). Both apps feature a game in which the primary characteristics of catching *Pokémon* and mining and building in *Minecraft* are introduced in reality. Other precedents such as *Sorcerers of the Magic Kingdom* in *Walt Disney Land* (Baker) and *Acti Wait* by Urban Invention (Figure 2.6, 2.7) used **physical** activities augmented by technology in order to facilitate game-like



Figure 2.5
Picture of Pokémon Go
Photo Credits: Urban Invention



Figure 2.6
Picture of Minecraft Earth
Photo Credits: Mojang



Figure 2.7
Picture of Sorcerers of the Magic Kingdom
Photo Credits: Urban Invention



Figure 2.8
Picture of Acti Wait
Photo Credits: Urban Invention

After examining the public space precedent readings the next step in this thesis was to establish reasons why a person would want to leave the confines of their home and engage in the outside world. By engaging in articles such as Community Engagement in Design and Planning by Aboelata et al, and Engaging by Design: How Engagement Strategies in Popular Computer and Video Games Can Inform Instructional Design by Dickey. These articles mention the various needs of humans appearing within design such as the notion of environments facilitating social connections and increasing opportunities for social interaction (Aboelata et al 1). Or the idea of engagement design can facilitate risk taking, challenging users, and giving choice in the actions of users (Dickey 70). This drove the idea that users could possibly leave their homes to seek engagement in three primary areas of stimulus: **social**, **mental**, and **physical**. (Figures 2.8, 2.9, 2.10)



Figure 2.9
Diagram of Social Need
Photo Credits: Isoflat



Figure 2.10
Diagram of Mental Need
Photo Credits: Isoflat

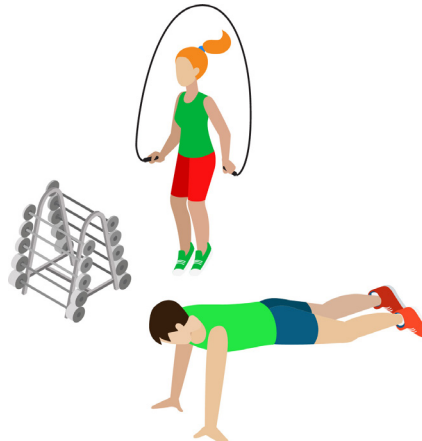


Figure 2.11
Diagram of Physical Need
Photo Credits: Isoflat

CATEGORY

LET'S SORT THEM OUT





Figure 2.12
Collage of precedents
Photo Credits: Omari Crume

In video games, separating different apps and titles into various categories allows users to figure out the features of the game before indulging in it. In this thesis, 6 categories were created in order to sort and understand the various games and apps chosen. These categories are: **Multiplayer**, **Single Player**, **GPS Tracking**, **Augmented Reality Camera**, **Flexible Location**, and **Specific Location**.

Multiplayer features playing amongst other users contrasting with **Single Player** which only has the user play alone.

GPS Tracking features using the players location to effect the events within the game. While games that utilize the **Augmented Reality Camera** has the user's location show within the camera effect how events look within the game.

Flexible Location has players play wherever they want as the location does cause players to not be able to play the game. Contrasting with **Specific Location** which only has the user play in specific locations in order to play the game such as a theme park or museum.

After they were also compared amongst the other categories to better understand the potential popularity of each and how they thrived within the world.



Multiplayer



Single Player



GPS Tracking



Augmented Reality Camera



Flexible Location



Specific Location

Figure 2.13
Category Symbol Key
Photo Credits: Omari Crume

In video games two prominent categories no matter where you look are **Single Player** and **Multiplayer** games. The caveat of mobile apps is that technically a majority of them are multiplayer experiences as with games like Flagstack where users interact indirectly by creating scavenger hunt-like challenges within their own cities. While this is fun and allows you to engage with others a majority of Multiplayer games does not help users create physical bonds with their cooperative or even rival players. Pokémon Go for example has three teams for players to choose from, however you can easily contribute to your team without ever meeting a fellow player. Single Player games such as Euclidean Lands usually take traditional mobile game experiences but use AR or GPS Tracking to gamify the locations around you. In Euclidean Lands the player can walk around and view the puzzle in physical space through their camera lens. While they may lack potential social qualities of Multiplayer games, Single Player experiences can still allow users to express themselves and create visual experiences that can connect to others.



Single Player



Multiplayer



Zombies, Run!



Euclidean Lands



MCCRAFT Ar Editor



Color Quest AR



Pokémon GO



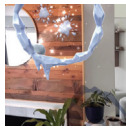
Pikmin Bloom



Ingress Prime



NBA All-World



AR Voyage



ROAR Augmented Reality App



Just a Line



Randonautica



Orna: The GPS RPG



Jurassic World Alive



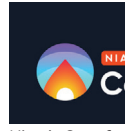
Resources Game



Clash & GO: AR Strategy



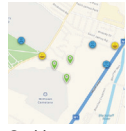
The Witcher: Monster Slayer



Niantic Campfire



Actionbound



Cachly



Play Munzee



TrezzureHunt



Geocaching



Sighter



Flagstack - Capture the Flag

Figure 2.14
Diagram of Single Player and Multiplayer
Photo Credits: Omari Crume

A common trend within mobile apps that utilize **Specific Location** and/or **Flexible Location** is if the location can affect a user's interactive experience. For games such as Pokémon Go that are flexible in the location requirements, users can wander their neighborhood and experience the gameplay loop without needing to be in a single location. On the other end of the spectrum games such as Geocaching, users have to be in specific areas in order to take part in the treasure hunts the app spurs you towards. Both categories work well in capturing player attention and allowing them to become immersed in both the virtual and physical space. However the primary issue that could appear for apps that have specific locations in order to be enjoyed is that external factors such as the weather, or time could interfere with the user being able to enjoy the space as intended. Games with a more flexible location choice allows players to in theory enjoy the game no matter where they are. While flexible games may have a requirement for lighting due to AR Cameras usage depending on the users location it can easily be adapted to conform to the game.



Specific



Flexible



Randonautica



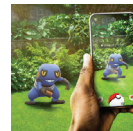
Flagstack - Capture the Flag



Actionbound



Cachly



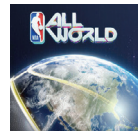
Pokémon GO



Pikmin Bloom



Ingress Prime



NBA All-World



Play Munzee



TrezzureHunt



Geocaching



Sighter



Orna: The GPS RPG



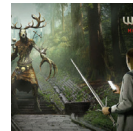
Jurassic World Alive



Resources Game



Clash & GO: AR Strategy



The Witcher: Monster Slayer



Euclidean Lands



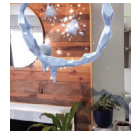
MCCRAFT Ar Editor



Color Quest AR



ROAR Augmented Reality App



AR Voyage



Zombies, Run!



Niantic Campfire



Just a Line

Figure 2.15
Diagram of Specific and Flexible
Photo Credits: Omari Crume



Pokémon GO

4.7 Million Average Monthly Downloads

Pokémon Go is a Augmented Reality (AR) mobile game where users travel the physical world in order to catch the titular character from the hit game Pokémon. Users use their captured allied Pokémon to battle other players and win physical locations for their dedicated team.

Categories



Pikmin Bloom

119.3 Thousand Average Monthly Downloads

Pikmin Bloom is a Augmented Reality (AR) mobile game where players roam their environment to gather the titular Pikmin characters and grow their own gardens.

Categories



Ingress Prime

34.2 Thousand Average Monthly Downloads

Ingress Prime is a Augmented Reality (AR) mobile game where players roam their environment and check in to physical locations to redeem in game items. Players use resources to virtually battle the rival team.

Categories



Figure 2.16

App Category Cards 1

Photo Credits: Omari Crume



Randonautica

192.6 Thousand Average Monthly Downloads

Randonautica is a mobile game where random objectives are given to players in order to explore their neighborhood and cities.

Categories



Zombies, Run!

81.3 Thousand Average Monthly Downloads

Mobile game where players simulate being chased by zombies in order to create a fun way to engage users in their neighborhood and

Categories



Play Munzee

6.8 Thousand Average Monthly Downloads

Mobile game where players search for physical and virtual items within their neighborhood and city to gain points.



Categories



Figure 2.17
App Category Cards 2
Photo Credits: Omari Crume

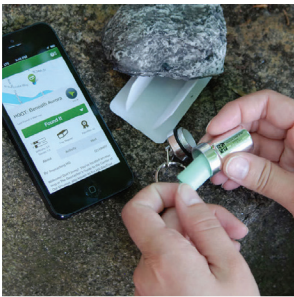
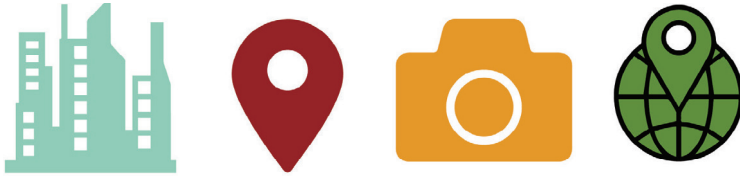


TreasureHunt

Average Player Download Unknown

Mobile game where players search for virtual items within their neighborhood and city to gain points. In order to collect the treasure players have to take pictures of specific areas based on the provided hints.

Categories

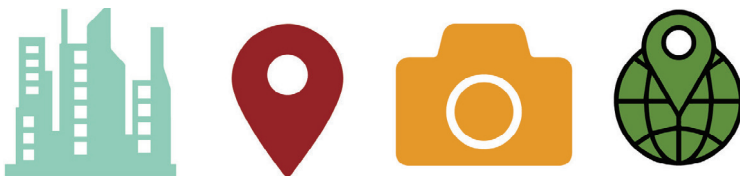


Geocaching

113.8 Thousand Average Monthly Downloads

Mobile game where players search for physical items within their neighborhood and city to gain points. In order to collect the treasure players have to take pictures of specific areas based on the provided hints.

Categories



Sighter

0 Average Monthly Downloads

Mobile game where players search for virtual items within their neighborhood and city to gain points. In order to collect the treasure players have to take pictures of specific areas based on the provided hints.

Categories



Figure 2.18

App Category Cards 3

Photo Credits: Omari Crume



Flagstack - Capture the Flag

376.9 Average Monthly Downloads

Mobile game where players search for physical and virtual items within their neighborhood and city to gain points .

Categories

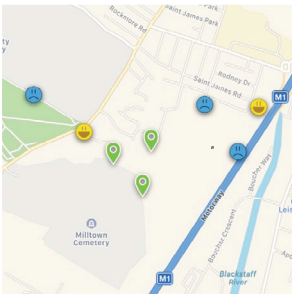


Actionbound

57.2 Thousand Average Monthly Downloads

Mobile game for creating digital scavenger hunts within a players neighborhood or city.

Categories



Cachly

Average Player Download Unknown

Mobile game where players search for virtual items within their neighborhood and city to gain points. In order to collect the treasure players have to take pictures of specific areas based on the provided hints.

Categories



Figure 2.19

App Category Cards 4

Photo Credits: Omari Crume

PLATFORMER

JUMPIN' FOR JOY



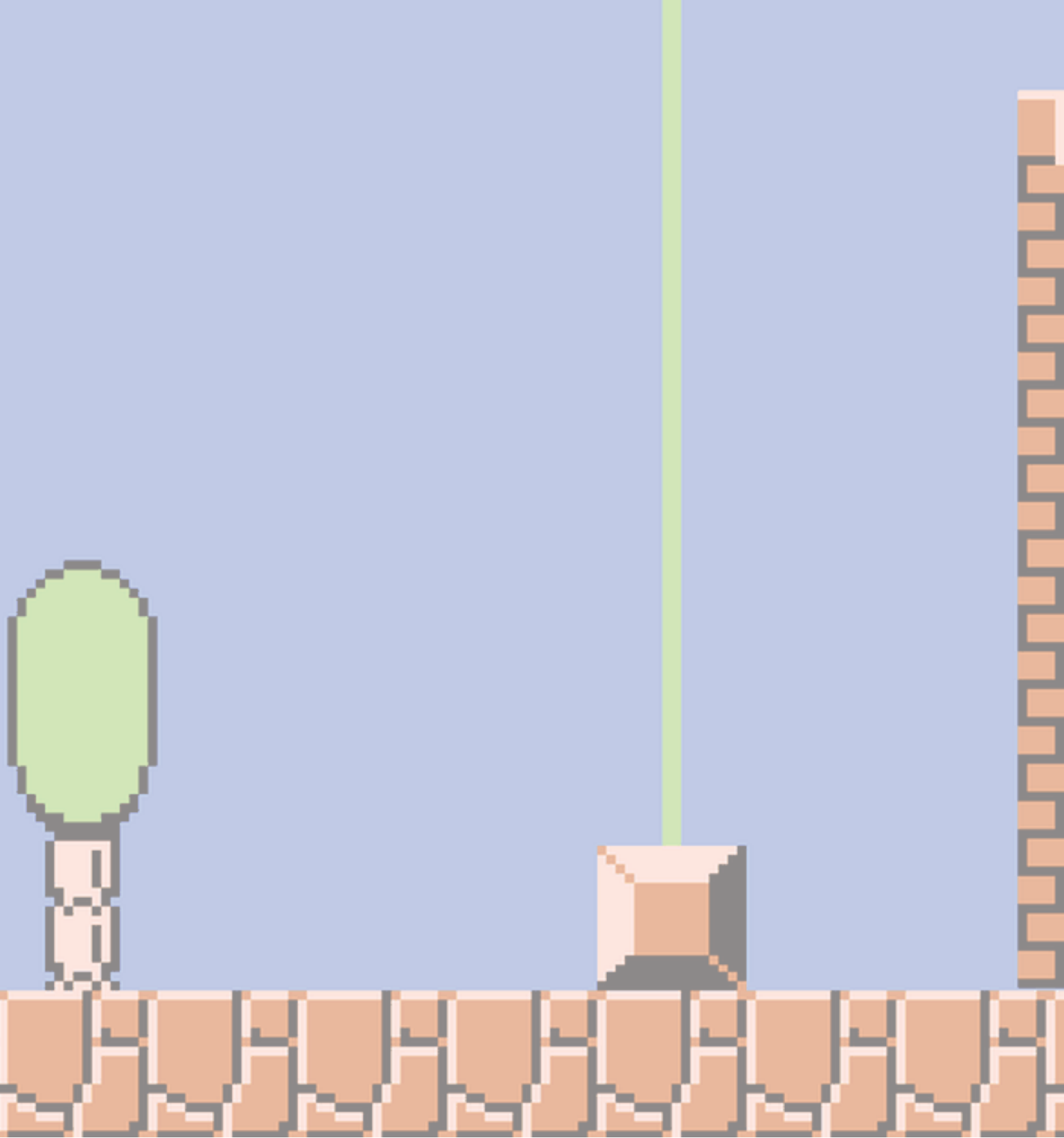


Figure 2.20
Picture of Super Mario Bros.
Photo Credits: Nintendo



Figure 2.21
Picture of *Super Mario Bros.*
Photo Credits: Nintendo

Taking the idea that the primary areas of stimulus that humans desire are **social**, **mental**, and **physical** stimulus, the next step was to connect these desires to both video game genres and public design. To begin I began looking at one of the platformer genre's most famous examples: *Super Mario Bros.* by Nintendo. In *Super Mario Bros.* the goal is for the player character to adventure through perilous levels in order to save the princess from an evil tyrant. *Super Mario Bros.* features common tropes such as, having the player character **run and jump** to their goal, or have the player **solve puzzles** in order to plan their desired path. This genre of games was compared to projects like *Seoul Urban Pinball Machine* by Studio Heech and *DANCE FLOOR* by Verville. *Seoul Urban Pinball Machine* by Studio Heech is a public landscape project where a large scale pinball machine is placed in various areas of South Korea. Users engage in this space by **kicking** a ball to play a full scale pinball machine and **plan strategies** of how to score the highest. The second project in comparison was *DANCE FLOOR* by Verville where large platform-like blocks were temporarily placed on the road towards Montreal's Museum of Fine Arts during their Pompeii exhibition. During this project users engaged in activities similar to platformers in which the users interacted by **jumping over** platforms and **planning** their desired path of movement towards the goal. These precedents related to the idea of Jane Jacobs in which cities should be able to facilitate engagement between strangers, as both projects feature activities where strangers can participate and enjoy themselves through the shared environment.

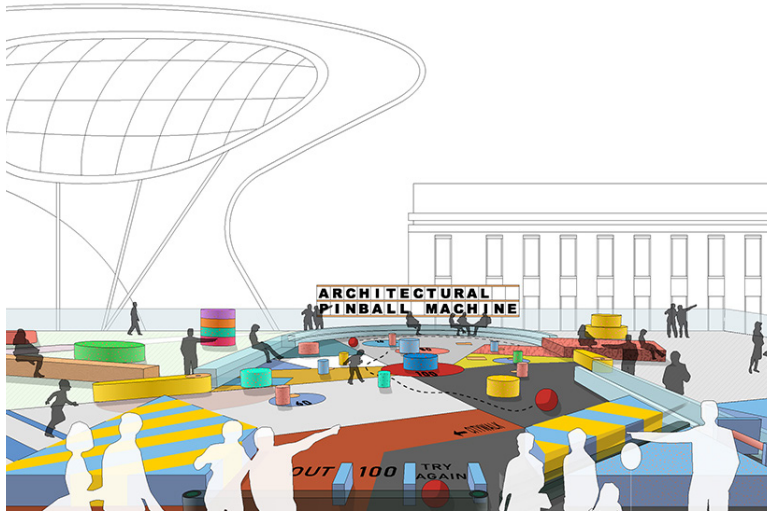


Figure 2.22
Picture of Seoul Urban Pinball Machine
Photo Credits: Studio Heech

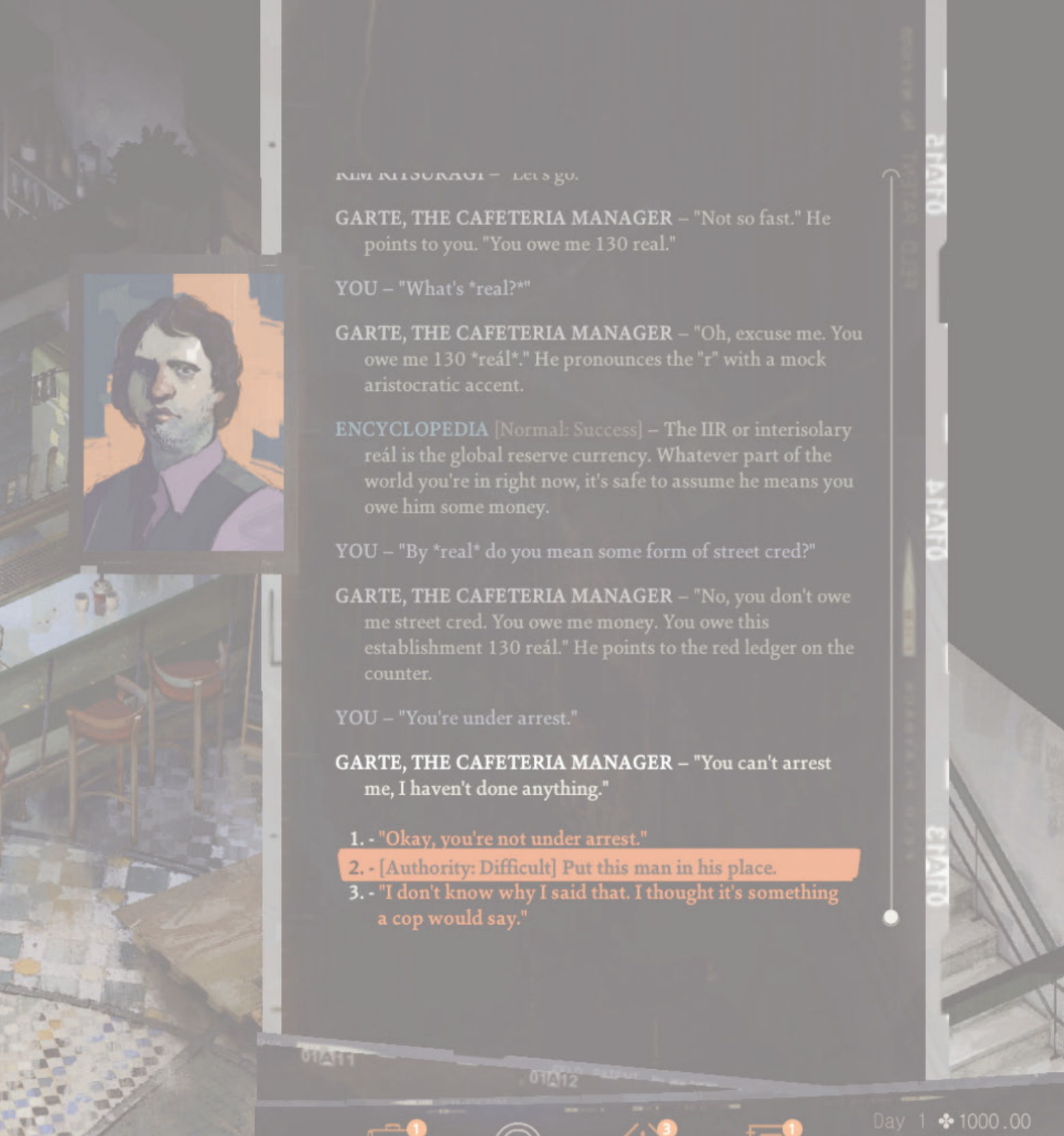


Figure 2.23
Picture of DANCE FLOOR
Photo Credits: Maxime Brouillet and François Bodlet

ACTION-ADVENTURE

THE MYSTERY WON'T SOLVE ITSELF





NIM NITSURAGI – LET'S GO.

GARTE, THE CAFETERIA MANAGER – "Not so fast." He points to you. "You owe me 130 real."

YOU – "What's *real?*"

GARTE, THE CAFETERIA MANAGER – "Oh, excuse me. You owe me 130 *reál*." He pronounces the "r" with a mock aristocratic accent.

ENCYCLOPEDIA [Normal: Success] – The IIR or interisolary réal is the global reserve currency. Whatever part of the world you're in right now, it's safe to assume he means you owe him some money.

YOU – "By *real* do you mean some form of street cred?"

GARTE, THE CAFETERIA MANAGER – "No, you don't owe me street cred. You owe me money. You owe this establishment 130 réal." He points to the red ledger on the counter.

YOU – "You're under arrest."

GARTE, THE CAFETERIA MANAGER – "You can't arrest me, I haven't done anything."

1. - "Okay, you're not under arrest."
2. - [Authority: Difficult] Put this man in his place.
3. - "I don't know why I said that. I thought it's something a cop would say."

Figure 2.24
Picture of Disco Elysium
Photo Credits:ZA/UM



Figure 2.25
 Picture of Disco Elysium
 Photo Credits:ZA/UM

An additional genre of comparison is the Action-Adventure genre of video games where a famous example from 2019 is *Disco Elysium* by ZA/UM. In *Disco Elysium* the player is an amnesiac detective who uses their **intellect**, **strength**, or **charm** in order to solve a murder mystery. In this game and genre the primary features consist of users interacting by **solving puzzles** on their own to reach the goal while also **socializing** with others to gain clues on variations of puzzles. This genre was compared to *Omega Mart* by Meow Wolf and *Super Nintendo World* by Nintendo and Universal Studios. *Omega Mart* is an interactive art exhibit themed as a mysterious futuristic grocery store where users have to solve an Augmented Reality game where they utilize a key card to **hack, research, and solve** the mystery of *Omega Mart*. In comparison to the Action-Adventure genre *Omega Mart* has its users interact with their environment by **solving puzzles** and **socializing** in order to achieve their goal. The second comparison, *Super Nintendo World* is an interactive theme park based on the popular intellectual properties at Nintendo. At *Super Nintendo World* users roam the park completing minigames and activities using their special wristband in order to gain prizes. In comparison to the Action-Adventure genre, users interact by **solving puzzles** and **socializing** in order to achieve their goal. The Action-Adventure precedents related to *Delirious New York* by Rem Koolhaas in which both projects require a financial element however they engage successfully in their respective audiences by giving them a realm of escape from everyday life.



Figure 2.26
Picture of Omega Mart
Photo Credits: Meow Wolf



Figure 2.27
Picture of Super Nintendo World
Photo Credits: Nintendo, Universal Studios

METHODOLOGY



Amplifying user engagement by using video game design elements is the key factor in designing the activities shown within this section. Engaging in activities that satisfy the needs of social, physical, and mental stimulus is something humans crave and is the basis of the framework designs featured in this section. In this section, a series of four activities were designed and shown as potential frameworks that can be used to engage users in the city of Detroit. Each activity will attempt to tackle an interactive need in order to take average, mundane spaces and transform them into engaging spaces. By tackling a social, physical, and/or mental need and implementing video game design techniques these activities will be used to establish a framework that can be replicated in the built environment.

Each activity establishes a method in which the public has the opportunity to engage in an activity that stimulates one or more of their key interaction areas of social, mental, or physical while also engaging in working cooperatively in order to create a safe space for strangers to interact and work together to solve and enjoy the video game inspired activities. Each activity engages in the process of creating a modular framework in order to inspire and build upon the current perception of gamified spaces and to be applied to areas outside of the context of the city of Detroit. Through this new interactions can be forged in engaging users in spaces currently viewed as mundane as a bus stop.

Video games currently have a framework of interactive language that can be universally understood by users through visual and sound cues. These cues can be brought to reality and repeated within a variety of context sizes from a small bus stop to a large urban sprawl. If expanded upon these cues along with the design of the different games frameworks can fit within cities other than Detroit; producing new interactions and allowing further development on this thesis framework's original design.

Figure 3.1
Isometric Diagram
Photo Credits: Omari Crume

THE OPEN WORLD PHYSICS PARK





Create a park inspired by **Open-World** games in order for users to **roam** and **engage** in activities.

The first activity titled “The Open World Physics Park” is an outdoor park inspired by Open-World games for users to roam and engage in a series of physics based puzzles. In Open-World games the player character has the option to leave a puzzle and attempt it later while solving other puzzles that may be easier. This process is replicated in “The Open World Physics Park” as users are able to travel around the park to engage in multiple short activities. The time length of the activities was established to allow multiple games to be finished in one visit. The choice of being able to move on from a difficult game allows players to build up confidence and enjoy puzzles without feeling stressed by being able to succeed (Dickey 70).

While activities were sound they lacked a robustness by implementing technology into the park. Additionally a major criticism would be that a park is not stereotypically mundane, and while it can still be revised into fitting better engagement with video game cues it also brings to question what other areas could gain from gamification.



Figure 3.3
Perspective rendering of site.
 Photo Credits: Omari Crume

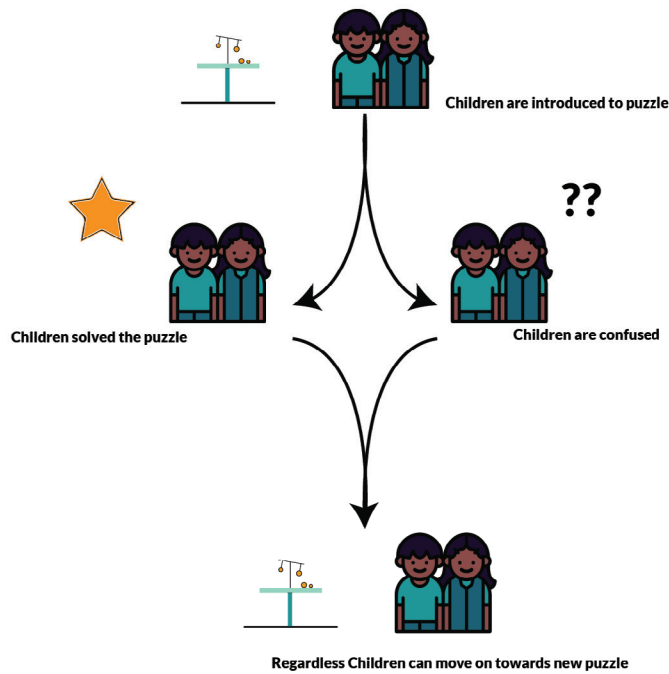


Figure 3.4
Diagram of method.
 Photo Credits: Omari Crume

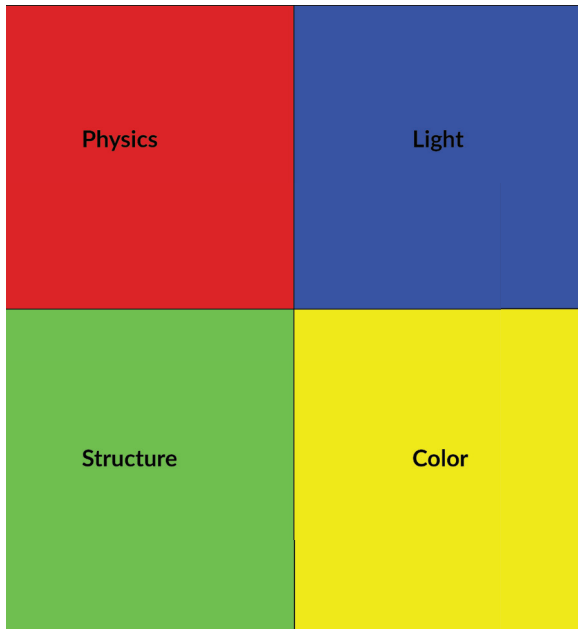


Figure 3.5
 Diagram of program placement.
 Photo Credits: Omari Crume

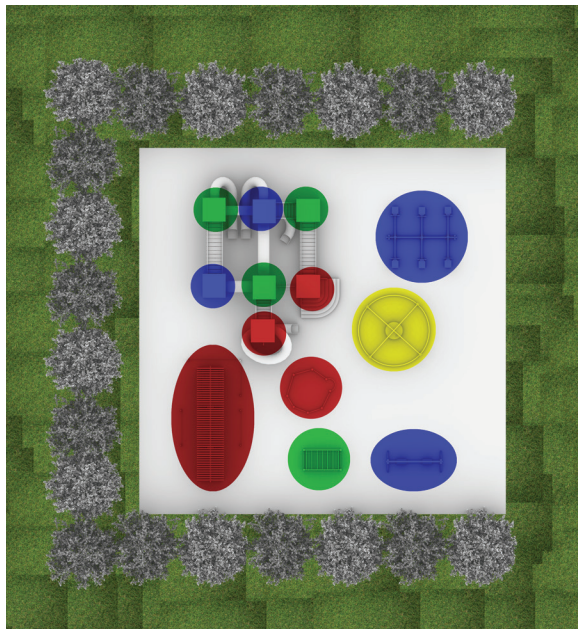


Figure 3.6
 Diagram of program placement.
 Photo Credits: Omari Crume

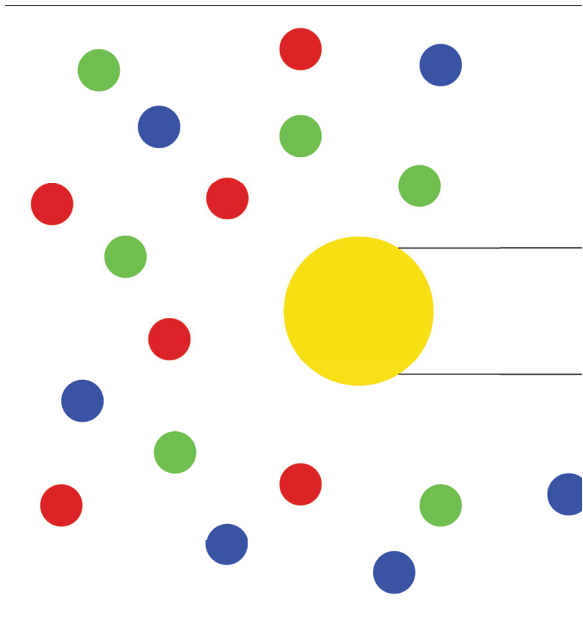


Figure 3.7 Diagram of program placement.
 Photo Credits: Omari Crume

LIGHT WORK





Create a park inspired by **Open-World** games in order for users to **roam** and **engage** in activities.

The second activity, titled “Light Work” is an activity that introduces a framework which focuses on developing a series of cooperative games that citizens of Detroit can participate in at local bus stops. Inspired by light puzzles featured in various video games such as *Outer Wilds* by Mobius Digital and by creating an area to facilitate interactions with strangers from Jacobs writing , this activity has the users utilize their smartphone’s flashlight to participate. The activity is set up to be completed before the next bus would come on an average citizen’s commute. This was established on average Detroit bus times, taking the average of the ten most used bus routes and using that time of having a puzzle that can be learned and completed in less than thirty minutes as a base.

While the activity was creative and worked based on the context of fitting within a bus user’s schedule, a major problem appeared in that the way the activity was positioned it would make the users focus on the activity but not their surroundings. A secondary problem of the game being unbeatable without having two players, therefore if one user would like to engage in the activity and another did not, no one would be able to participate. Taking this knowledge inspired the next activity in that it should allow for cooperation but not enforce it as it can isolate single player users who do not have another user to engage with.

Figure 3.8
Isometric of Light Work
Photo Credits: Omari Crume



Figure 3.9
Isometric of installation.
 Photo Credits: Omari Crume

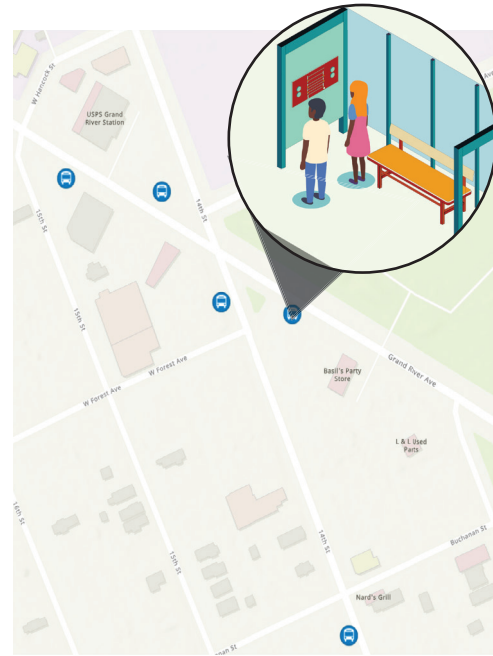


Figure 3.10
Site map of activity location
 Photo Credits: Omari Crume

Activity Instructions

1. Players begin by standing in front of the game.
2. The player to the left of the board (P1) will use the light from their smartphone light on either button to move the player character. The top button is right and the bottom button is left.
 (see Method Diagram 1)
3. The player to the right of the board (P2) will use their phone light on either button to move the platforms. The top button is up and the bottom button is down. (see Method Diagram 2)
4. Players work together to get the player character to the top of the goal. When complete players can reset the game to start from scratch. (see Method Diagram 3)

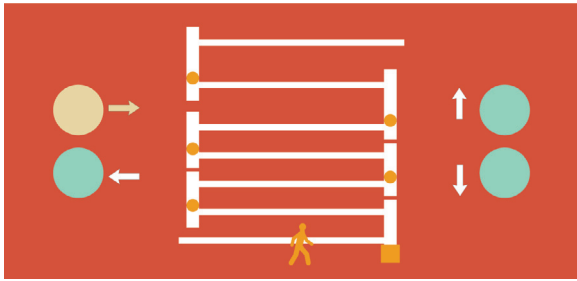


Figure 3.11
Diagram of left light moving Player.
Photo Credits: Omari Crume

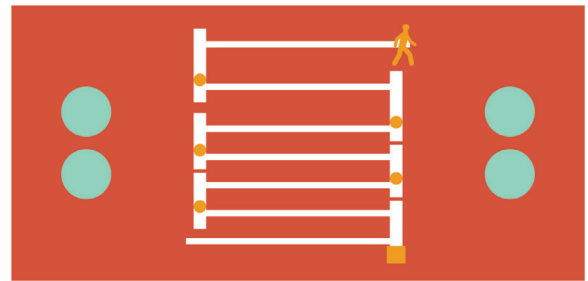


Figure 3.14
Diagram of activity completion.
Photo Credits: Omari Crume

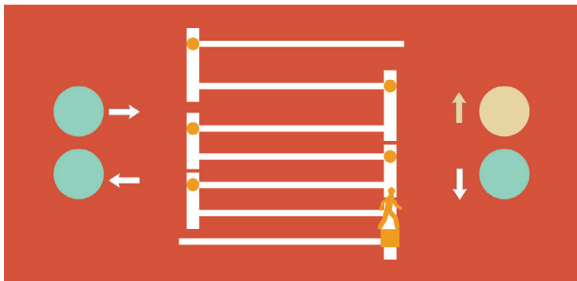


Figure 3.12
Diagram of right light moving platform.
Photo Credits: Omari Crume

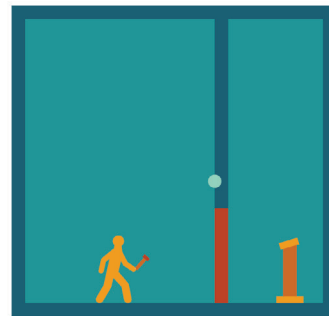


Figure 3.15
Sketch Diagram of light puzzle.
Photo Credits: Omari Crume

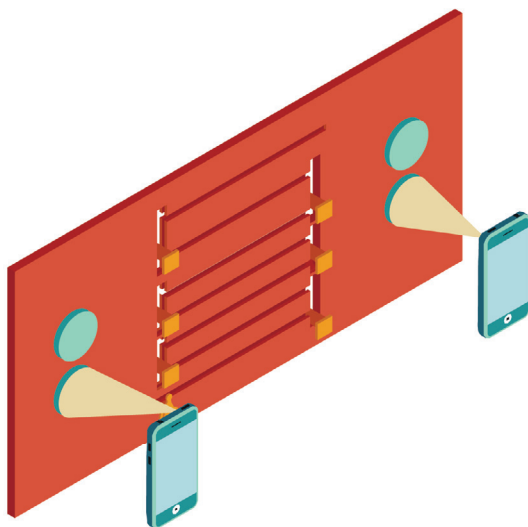


Figure 3.13
Isometric Diagram activity with
smartphones.
Photo Credits: Omari Crume

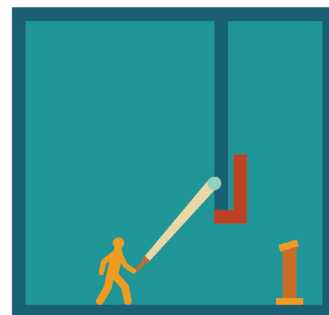


Figure 3.16
Sketch Diagram of light puzzle.
Photo Credits: Omari Crume



BUS STOP
NO STANDING





Figure 3.17
Rendering of site installation.
Photo Credits: Omari Crume

DETROIT CARD GAME





Create an activity where **users work together** to solve environmental **puzzles** at participating **locations across Detroit.**



The third activity, “Detroit Card Game” is an activity that focuses on introducing a framework inspired by Massive Multiplayer Online(MMO) like Final Fantasy XIV by Square Enix and the Sorcerers of Magic Kingdom activity in DisneyLand (Baker) in which various stores and locations around Detroit integrate quest-like activities to engage their users. The Detroit Card Game will have activities across the city that require the use of physical cards titled “Detroit Cards” which are gained by visiting various participating locations in Detroit such as stores, parks, museums, or events. Participation in the activity is meant to be easy to engage in therefore by going to these spaces and participating in the puzzle will allow users to win and gain more cards. Each location will have dedicated themed activities that users can participate in to compete against other players from timed challenges that require users to beat the puzzle with the fastest time or having the users work together to solve puzzles. The activities are created in order to be easily interchangeable in order to retain user interest in every subsequent visit.

The example activity used in this framework is titled “DIA Art Detective”. It is proposed to be located within the DIA and has users solve puzzles in order to figure out what happened to a missing piece of art within the DIA. Within the DIA there will be multiple kiosks with themed puzzles to solve. Users activate kiosks with cards gained from participation in the Detroit Card Game in order to participate in the minigames

Figure 3.18
Isometric of Detroit Card Game
Photo Credits: Omari Crume

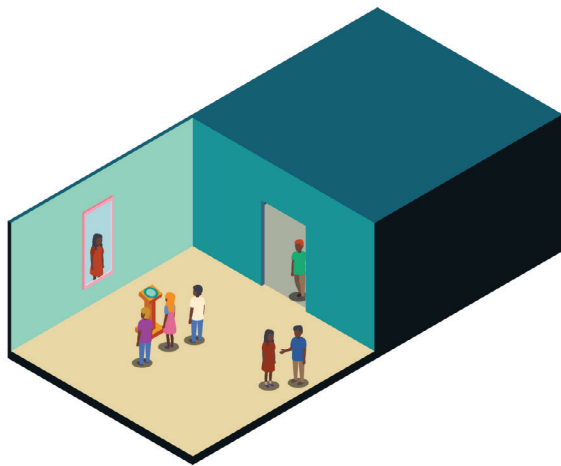


Figure 3.19
Perspective rendering of site.
 Photo Credits: Omari Crume

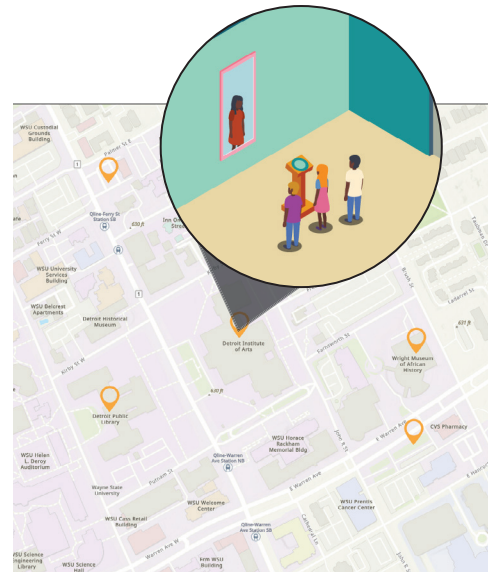


Figure 3.20
Site map of activity location
 Photo Credits: Omari Crume

Activity Instructions

1. Players begin by standing in front of the game.
2. The player to the left of the board (P1) will use the light from their smartphone light on either button to move the player character. The top button is right and the bottom button is left.
 (see Method Diagram 1)
3. The player to the right of the board (P1) will use their phone light on either button to move the platforms. The top button is up and the bottom button is down. (see Method Diagram 2)
4. Players work together to get the player character to the top of the goal. When complete players can reset the game to start from scratch. (see Method Diagram 3)

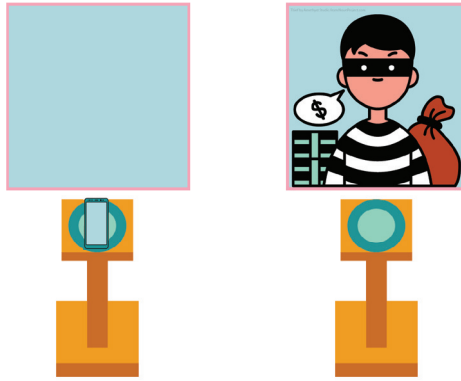


Figure 3.21
 Diagram of kiosk activation.
 Photo Credits: Omari Crume

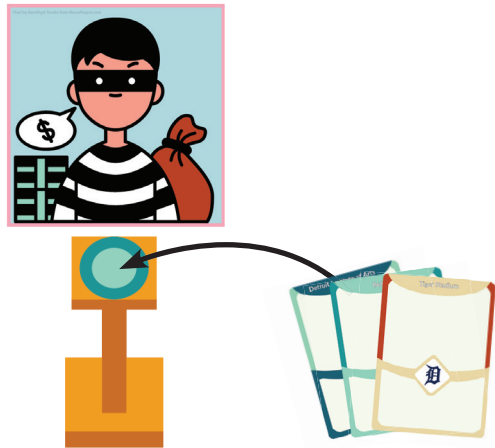


Figure 3.22
 Diagram of card usage.
 Photo Credits: Omari Crume



Figure 3.23
 Diagram of game completion and card upgrade.
 Photo Credits: Omari Crume

DETROIT CITIES APP FRAMEWORK





Create an **app framework** where users will **travel** their cities participating locations and **collaborate** to solve themed augmented reality environmental **puzzles**.

The fourth and final activity is a reinvention of the Detroit Card Game into an app framework in which users participate in various games around the city of Detroit while also being able to reclaim vacant land to build/place new AR games and activities. Each chosen location will be able to have its appearance, games, and scale customized by its respective community and users in order to allow the spaces to be flexible, and give users meaning to revisit the games after completing them. The framework's additional feature of being able to frequently change on an annual rotation allows users to always experience a new activity despite traveling through the area repeatedly in their everyday life. Participation has been adjusted to not only involve playing the game, but to also take part in guiding the design of future themed activities.

Figure 3.24
Isometric of Light Work
Photo Credits: Omari Crume

Types of locations



Figure 3.25
Diagram of Infill site
Photo Credits: Omari Crume

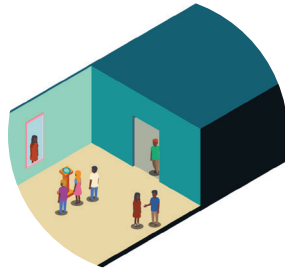


Figure 3.26
Example of Building Renovated site
Photo Credits: Omari Crume



Figure 3.27
Diagram of Site Addition
Photo Credits: Omari Crume

To successfully gamify a space with game design techniques, it is recommended to choose spaces that can be easily engaged by the public. Examples can be vacant lots, renovating sections of buildings, or simply adding them onto bus stops. The choice of locations should not be limited by these options.

Types of locations



Figure 3.28
Diagram of Social Need

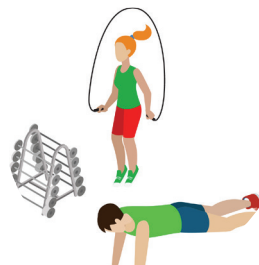


Figure 3.29
Diagram of Physical Need
Photo Credits: Isoflat



Figure 3.30
Diagram of Mental Need
Photo Credits: Isoflat

In order to be successful in designing **gamified spaces** the framework requires the activities allow **users** to satisfy at least one of their **social**, **physical**, or **mental** needs.

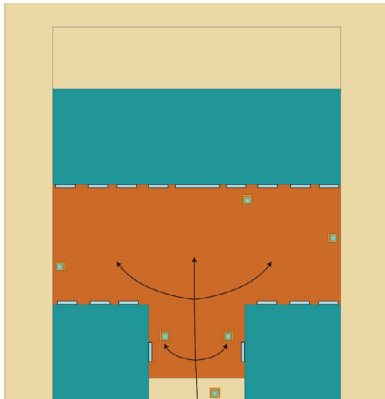


Figure 3.31
Diagram of guided activity
 Photo Credits: Omari Crume



Figure 3.32
Collage of Site
 Photo Credits: Omari Crume

If seeking to adapt a game towards a small to medium scale site, giving users space to *meandre* and *mingle* while being able to immerse them in the space via decorations is key to the experience.



Figure 3.33
Diagram of App Usage
 Photo Credits: Omari Crume

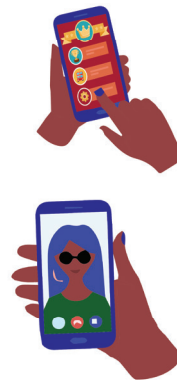


Figure 3.34
Diagram of App Usage
 Photo Credits: Omari Crume

The app should be accessible, allow for user feedback, if possible to integrate into users daily lives through incentives, i.e. public transportation benefits would increase more meaningful usage. The app should blend with the users everyday life and enhance it rather than creating a giant rift.

DETROIT CITIES APP FRAMEWORK: PISTONS TRAINING DAY





Create an **app framework** where users will **travel** their cities participating locations and **collaborate** to solve themed augmented reality environmental **puzzles**.

The example activity used in this framework is titled “Pistons Training Day”. It is located near The Little Caesars arena and features the theme of a basketball court. Within the site is a series of activities based on assisting rookie Detroit Pistons recruits gain roles within the team. Users activate kiosks with their Detroit Cities App on their smartphone in order to begin the minigames which vary from simply using cards or actions to solve puzzles to wandering the site in order to achieve the goals. After the activity users will be able to vote on which games they enjoyed and suggest various changes from a different type of puzzle to a new theme altogether.

Figure 3.35
Isometric of Site Study
Photo Credits: Omari Crume



Figure 3.36
 Perspective rendering of site.
 Photo Credits: Omari Crume

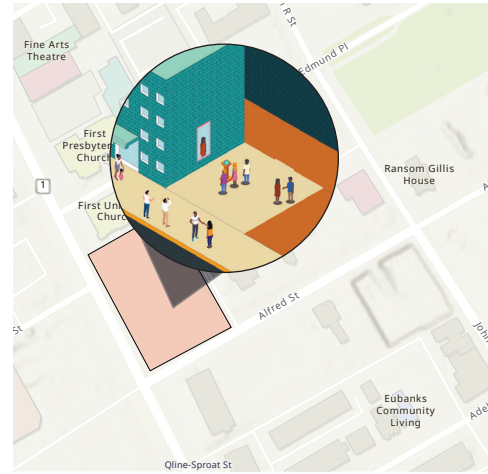


Figure 3.37
 Site map of activity location
 Photo Credits: Omari Crume

Activity Instructions

1. **Players** begin by standing in front of the game kiosk.
 (see Method Diagram 1)
2. To start the game, the **player** uses their phone to activate the kiosk.
 (see Method Diagram 2)
3. Once started the game will give players a set of tasks to complete in the nearby area. Players can choose to work together for bonus experience (**EXP**).
4. **Players** use cards gained from participating game locations to play. Each card has skills attached in order to solve puzzles and conduct actions during the games.
 (see Method Diagram 3)
5. When the game is complete users will move on to the next activity and repeats until all are solved.
 (see Method Diagram 4)
6. User's will receive a new or upgrade card for playing.
7. User **reviews activity** and suggests **changes** for the game to be **updated over time**.

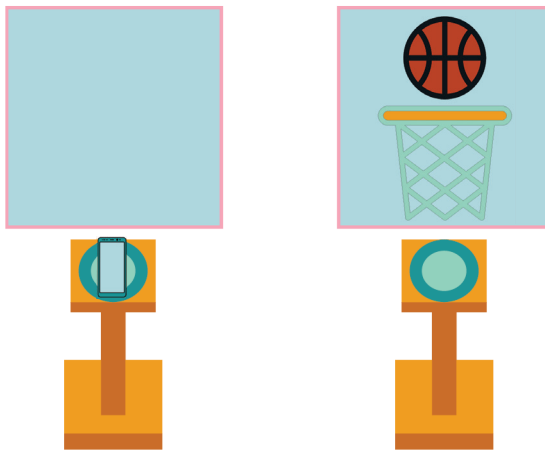


Figure 3.38
 Diagram of kiosk activation.
 Photo Credits: Omari Crume

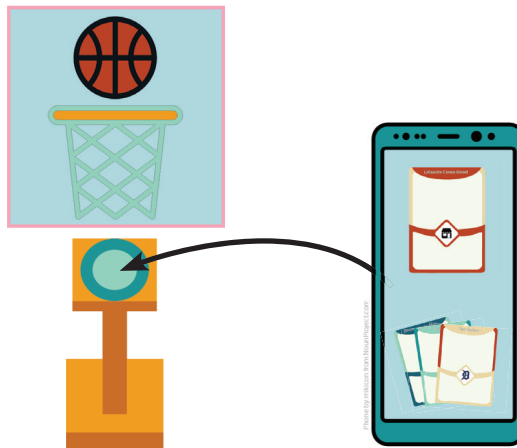


Figure 3.39
 Diagram of kiosk activation.
 Photo Credits: Omari Crume

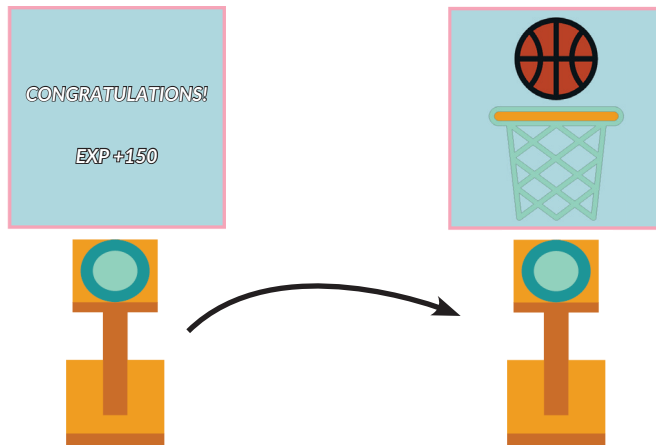


Figure 3.40
 Diagram of game completion and card
 upgrade.
 Photo Credits: Omari Crume

City of Detroit

Data Usage

App will acquire valuable data on which locations citizens in Detroit are engaged in.

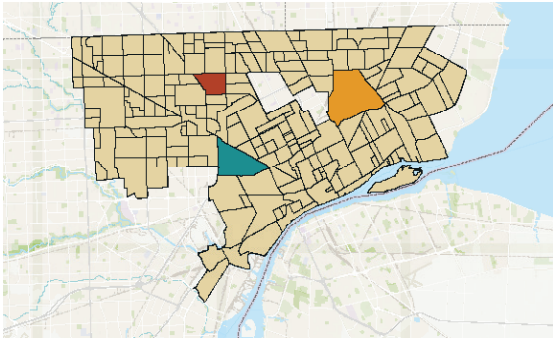


Figure 3.41
Diagram of location data in Metro Detroit.
Photo Credits: Omari Crume

Sponsorship & Affiliation

Businesses gain additional visitors due to app involvement.

Special events that only occur at participating locations.

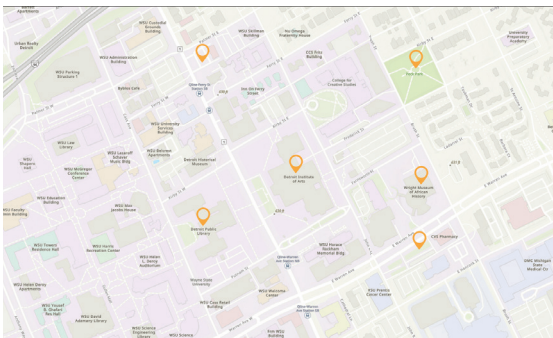


Figure 3.42
Diagram of Detroit Community
Photo Credits: Omari Crume

Users

Subscription Model

App is free, users pay for customization and extra features.

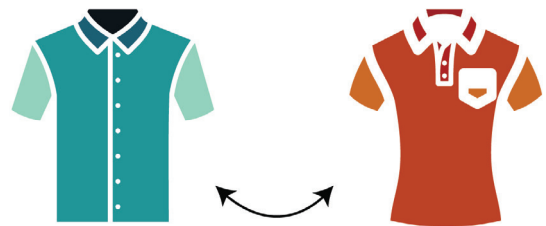


Figure 3.43
Diagram of swapping clothes.
Photo Credits: Omari Crume



Augmented Reality Camera



Multiplayer



Flexible Location



Single Player



Specific Location

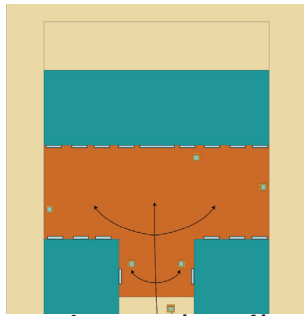


GPS Tracking

Figure 3.45
App Feature Categories
Photo Credits: Omari Crume

To understand the potential effectiveness of the proposed Detroit Cities App Framework we must compare to the previous case study research within this thesis. (Refer to CATEGORY, Page 25) In which we have six primary functions found within mobile apps and games. By critically looking at this idea I can come to terms to say it fits within all six categories. The primary two that it challenges is Flexible Location and Specific Location as while you cannot fully experience all of the game has to offer, there are multiple locations an individual can participate within this game or activity in a large variety of specific areas. I believe the app framework can be successful if given enough space and zones to allow multiple activities to thrive within different communities as it allows users to explore various areas of their city they otherwise may have never touched.

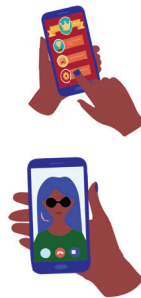
Through the framework's design I believe it can assist cities in integrating interactive experiences through various parts of its neighborhood and infrastructure. By integrating video game design techniques with public design principles it is possible to create an interconnected city.



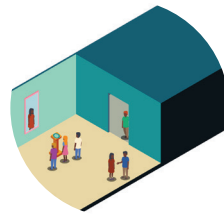
Augmented use of locations



App access



Types of locations



Meeting of various needs



Figure 3.46
 Comparison of App Features
 Photo Credits: Omari Crume

Appendix



Multiplayer



Single Player



GPS Tracking



Augmented Reality Camera



Flexible Location



Specific Location



Specific



Flexible



Randonautica



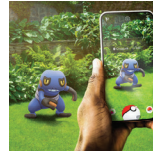
Flagstack - Capture the Flag



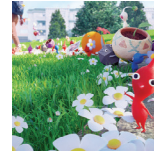
Actionbound



Cachly



Pokémon GO



Pikmin Bloom



Ingress Prime



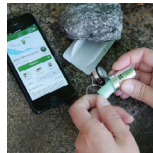
NBA All-World



Play Munzee



TrezureHunt



Geocaching



Sighter



Orna: The GPS RPG



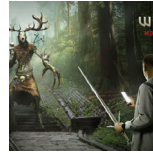
Jurassic World Alive



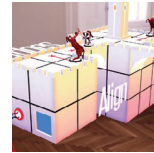
Resources Game



Clash & GO: AR Strategy



The Witcher: Monster Slayer



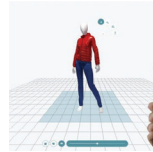
Euclidean Lands



MCCRAFT Ar Editor



Color Quest AR



ROAR Augmented Reality App



AR Voyage



Zombies, Run!



Niantic Campfire



Just a Line



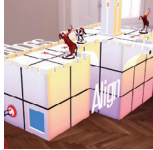
Single Player



Multiplayer



Zombies, Run!



Euclidean Lands



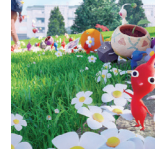
MCCRAFT Ar Editor



Color Quest AR



Pokémon GO



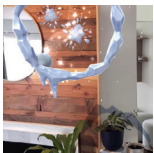
Pikmin Bloom



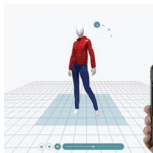
Ingress Prime



NBA All-World



AR Voyage



ROAR Augmented Reality App



Just a Line



Randonautica



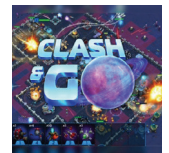
Orna: The GPS RPG



Jurassic World Alive



Resources Game



Clash & GO: AR Strategy



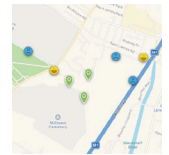
The Witcher: Monster Slayer



Niantic Campfire



Actionbound



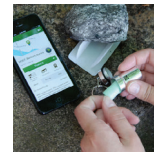
Cachly



Play Munzee



TrezzureHunt



Geocaching



Sighter



Flagstack - Capture the Flag



Pokémon GO

4.7 Million Average Monthly Downloads

Pokémon Go is a Augmented Reality (AR) mobile game where users travel the physical world in order to catch the titular character from the hit game Pokémon. Users use their captured allied Pokémon to battle other players and win physical locations for their dedicated team.

Categories



Pikmin Bloom

119.3 Thousand Average Monthly Downloads

Pikmin Bloom is a Augmented Reality (AR) mobile game where players roam their environment to gather the titular Pikmin characters and grow their own gardens.

Categories



Ingress Prime

34.2 Thousand Average Monthly Downloads

Ingress Prime is a Augmented Reality (AR) mobile game where players roam their environment and check in to physical locations to redeem in game items. Players use resources to virtually battle the rival team.

Categories





Orna: The GPS RPG

97.9 Thousand Average Monthly Downloads

Orna is a classic turn based game where players have to venture to different locations in order to explore and gather materials for their home castle.

Categories



Jurassic World Alive

330.7 Thousand Average Monthly Downloads

Jurassic World Alive is a Augmented Reality (AR) mobile game where users travel the physical world in order to catch the titular character from the hit game Pokémon. Users use their captured allied Dinosaurs to battle other players and win physical locations for their dedicated team.

Categories



Resources Game

18.8 Thousand Average Monthly Downloads

Resources is a location-based MMO mobile game. The idea is to scan your surroundings in the real world for resources, extract them and produce new products to sell.

Categories





NBA All-World

34.2 Thousand Average Monthly Downloads

NBA All-World is a Augmented Reality (AR) mobile game where players roam their environment and recruit NBA players to their teams in order to play virtual basketball games against other players.

Categories



Clash & GO: AR Strategy

Discontinued

Clash & GO: AR Strategy is a mobile game that combines Augmented Reality (AR) and geolocation to have users wander their cities to gather resources and create fortresses. While wandering users could invade others fortresses in order to gain extra materials.

Categories



Niantic Campfire

84.1 Thousand Average Monthly Downloads

Niantic Campfire is a companion app to Niantic games such as Pokemon Go that assists players who desire to create a community around the game within their neighborhoods and cities.

Categories





Randonautica

192.6 Thousand Average Monthly Downloads

Randonautica is a mobile game where random objectives are given to players in order to explore their neighborhood and cities.

Categories



Zombies, Run!

81.3 Thousand Average Monthly Downloads

Mobile game where players simulate being chased by zombies in order to create a fun way to engage users in their neighborhood and

Categories



Play Munzee

6.8 Thousand Average Monthly Downloads

Mobile game where players search for physical and virtual items within their neighborhood and city to gain points.



Categories



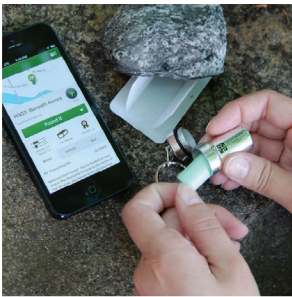
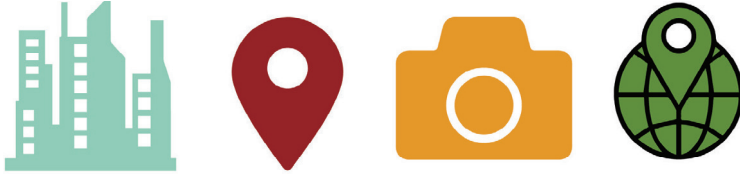


TreasureHunt

Average Player Download Unknown

Mobile game where players search for virtual items within their neighborhood and city to gain points. In order to collect the treasure players have to take pictures of specific areas based on the provided hints.

Categories

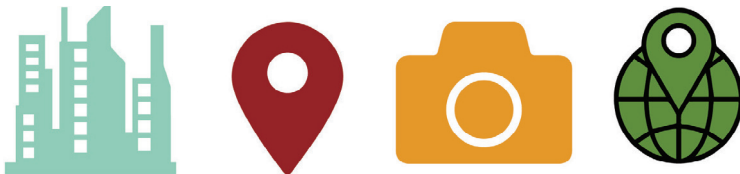


Geocaching

113.8 Thousand Average Monthly Downloads

Mobile game where players search for physical items within their neighborhood and city to gain points. In order to collect the treasure players have to take pictures of specific areas based on the provided hints.

Categories



Sighter

0 Average Monthly Downloads

Mobile game where players search for virtual items within their neighborhood and city to gain points. In order to collect the treasure players have to take pictures of specific areas based on the provided hints.

Categories





Flagstack - Capture the Flag

376.9 Average Monthly Downloads

Mobile game where players search for physical and virtual items within their neighborhood and city to gain points .

Categories

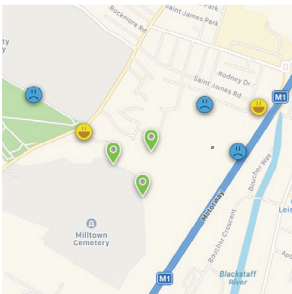


Actionbound

57.2 Thousand Average Monthly Downloads

Mobile game for creating digital scavenger hunts within a players neighborhood or city.

Categories



Cachly

Average Player Download Unknown

Mobile game where players search for virtual items within their neighborhood and city to gain points. In order to collect the treasure players have to take pictures of specific areas based on the provided hints.

Categories



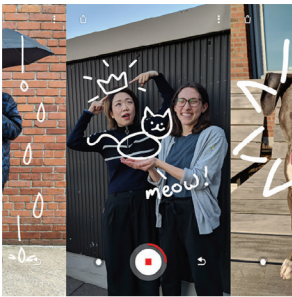
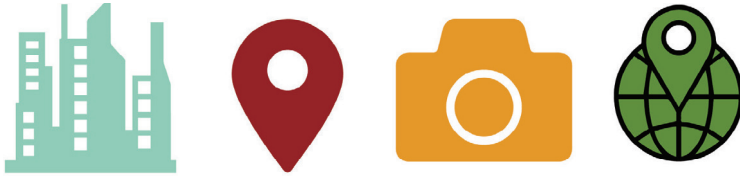


The Witcher: Monster Slayer

3 Thousand Average Monthly Downloads

The Witcher: Monster Slayer is a Augmented Reality (AR) mobile game where players roam their environment and check in to physical locations to hunt monsters and gain items and points to compete against fellow players.

Categories

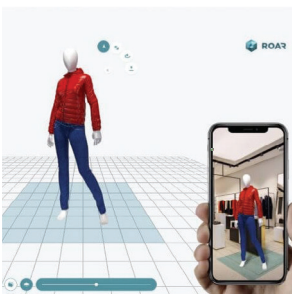
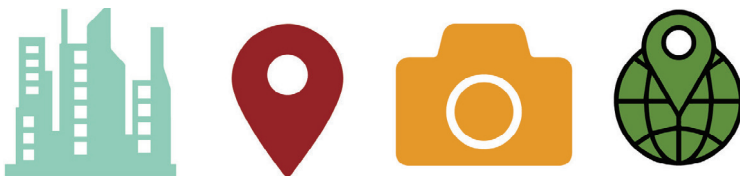


Just a Line

Discontinued

Just a Line was an experimental app that allowed users to draw in Augmented Reality (AR) for shared user experiences.

Categories



ROAR Augmented Reality App

153.7 Average Monthly Downloads

Mobile game that allows users to play with user made Augmented Reality (AR) experiences.

Categories



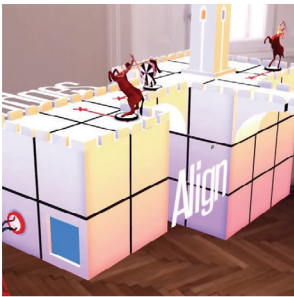


AR Voyage

692.7 Average Monthly Downloads

Mobile game that allows users to play with user made Augmented Reality (AR) experiences.

Categories



Euclidean Lands

Average Player Download Unknown

Euclidean Lands is an isometric puzzle game that allows players to use its Augmented Reality (AR) feature in order to play it in physical space.

Categories



MCCRAFT Ar Editor

5 Thousand Overall Downloads

MCCRAFT Ar Editor is a mobile game that allows its users to design Augmented Reality (AR) art.

Categories





Color Quest AR

1 Million Overall Downloads

Color Quest AR is a mobile game where the user colors various character then said character is rendered in 3D via the apps Augmented Reality capabilities. Users play minigames and learn healthy habits with their colored creation.

Categories



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Figure 2.1 *Collage of precedents* Photo Credits: Omari Crume

Figure 2.2 *Book cover of the Situationist City* Photo Credits: Simon Sadler

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Figure 2.8 *Picture of Acti Wait* Photo Credits: Urban Invention Retrieved at <http://urban-invention.com/> on April 24th 2022.

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Figure 2.21 *Picture of Super Mario Bros. Photo Credits: Nintendo, Retrieved at nintendo.com on January 17th 2022.*

Figure 2.22 *Picture of Seoul Urban Pinball Machine, Photo credits: Studio Heech, Retrieved at <http://www.studioheech.com/index.php/projects/seoul-urban-pinball-machine/> on January 18th 2022.*

Figure 2.23 *Picture of DANCE FLOOR, Photo Credits: Maxime Brouillet and François Bodlet, Retrieved at <https://www.jeanverville.com/projet/34-dance-floor-34-musee-des-beaux-arts-de-montreal> on JJanuary 18th 2022.*

Figure 2.24 *Picture of Disco Elysium, Photo Credits: ZA/UM, Retrieved at https://store.steampowered.com/app/632470/Disco_Elysium__The_Final_Cut/ on January 18th 2022.*

Figure 2.25 *Picture of Disco Elysium, Photo Credits: ZA/UM, Retrieved at https://store.steampowered.com/app/632470/Disco_Elysium__The_Final_Cut/ on January 18th 2022.*

Figure 2.26 *Picture of Omega Mart, Photo Credits: Meow Wolf, Retrieved at https://assets-global.website-files.com/5dad7a19f43e6f31a9e92718/60139b92881ac15acd7424c3_lv-slide-1.jpg on January 18th 2022.*

Figure 2.27 *Picture of Super Nintendo World, Photo Credit: Nintendo, Universal Studios, Retrieved at <https://super-nintendo-world.usj.co.jp/en/us/about> on January 22nd 2022.*

Figure 3.1 *Isometric Diagram* Photo Credits: Omari Crume

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Figure 3.17 *Rendering of site installation*. Photo Credits: Omari Crume, Base Image retrieved at [googleearth.com](https://www.google.com/maps/@42.331516,83.046878,15z) on April 5th, 2022.

Figure 3.18 *Isometric of Detroit Card Game* Photo Credits: Omari Crume

Figure 3.19 *Perspective rendering of site*. Photo Credits: Omari Crume

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