

# Implementation of Interactive Tourist Information Media with The Theme of “Sparkling Surabaya”

Crisientia Pranata Raharja\*, Hoo, Leony Gracia Budi Saputra\*\*

\* Departement of Interior Design, Petra Christian University

\*\* Departement of Interior Design, Petra Christian University

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## ABSTRACT

Surabaya, the city of heroes, was a silent witness of Arek Suroboyo’s struggle against the colonial invaders. As a result, it made a huge impact on the birth of many historical relics and triggered Surabaya to develop their tourism potential. Through “Sparkling Surabaya” branding, facilities that were provided by the government are very diverse, but public awareness of the tourism potential was still lacking. This had become the government’s concern to introduce Surabaya with a new face by presenting something that can attract citizens of Surabaya that was very fluent in technologies. This research aims to create interactive media that can attract citizen of Surabaya to become more aware of the tourism potential. The method applied to solve this problem is design thinking, which is understand, ideate, prototyping, and test. The result of this research is the design of an tourist information interactive media, by creating an open passageway that was placed in strategic locations such as malls, parks, and sidewalk access to public transportation. The usage of technology could support Surabaya tourism with interactive methods and made an impact on improving the economy of Surabaya.

## SARI PATI

Surabaya, kota pahlawan yang merupakan saksi bisu perjuangan “Arek Suroboyo” melawan penjajah kolonial. Hal tersebut berdampak pada munculnya banyak peninggalan bersejarah dan membuat Surabaya mulai mengembangkan potensi wisata mereka. Melalui cap “Sparkling Surabaya”, fasilitas yang disediakan oleh pemerintah sangat beragam, namun kesadaran masyarakat tentang potensi wisata masih kurang. Hal ini menjadi perhatian pemerintah untuk memperkenalkan Surabaya sebagai wajah baru dengan menghadirkan sesuatu yang dapat menarik generasi Z saat ini yang sangat fasih dalam teknologi. Metode yang digunakan untuk mengatasi masalah ini adalah *design thinking*, yaitu *understand*, *ideate*, *prototyping*, dan *test*. Tujuannya adalah untuk menciptakan media interaktif yang dapat menarik generasi Z untuk menjadi lebih sadar akan potensi pariwisata. Diimplementasikan dengan menciptakan koridor ruang terbuka yang ditempatkan di lokasi strategis seperti pusat perbelanjaan, taman, dan trotoar yang memiliki akses menuju transportasi umum. Penggunaan teknologi dapat mendukung pariwisata Surabaya dengan metode interaktif dan berdampak pada peningkatan ekonomi Surabaya.

Corresponding Author:

Email: crisientia.pr@gmail.com

## INTRODUCTION

Surabaya itself has a great potential in terms of tourism. It was said by the Indonesian tourism minister that Surabaya had the highest growth in the tourism sector in Indonesia at 40 percent in 2018 (Prodjo, 2018). Surabaya has several historic tourist sites, such as the Surabaya Youth Hall, the Bank Indonesia Museum and even some educational museums that are often more forgotten. However, some of these cultural heritages that should be protected cannot be preserved because it has been eroded by the flow of modernization from globalization. This is a special concern that must be resolved immediately. Surabaya itself set a target of 28 million tourists who will enter the Surabaya area (Surabaya City Government Advertorial, 2019). Of course, that number will increase every year. But what happens if the source of information for tourists is still incomplete? Surabaya already has a tourism center, even has a website. But of all these media still lack in their role to provide information needed by tourists.

Humans tend to do things themselves without the help of others. Independence is an important thing for humans today. This also applies to the search for information. There must be an easier way to convey to the public and tourists to get the information they need quickly and interactively. Surabaya already has an information website. The completeness of the information on this website still cannot answer the needs of both local and foreign tourists. The Surabaya Tourism Board formed by the mayor of Surabaya is very helpful in increasing local and foreign tourist arrivals to come to Surabaya. Unfortunately, this website last provided an update of information in 2011. Important information such as tourist attractions, access to locations to lodging is very necessary, but this information is scarce despite the fact that we have entered the era of the Internet of Things (IoT) which is very focused on the excellence of online technology.

The needs of tourism information is very high. Using technologies such as Augmented Reality (AR) and Barcode make things easier to find, without any obstruction. Thus, this research aims to bring up an idea to make a tourist information medium in which information can be obtained while walking in a tourist destination. It will be very effective to promote other tourism destination - in this case the less popular tourism site, on the generally known tourism site. The figure and implementation would be described in the results later in this paper.

### 1. Surabaya's Branding : Sparkling Surabaya

Surabaya has the 'Sparkling Surabaya' brand that has begun to be known publicly. This branding has the meaning of sparkling, lively so that the face of Surabaya also had become more sparkling with the number of lights that adorn every corner of the city of Surabaya. The city that never dies with a variety of interesting events and attractions, makes the face of this city more sparkling. Various parks and public facilities add to the impression of sparkling (Saveasbrand, 2018).



Figure 1. Boat at the Kalimas Festival  
(Source: Photograph by Mundri Winanto, 2015)



Figure 2. Sparkling Surabaya Photo  
(Source: Photograph by Detta Priyandika, 2017)



Figure 3. Sparkling Surabaya Logo  
(Source: Focustion.blogspot.com, 2016)

## 2. Interactive Media

Based on Merriam-Webster dictionary, Interactive means involving the actions or input of a user. Media means of mass communication (broadcasting, publishing, and the Internet) regarded collectively. Thus, Interactive media means a media that involves the actions of a user (Spacey,2017). Usage of this media can involve our thoughts, feelings, attention, interest to accept information so the process of communication could happen. Interactive media can create dynamic presentation involving text, graphic, image, audio animation and video animation (Sudjono,2012). Interactive media accommodate creative ideas and could communicate information. Interactive media in the form of tourist information also can be called e-tourism, the letter e refers to electronic.

## 3. Types of Interactive Media

There are common interactive media that was generally known (Spacey, 2017), such as:

- a. Application of software : Software designed as a tool for users.
- b. Application or apps : Software for mobild devices.
- c. Games : Entertaining softwares.

- d. Virtual Reality : Users feel as if they are in a real world except, they are not, they are in a virtual world.
- e. Pervasive games : Games that mix virtual and physical environment or real world.
- f. Interactive video : Streaming video.
- g. Publication : For the example websites.
- h. Social media : Digital communities.
- i. Art : Art that involves the observer.
- j. Advertising : Digital poster, outdoor advertising.
- k. Theme parks : Combining media, such ad movies with physical attraction.
- l. Cinema : Cinema that allows user to feel like the actors, game-like.

In this paper, we will focus on combining application from phones with the real world. The usage of social media takes a huge impact on the publication of this design.

#### 4. Augmented Reality

Augmented Reality or AR is an interaction between humans and machine, that overlays computer generated information on the real-world environment (Ong & Nee, 2010). In simple words, AR is a technology that could make virtual and reality become side by side. AR technology does not work alone, it needs wearable computing gears, global positioning system (GPS), etc. Real-time computation is a must to make the virtual and reality become synchronize and it must be achieved in the shortest possible interval of time (Ong & Nee, 2010). As said by Ong and Nee in their book, four things must be investigated before using AR.

##### a. Registry

The objects must be accurately aligned in the virtual and real world. If it aligns well, it won't cause any confusion or maybe error.

##### b. Latency

This is very important if the AR is aligned with a moving object. The delayment could cause error.

##### c. Calibration

An extensive calibration is very important to ensure high accuracy of registry. On the present day, there's been calibration-free renderers, an auto-calibration system of automatic measurement of changing calibration parameters.

##### d. Human Factors

Human factors are very important because human is the user of AR. It should be as comfortable as it is, to ensure everything goes as planned and as the AR should function. Eye strain and other physical injuries, could happened if too much time is used on AR.

#### 5. Types of Tourism in Surabaya

Surabaya has a variety of tourism site that can be visited by citizen of Surabaya and others from another region or even overseas. According to wisatasurabaya website (2009), the tourist destination found in Surabaya are classified as:

##### a. Historical Tourism

- Northern Surabaya historical tourism site:
  - Loka Jaya Srana Museum
  - Monument of J alasveva Jayamahe
  - Internatio Building

- *Jembatan Merah* (Red Bridge)
- *Patekan* Bridge
- House of Sampoerna
- Southern Surabaya historical tourism site:
  - Monument of *Mayangkara*
  - Monument of *Wira Surya*
  - Monument of *Bahari*
  - Monument of *Ronggolawe*
- Central Surabaya historical tourism site:
  - Museum of 10<sup>th</sup> November
  - Heroes Monument
  - Monumen of Submarine (*Monkasel*)
  - Monument of *Perjuangan*
  - Monument of *Bambu Runcing*
  - Monument of Governor Suryo
  - Monument of General Sudirman
  - Grahadi Building
  - RRI Building Surabaya
  - Youth Center (*Balai Pemuda*)
  - National Indonesia Building
  - Darmo Hospital
  - Majapahit Hotel
  - City hall of Surabaya
- Eastern Surabaya historical tourism site:
  - Tomb of W.R. Soepratman (The composer of national song Indonesia Raya)
- Western Surabaya historical tourism site:
  - *Gedung Juang DHD 1945*
- b. Religious Tourism
  - Northern Surabaya religious tourism site:
    - *Pura Jagad Karana*
    - *Kelahiran Santa Perawan Maria (Church of the Birth of Our Lady)*
    - *Ampel* Mosque
  - Southern Surabaya religious tourism site:
    - Al-Akbar Mosque
  - Central Surabaya religious tourism site:
    - Tomb of Ki Ageng Bungkul
    - Statur of Joko Dolog
    - Cathedral Church
    - Kemayoran Mosque
  - Eastern Surabaya religious tourism site:
    - *Sanggar Agung* Temple
    - Cheng Ho Mosque
- c. Wisata Kuliner
  - *Rawon*
  - *Pecel*
  - *Rujak cingur*
  - *Lontong kupang*
  - *Lontong balap*
  - *Bakwan*

- *Bebek goreng*
  - *Kikil*
  - *Tahu tek*
  - *Soto ayam*
  - Dessert
- d. Entertainment
- Northern Surabaya entertainment tourism site:
    - Tanjung Perak harbor
    - Kalimas harbor
    - *Jembatan Merah Plaza*
    - ITC Mega *Grosir*
    - *Pasar Atom*
    - *Kapasan Baru* market
  - Southern Surabaya entertainment tourism site:
    - Surabaya Zoo
    - Royal Plaza
    - Plaza *Marina*
    - Darmo Trade Center
    - City of Tomorrow
  - Central Surabaya entertainment tourism site:
    - Bungkul park
    - Prestasi park
    - Cak Durasim Cultural Park
    - Tunjungan Plaza Mall
    - Surabaya Plaza Mall
    - BG Junction Mall
    - *Blauran* Market
  - East Surabaya entertainment tourism site:
    - Galaxy Mall
    - East Coast Center
  - West Surabaya entertainment tourism site:
    - Ciputra Water Park
    - Surabaya Town Square
    - Pakuwon Mall
    - Lenmarc

## METHODS

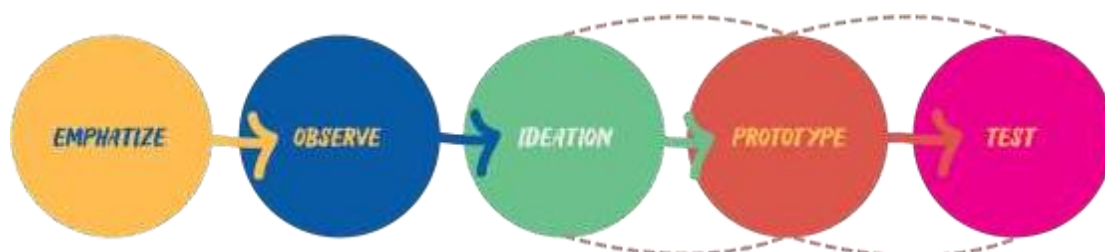


Figure 4. D.School Model for Brainstorming Methods  
(Source: Illustration by Author, 2019)

According to Tim Brown, IDEO, design thinking is “a human-centered approach to innovation that draws from the designer’s toolkit to integrate the needs of people, the possibilities of technology, and the requirements for business success.” (Connor, 2019). Thus, making design thinking a greater tool for solving problem by considering human values and more creative than the traditional design approaches (Waloszek, 2012). Design thinking itself, divided into 4 different methods, Understand, Ideate, Prototype and Test. Understand would be divided into Empathize and Define as the figure above shown.

### **1. Empathize**

The first step is focusing on how to understand people. This point is about the user, how’s the user’s feelings, why they did something, and what is their point of view in a specific way, what they need and matters to them. This step can be done by using empathy map and contextual interviews.

### **2. Define**

The second step is focusing on what is the problem. This is an important phase, because it is determining what is our focus based on the facts that are gathered with the empathize phase. Determining the next point of view is very important to make easier transition towards ideation phase. A good point of view has provided focus and frames the problem, inspires the team, informs criteria for evaluating competing ideas, empowers the team to make decisions independently, in parallel, captures the hearts and minds of the people you meet (Connor, 2019).

### **3. Ideation**

The third step is all about brainstorming and developing ideas to give solution of the problem stated in the define process. This stage could give new insights, exploring new things that we never think before. Never limit yourself to think of anything, even if its bad at first, but keep in mind it can come in handy later.

### **4. Prototyping**

The step focusses on making the design into life. But it is not the same as making the real product, its a sample product to make us see, what it is going to be in real life. Prototyping is very important in business, reducing the cost and time to introduce a product to a client. Prototyping could use 3D software, gadget, or storyboard.

### **5. Test**

The last step is focusses on gathering information how the users feels about the product. This stage is to get feedback of the users how the product should be or how the product feels. This stage is to refine any blemishes at the prototype and then, it could get to the market.

Design thinking is not a linear stage. It won’t always go from empathize to define etc. It could also jump into one another. From ideation, to prototyping to test and then go back to ideation, is something that is normal in design thinking. The main purpose of this method is to realize a product as real and functional as possible.

## **RESULTS AND DISCUSSION**

The design of an interactive tourist information media in Surabaya was made with the aim of introducing Surabaya tourism to citizens. This object was created and placed on the sidewalk of a major highway and for the case study, currently used as the sidewalk on Embong Malang Street. The reason for laying out the design of this object on the sidewalk is to attract the attention of people to not only walk but also get information about the various attractions that are in Surabaya.



Figure 5. Embong Malang Street  
(Source: Photograph by Author, 2019)

The design of the interactive tourist information media is made by following technological developments and adjusting to the current millennial generation. One of them is by using augmented reality technology or what we know as AR. This application is done by scanning a barcode that is in the tourist information media and can later be connected to Surabaya travel websites. In addition to the use of augmented reality, the use of motion gestures is also an option implemented in this tourist information media. The use of motion gesture is intended to invite and attract the attention of pedestrian communities to stop and enter the tourist information aisle to find out about the attractions in Surabaya.



Figure 5. Tourist Information Design  
(Source: Design by Author, 2019)

This tourist information media was designed to 10 meters long and 3 meters wide with a height reaching 3.4 meters. The frame of this aisle is made using hollow iron with a size of 120 cm x 120 cm which is finished using a black powder coating. Hollow metal is also equipped with the use of transparent glass on the ceiling and the walls. The use of glass on the ceiling is intended so that direct sunlight can shine and provide direct lighting. While the use of glass on the right and left side walls is intended so that pedestrians and drivers of public and private transportation can see the contents contained in the alley. This of course will attract the attention of people around him to come in and try various interactive things in it. Also, this could ensure the security of the place. On the ceiling, fairy light is also given which is used as a representation of the "Surabaya Sparkling" branding so that at night this tourist information facility can be illuminated and still attract the attention of the surrounding community.



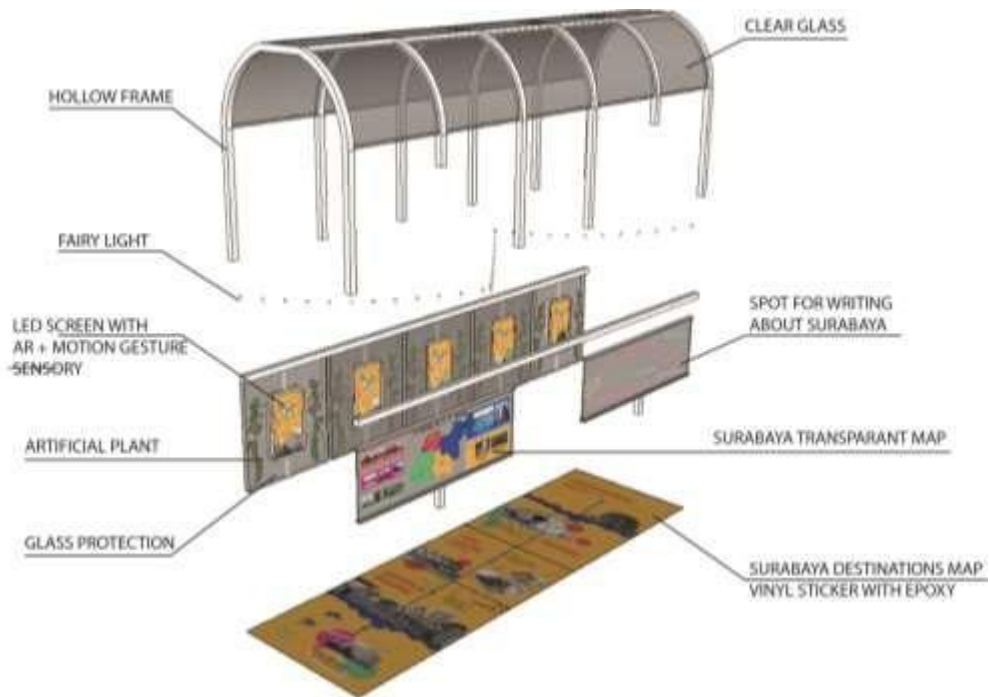


Figure 6. Axonometric  
(Source: Design by Author, 2019)

FRONT VIEW

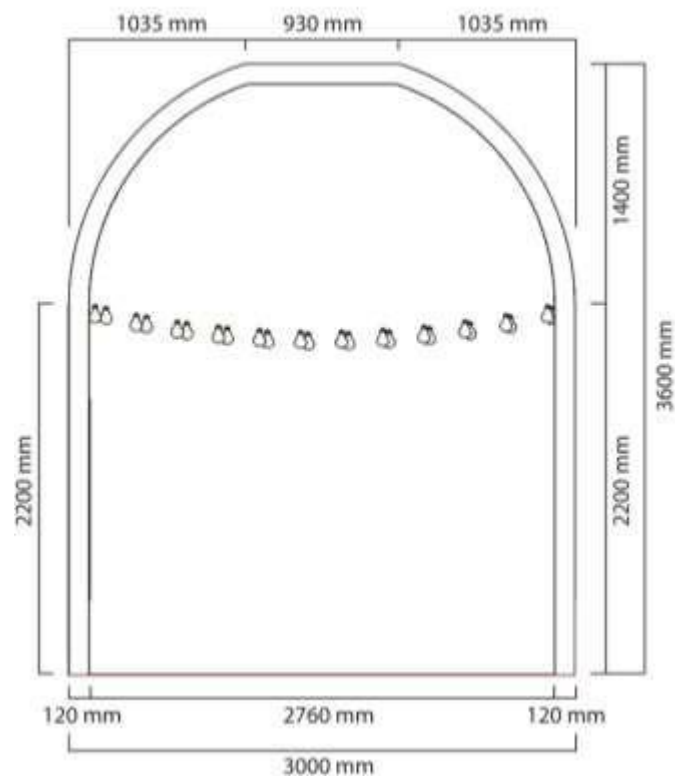


Figure 7. Front View  
(Source: Design by Author, 2019)

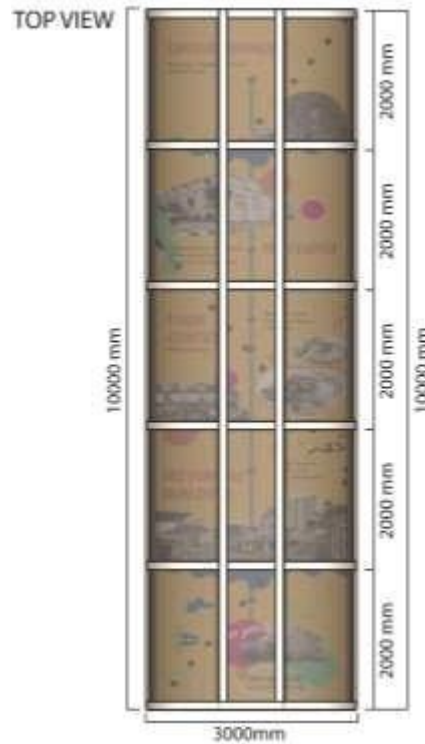


Figure 8. Top View  
(Source: Design by Author, 2019)

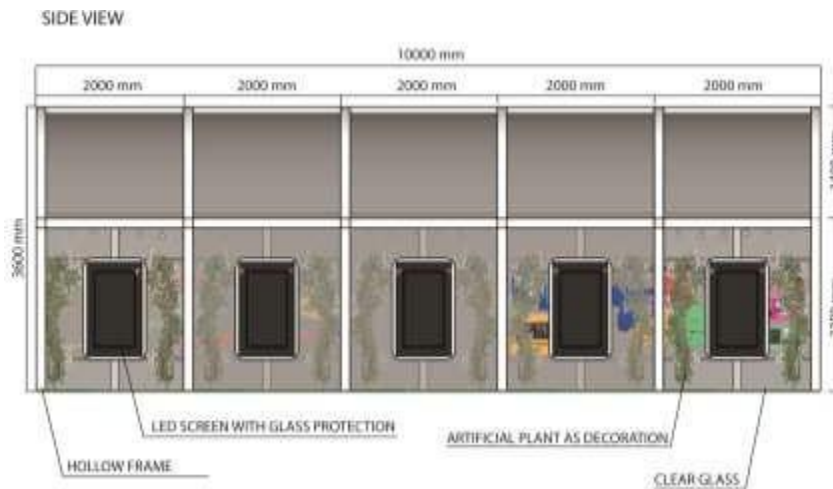


Figure 9. Side View (Left)  
(Source: Design by Author, 2019)

On the left side, there are five LED screens that are equipped with augmented reality and motion sensors. These five screens are distinguished for the division of five different explanation areas that were adjusted to the mapping division zone on the floor. The division of this zone are the area of Tunjungan Street (as the main attraction of the street), historical buildings, food centers, museums, and entertainment areas. LED Screen in each zone provides tourist information about the zone. The display on the LED screen can be alternated with interesting visuals to provide tourist information to the general public. Each information display on the LED screen is equipped with a QR Code that can

be scanned using a mobile phone, which will then be directed to tourism sites in Surabaya that can facilitate local and foreign tourists in obtaining information directly.



Figure 10. Floor Mapping  
(Source: Design by Author, 2019)



Figure 11. Visualisation on LED Screen with QR Code  
(Source: Design by Author, 2019)

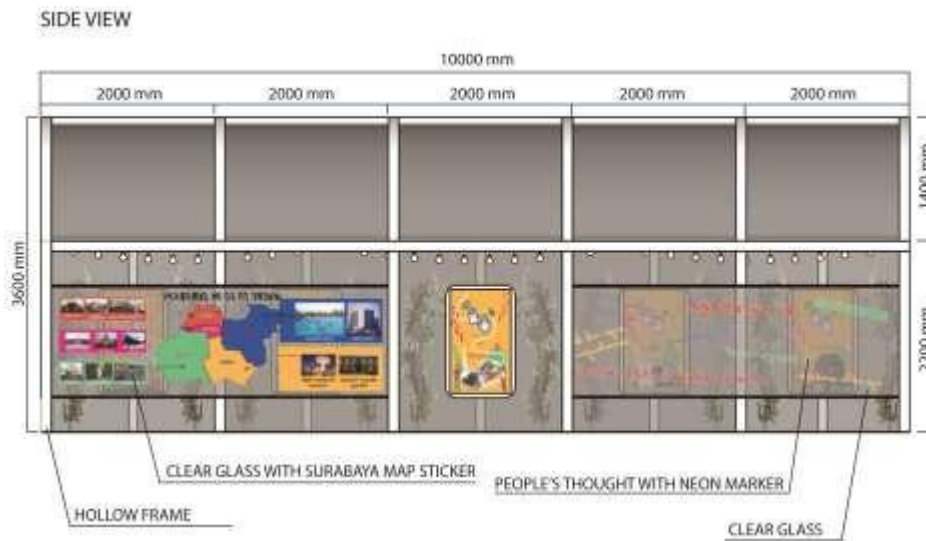


Figure 12. Side View (Right)  
(Source: Design by Author, 2019)

On the right side of this tourist information aisle, there are two transparent glass partitions. One board contains a transparent Surabaya sticker map that is equipped with a tourist location infographic along with photos from the location. The purpose of this Surabaya map on the glass wall is to provide an overview of what tourism sites in North, Central, South, East and West Surabaya have to the citizen of Surabaya, outside Surabaya, and foreign tourists who do not fully know about Surabaya. In addition, the use of the Surabaya sticker map on this part of the wall indirectly attracts the attention of the people who walk around it and who are driving private and public vehicles. The colors used are dark orange, yellow, green, and blue are also more attractive to the people around them. These colors were chosen based on human psychological perception of colors. Yellow color is often compared to activeness, happy and bubbly. Red is energetic, Pink is compassionate and last blue and green color is calm. The integration of these colors could create an active impression that could attract people.



Figure 12. Infographic Surabaya Map  
(Source: Design by Author, 2019)

While the other glass partition on the other side is used as an area to write criticism or suggestions or just give a brief opinion about the city of Surabaya by using a neon marker provided there. The markers that are used is not an ordinary marker, but these

markers use phosphor-based marker, so at night, it will glow in the dark. The function of this glass partition is to invite the public to express their opinion and appreciation about the city of Surabaya.

*SURABAYAKU HERBAT!!*  
*hi surabaya*  
*Love surabaya from singapore*  
*visit surabaya*  
*surabaya keren abis!!*  
*Love surabaya from singapore*  
*ayo rek ke surabaya*  
*tunjungan keren pol!*  
*ayo rek ke surabaya*  
*cinta surabaya cinta indonesia*

Figure 12. People's Thought Illustration  
(Source: Design by Author, 2019)



Figure 13. View 1 at Morning  
(Source: Design by Author, 2019)



Figure 14. View 2 at Morning  
(Source: Design by Author, 2019)



Figure 15. View 3 at Morning  
(Source: Design by Author, 2019)



Figure 16. View 1 at Night  
(Source: Design by Author, 2019)



Figure 17. View 2 at Night  
(Source: Design by Author, 2019)



Figure 18. View 3 at Night  
(Source: Design by Author, 2019)

## MANAGERIAL IMPLICATION



Figure 19. Business Model Canvas  
(Source: Design by Author, 2019)

### 1. Key Partners

The key partners for this design project are a local contractor, the Surabaya government, and other institutions. The Surabaya government acts as the owner and manager of the site. They have to begin a mutual relationship with the local contractor to build this media.

### 2. Key Activities

Platform to introduce new information about tourism for whoever pass through this aisle. It must provide the solution to the problem. The problem is that not many citizens know about the potentials of Surabaya. So the solution is to provide a tourist information center.

### 3. Key Resources

This involves intellectual collaboration with the local designer. The collaboration is between Surabaya government and the citizen of Surabaya. For example, the designer could make the design of the visual display of the LED screens. The screen had to be changed based on what is new and what is happening right now. It needs to be renewable. The collaboration between the place and the passerby happened through the glass partition of aspiration. They could write their opinion about Surabaya tourism and at the end of the week, the representation from Surabaya government would take note of it and discuss it on meetings.

#### **4. Value Proposition**

For the citizen of Surabaya, this design could create love and information about Surabaya's tourism spots. For tourists, this could be the information spot they have been searching for. This design provides useful information with interactive interaction.

#### **5. Customer Relationship**

This design is a self-service area. With the help of motion sensors, this place could be as interactive as possible. Interaction between the place and the people is achieved by an aspiration glass partition and the LED screens that could provide information, with the help of moving our hands to choose and jump from one information to another.

#### **6. Channels**

This is achieved by using another type of interactive media, which is social media and websites, to gain more audience. The main purpose of this design is to increase the number of tourists in Surabaya tourism spots. People could take photos of their interaction with the aisle. In the future the government or other developer could add some 'gifts' to those who has the highest interaction with the place. The gifts could be free bus tickets to the nearest tourism site or free souvenir from the nearest Surabaya souvenir shop. Hence, people can become more aware of tourism sites.

#### **7. Customer Segments**

All of the citizen of Surabaya, tourist (local or international), young and old.

#### **8. Cost Structures**

The type of cost structure this project design have is fixed cost with cost driven outcome. Fixed cost comes from the maintenance for the place, electricity and cleanliness. It is a place full of automation, so it is going to be quite expensive at first, but minimal cost when it is running.

#### **9. Revenue Structures**

The revenue structure for building this design project could come from sponsors. For example, the usage of glass material, we can use glass company to advertise their durability of their product by using this project for advertisement. The second one, company or individual could advertise in the LED screens. The government could gain profits by renting a space without really giving an actual space.

## **CONCLUSION**

Surabaya has a variety of tours that have great potential for further development and need to be widely known by the public. The design of tourist information facilities with interactive implementation in them is expected to make people more curious about the tourism potential in Surabaya. Interactive media



become an attraction for the wider community. Efforts to develop tourism in addition to providing interactive tourist information facilities can also be carried out in collaboration with private parties and the government involved in the field of tourism to make tourism promotion sites more attractive so that they can be directly linked to augmented reality and generate curiosity from the general public. In addition, the development of information technology on tourist sites by making tourism objects as a source of information that is integrated through augmented reality or other technologies.

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