# STUDY OF OPEN-AIR MUSEUM ON KAYUTANGAN STREET CORRIDOR

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#### ABSTRACT

The Kayutangan Corridor is one of the areas in Malang that holds many historical values, namely as a shopping center in the Dutch colonial era. However, the glory and history of Kayutangan began to fade with the times. This research's general objective is to provide a design proposal for the Kayutangan corridor that can present historical stories of the buildings along the corridor, such as an open-air museum, with the building as its object. The research method used is descriptive qualitative research with a signage theory approach. The final result of this study is the proposed signage and pedestrian design in the Kayutangan corridor.

Keywords: Kayutangan Street corridor; H=historical; open-air museum; augmented reality.

#### INTRODUCTION

Malang is the second-largest city after Surabaya in East Java and was one of the best results of the Dutch East Indies colonial city planning. It can be proven by the many legacies of colonial architecture that are still standing majestically (Handinoto, 2010). The colonial architectural heritage is scattered in various functions, such as houses, places of worship, offices and shops, and school buildings. One of the areas that still keeps this colonial architecture is the Kayutangan area, which is currently called Jalan Basuki Rachmat.

The Kayutangan street corridor is one of the Dutch colonial era's legacies used to function as the main street and trade center in Malang. This area has much historical value making the buildings along the street corridors are designated as cultural heritage buildings. Besides, several buildings played an important role during the Dutch colonial period.

However, the glory and history of Kayutangan began to fade along with time. Some buildings still retain their original form, but some buildings have changed, both in function and in the appearance of their facades. The strong historical value of the Kayutangan Corridor appears to have been poorly processed and preserved. Also, its image as a shopping center area during the colonial era faded along with the modern shopping mall development. Some small shops did not survive and eventually closed.

Based on this background, two problems arise. How to optimize the Kayutangan street corridor as a city heritage icon and the center of the economy? How can the Kayutangan street corridor display information about the building's history as a museum so that it can be passed on to the next generation?

This research's general objective is to provide a design proposal for the Kayutangan street corridor that can present historical stories of the buildings along the corridor, like an open street museum, with the building as its object. The hope is to increase the potential of the Kayutangan street corridor as a heritage tourist destination in Malang, provide insight or information about the historical value of the Kayutangan street corridor for future generations, and improve the economy, with new attractions there.

#### THEORETICAL FOUNDATION

#### Street Space as Open Space

The main functions of the street are a movement circulation (Krier, 1979) and also a space for various activities, especially social activities (Trancik, 1986). For this reason, for streets to support these activities, it is necessary to have objects that can be an attraction for community activities.

The existence of streets as places of activity also affects the image of a city. The street is often used as the dominant element of the community's urban image. When the main street has no identity or is almost identical to other streets, the city's entire image can be lost. The use of activities on the street, either ordinary activities or special activities, can generate the city's image. Apart from that, other aspects that influence the city's image are the quality of the spatial characteristics, the facade's features, the proximity to the main places in the city, visual excellence, and the strategic position in the overall structure topography of the city (Lynch, 1960).

# **Pedestrian and Streetscape**

Regarding users, pedestrians play an important role. Based on the types of pedestrian travel facilities, there are four categories of pedestrians, namely (Rubenstein, 1992):

- Full pedestrians, namely those who use the pedestrian mode as the primary mode, so that they are carried out on foot from the place of origin to the destination. Usually due to the proximity or the reason for walking while having recreation.
- Pedestrians using public transportation, namely those who walk as an intermediate mode, from the place of origin to the public transportation, when changing public transportation routes, or from public transportation stops to their final destination.
- Pedestrians who use private vehicles and public transportation, namely those who use the walking mode as an intermediate mode, such as from private vehicle parking lots to public transportation stops and their final destination.
- Pedestrians who entirely use private vehicles. They use the walking mode as a mode between parking for personal vehicles to their final destination, which is only accessible on foot.

The existence of pedestrian facilities for pedestrians in urban areas affects the livability of a street. It is because most of the human activities on the street are on the pedestrian path. According to Shirvani (1985), a good pedestrian system can reduce dependence on motorized vehicles in urban areas. Besides, it can also increase travel by foot, create activities, and improve the environment's quality. The pedestrian path can be a supporting activity if it is in the middle of two activity points and becomes a link. Pedestrian paths also creating a balance that supports a decent life, creates attractive public spaces, carries out its function as access to places and services, and makes good interaction and security between pedestrians and motorists. According to Rubenstein (1992), elements that must be present on the pedestrian path include:

- Paving, is a sidewalk or flat expanse. It is necessary to pay attention to the pattern, color, texture, and water absorption in laying paving.
- Street lamp, is an object that is used as lighting at night.
- Sign, to provide both information and prohibitions. The sign must be easy to see with the human eye view, and the image must be contrasting and not cause glare.
- Sculpture is an object that has a function to provide identity or attract street users' attention.
- Bollard, has a function as a barrier between the pedestrian lane and the vehicle lane.

- Bench, has a function as a place to rest for street users.
- Shade plant, has a function as protection and conditioning of pedestrian areas.
- Public telephones, have a function as a means for street users to communicate over long distances with the interlocutors.
- Kiosk, shelter, and canopy, their existence can be to liven up the atmosphere on the pedestrian path.
- Trash can, function as a means for pedestrians to dispose of garbage so that pedestrians remain comfortable and clean.

According to Charlwood (2004) in Rehan (2013), a Streetscape is a unity of elements that creates a pleasing visual experience. These elements include, among others, the overall structure of the street, including the buildings, streets, and also the installations therein. The streetscape includes various elements, such as vehicle lanes and parking lanes, bicycle lanes, sidewalks, train tracks, street furniture, bus stops, power poles, trees, accent planting, signage, and so on. These elements are contained in the division of the three main streetscape zones, namely (Daley, 2003):

- A Sidewalk zone, is a place where people can meet and interact with their neighbors or simply enjoy sightseeing. It allows pedestrian access to all parts of the street to homes and businesses.
- Parking Zone, allows buyers traveling by car to go to a commercial area. They are also locations for loading zones for businesses as well as transit stops.
- Street Zone, which is a motorized vehicle movement lane, also allows the provision of bicycle traffic with bicycle lanes adjacent to the parking zone.

# Signage

Signage is a link between architecture and its users and is a graphical standard for navigation. Signage must follow codes and notations that have been accepted and understood by the general public. The existence of signage is an addition and an aspect that serves to clarify the spatial arrangement of a building (Lewis, 2015). In his book, Calori (2015) says that: Signage and wayfinding direct people to a place and helps them navigate. Signage and wayfinding are most often expressed in unified sign programs that informally and visually unite places, collections of related places, such as regional parks or global corporate facilities, or a network such as a transportation system.

In the book The Design Manual, Whitbread (2009) explains that signage is a sign system resulting from a combination of symbols and text in high

mobility areas, without depending on limited verbal language. Meanwhile, in relation to the environment, Rubenstein (1996) argues that signage is a sign system part of the visual communication field that functions as a means of architectural information and communication. Thus, it can be said that signage is an environmental visual communication medium that cleverly informs messages through the integration of visual language with its environment. Calori (2015) provides a direct picture by dividing signage into five informative categories, namely:

- Identification signage, is placed at the destination location to identify the destination location or place in the environment.
- Directional signage, is located to guide users to one or more existing destinations.
- Alerts signage, to alert users of hazards or safety procedures.
- Regulatory and prohibition signage, are useful for regulating people's habits or prohibiting certain activities.
- Operasional signage, provide detailed information regarding usage and operation.

According to Wayne Hunt in the book Signage and Wayfinding Design, the combined form of signage, interpretation, and place-making is an Environmental Graphic Design (EDG). The purpose is to convey information visually, which will be a means of communication for the community at that time. Thus, Environmental Graphic Design (EGD) can be defined as graphic communication regarding information in the public environment and is the oldest profession in the world because it has been done by humans since ancient times. Interpretive information tells a story about the meaning of a concept, object, place, event, historical figure, and so on. Interpretive information is often expressed in the form of exhibitions, which can consist of the place itself, physical artifacts, audiovisual and interactive media, images and graphics, and so on (Calori, 2015).



**Fig. 1.** Interpretive signage telling the story of the origin of the Atlantic City (left). Frequent interpretive information on exhibition (right). (Source: Calori, 2015)



**Fig. 2.** An interpretive panel and directions at a kiosk unit in Bellingham, Wahington. (Sumber: Calori, 2015)

#### **Open-air Museum**

In Wahyudi (2014), the Open Air-Museum, according to the International Council of Museums (ICOM) in 1957, is a museum that collects historical objects and is open to the public. The museum's openair collections can be popular pre-industrial architecture, such as country houses, commercial establishments, and architecture such as palaces, churches, or historical buildings. Meanwhile, The Association of European Open-Air Museum (1972) expands the notion of open-air museums, especially regarding collection criteria and scientific justifications regarding knowledge of settlements, life activities, buildings, or trade complexes integrated into the open field. The various objects presented also describe society's traditions, such as beliefs, customs, and daily activities (Laenen TT, 130; Raswaty, 2009, 47-48).

The open-air form of the museum is an open space in which there are collections of historical buildings such as residential, religious, trade, agriculture, mining, and cemeteries. Social life activities following the characteristics of the building are also presented and protected in an integrated manner. In 1974, ICOM expanded the museum's scope as an instrument of cultural education that could directly influence the cultural field. The function of the museum was more focused on public services. Besides, the increasing role of education and museum communication is also expanded to be collectionoriented, such as scientific research on collections, collection arrangement, conservation, and collection management (Leanen TT, 133-134; Raswaty, 2009, 48).

# Related research: Taming Sari's virtual livingstreet museum

This research was conducted at Jalan Taming Sari, Taiping, Malaysia. Taiping is a historical city, one of the oldest in Malaysia. Part of the city has been included in the conservation zone. The project aims to preserve historical heritage and memory but allow physical development to change the street's face. Memory plays a vital role in all visual thinking; capturing historical memories into understandable images is a significant concern. The proposal is to turn the stretch of Jalan Taming Sari into a virtual livingstreet museum. Simultaneously, new urban functional plans were also developed. Past impressions along the way are digitally modeled in 3D based on the remaining traces of historical buildings. Tourists can use their smartphone to see past or future street imagery equipped with historical description. (Rashidah et al., 2013).



**Fig. 3.** Concept depiction of a virtual living-street museum (Source: Rashidah, et al, 2013)

# METHODOLOGY

The research method used is descriptive qualitative research with a signage theory approach. Retrieval data for research is taken from literature studies, references from the internet, and field surveys. Furthermore, the data will be analyzed to become the basis for determining signage and corridor design as a museum.

# **RESULTS AND DISCUSSION**

### The Development of Kayutangan Corridor

The history of the Kayutangan area is divided into several periods based on regional development. In the pre-Indische period (before 1800), the Kayutangan area was a village connected by footpaths. Kayutangan began to develop after the Dutch entered Indonesia, namely in the Indische period, which was divided into two, 1800-1914 and 1914-1940. In this period, Kayutangan grew into an economic area in Malang City. Besides, the settlement on the west side of Jalan Basuki Rahmat, namely the Kayutangan village, growing into a dense residential area in the middle of the city. Kayutangan is an area that has continued to develop from 1914 to 1940.

Kayutangan developed rapidly until the 1980s before finally experiencing a stagnation period due to the construction of a modern shopping complex in the Malang City Square area in 1986. There were several changes in the building, both physically and functionally.



Fig. 5. Kayutangan in the past (Source: JIKN Kota Malang)



Fig. 4. Histogram of Kayutangan Corridor



Fig. 6. An overview of buildings in the past

# Pedestrian Walkaway and Parking Condition in Kayutangan Corridor

The street on the Kayutangan corridor or called Jalan Basuki Rahmat, has a two-way circulation that is passed by motorized vehicles, both private and public transportation, as well as pedestrian circulation on both sides of the street. Between the pedestrian and the highway, there is an on-street parking area.



**Fig. 7.** Existing Condition of Kayutangan Corridor (Source: google maps)

The pedestrian path in the Kayutangan corridor consists of sidewalks along Jalan Basuki Rahmat and pedestrian crossing facilities in the form of zebra cross and pedestrian bridges. Sidewalks are located on two sides of the motorized street with a width of 1.2 to 2 meters and a height of 10 cm from the street surface. The sidewalk material uses natural stone with a particular pattern. It is not limited by a barrier but only given a height difference between the sidewalk and the street.



**Fig. 8.** Pedestrian Bridge in Kayutangan Corridor (Source: google maps)

Pedestrian facilities include paving, lighting, signage, sculpture, vegetation, and trash cans. There are vegetation elements along Jalan Basuki Rahmat in the form of shade trees that support pedestrian facilities. Public signage consists of traffic signs and street signage. Existing traffic signs are traffic lights, stop signs, parking prohibition signs, and so on. Street signage is available, both the main street and the neighborhood street (alley). Private signage on the corridor of Jalan Basuki Rahmat functions as a means of advertising and identification. The installation location is in each existing building or on the streetside, in the form of banners, billboards, banners, and billboards.).

#### Table 1. Sidewalk Element Analysis

	Pedestrian Facility	Condition	Analysis	Photo
1.	Paving	Pretty good. Using natural stone with a certain pattern, there is damage to a small part.	The use of patterns as aesthetics is good, but some damaged areas need repairing, and also the directional tactile pavers need installing to help visual-impaired people.	
2.	Lamp	Good. There are street lights and lighting from nearby buildings.	Good lighting is needed so that street users can clearly see the existing signs and signage.	
3.	Signage	Good. There are traffic signs and street signs and banners, billboards, banners, and billboards as a means of advertising and identifying buildings.	The signage that tells about the historical story of Kayutangan on the building is needed to strengthen its character.	
4.	Sculpture	Good. The sculpture is in the form of the inscription "Kajoetangan" as a marker of the area, but is only located at the front junction of the	Besides being used as a marker, sculpture can also be used as a photo spot.	Kalo
5.	Bollard	Not available. Using the difference in height between sidewalks and streets as a barrier.	The use of bollards can reduce vehicles entering the sidewalk.	-
6.	Bench	Not available.	It is needed to add more benches along the street so pedestrians can rest.	-
7.	Shade plant	Good. There are plants along the street, but its placement makes the pedestrian narrower.	Trees can be used as natural canopies to make the streets shady.	
8.	Public telephone	Not Available	At least one can be provided to anticipate an emergency.	-
9.	Kiosk, shelter, canopy	Poor. A lot of shops around are closed, there are a small number of street vendors, the shade is only a support from the surrounding shops.	There needs to be an effort to revive the street corridor with new attractions so that the street corridor becomes crowded to helps the shops.	
10.	Trash can	Good. There are several points along the street, divided into 3 types of trash.	Trash cans are needed at some point with the division of waste types.	

The parking system in the Kayutangan corridor consists of on-street parking along Jalan Basuki Rahmat and off-street parking in office buildings. Onstreet parking consists of parallel parking and oblique parking at the edge of Jalan Basuki Rahmat. Meanwhile, off-street parking is located within the building area so that it does not interfere with street traffic



Fig. 9. On-street parking along the Basuki Rahmat street (Source: google maps)



**Fig. 10.** Off street parking in front of an office building (Source: google maps)

# Signages and Colonial Buildings in the Kayutangan Corridor

As time goes by, the buildings' conditions in the Kayutangan corridor are no longer the same. Some of the buildings in the Kayutangan Corridor have retained their original architecture, but some have changed, including doors, windows, and facades. For example, in the building that is now a Suzuki dealer. The changes are in the form of adding a billboard to the facade.

The signage of buildings or shops mostly uses signboards, billboards, embossed letters, which are permanently affixed to the building facades. Some billboards even cover the building's facade so that it covers the shape of the original building. Temporary information such as product advertisements or discounts on goods being sold usually uses banners.



There is no change in the model, door, window or ornament



Fig. 11. Building's Changes (Source: Rizaldi et al, 2010)



Fig. 12. Signage covering the building façade (Source: google)

#### **Open-Air Museum at Kayutangan Corridor**

#### Concept

The Open-air Museum in the Kayutangan Corridor has a concept of "Kayutangan Heritage," which is based on the historical values in this area, especially the colonial era shopping buildings that still survive. This open-air museum is an open-air museum with the building as its object.

#### Table 2. Signage on Surviving Colonial Buildings

- **Building Name** Photo No. Signage Feature Analysis Dutch architectural design in Romantiek 1. Toko AVIA style, flat roof, with curved walls. The Previous name: Toko Semarang shop's name was painted on the walls. Year: 1910 Architect: Unknown Location: Jl. Brigjend Slamet Riadi No.1-3 (Perempatan celaket) 2. Kantor PLN There is a bell monument as a the sign of Previous name: ANIEM Year: 1930 time and direction, made of a combination Architect: Unknown of metal pipes. Location: Jl. Jenderal Basuki Nieuwe Bouwen architectural style, the Rahmat No.100 form of a shield roof, a cube-shaped building, dominated by white. There is a PLN logo on the top of the tower. 3. Bank Commonwealth Previous It is a twin building that characterizes the name: Bank Commonwealth Rajabali crossstreet. Nieuwe Bouwen architectural style, flat Year: 1936 Architect: Karel Bos roof, cube shape, no ornaments. Jl. Jenderal Basuki Location: Has a tower. Rahmat No.81 A nameplate was affixed to the top of the building. Nieuwe Bouwen architectural style, flat 4. Rumah dan Toko Previous name: Dealer L.c. Verhey roof, cube shape, no ornaments. Year: 1900-an Architect: Unknown Location: Jl. Jenderal Basuki Rahmat No. 31 5. Toko Oen An ancient concept in an art deco building style. Previous name: Toko Oen Year: 1930 Doors and windows use solid wood with a Architect: Unknown combination of glass. Location: Jl. Jenderal Basuki Rahmat The shop name is embossed and pasted on the No.5 top of the facade. Gereja Katolik Hati Kudus Yesus Gothic architectural style. 6. There are 2 towers with sharp ends with a cross Previous name: Gereja Katolik Year: 1905 at the end. Architect: Marius J. Hulswit Location: Glass window in the shape of a pointed arc, Jl. Jenderal Basuki Rahmat No.16 typical of gothic. **Hotel Riche** 7. An ancient concept in an art deco building style. Previous name: Hotel Riche Year: 1930 Doors and windows use solid wood with a Architect: Unknown combination of glass. Location: Jl. Jenderal Basuki Rahmat There is a sculpture written by Riche Heritage Hotel on the front of the fence. No.01
  - Toko Megaria Batik Previous name: 8. Unknown Year: 1920 Architect: Unknown Location: Jl. Jenderal Basuki Rahmat No.69
- 9. **Toko Riang** Previous name: Year: 1923 Architect: Unknown Location: Jl. Jenderal Basuki Rahmat No.14
- 10. Toko Taman Tembakau Previous name: Unknown Year: 1929 Architect: Unknown Location: Jl. Jenderal Basuki Rahmat No.24







Nieuwe Bouwen's architectural style. There is a nameplate affixed to the top. The glass wall serves to display the batik shirt model.

Nieuwe Bouwen architectural style, flat roof. The facade looks old. The shop name is embossed and pasted above the door.

Nieuwe Bouwen architectural style, with pastel yellow paint. A nameplate hangs at the top.

No.	Building Name	Past	Now
1.	Kantor BCA The previous building was the work of Karel Bos, namely Malangsche Apotheek which later changed its function to the YMCA Hotel.		PCA
2.	Sarinah The previous building was the official residence of the Malang regent which was later seized by the Dutch to become a gathering place. The Societiet Concordia building is a silent witness to the KNIP grand meeting.	Godung Societiet Concordia	BCA Farinah
3.	<b>Plasa Telkom</b> The previous building was built in 1909 and is a Telephone Telegram Post Office. In 2006 it was completely renovated so that the colonial impression was lost.	Post en Telegraafkantoor	Plasa Telkom

**Table 3.** Data on Colonial Buildings Experiencing Architectural Changes

By looking at the younger generation who tend to like technology and contemporary things, the openair museum concept integrated with Augmented Reality (AR) technology is considered the right thing. In this case, the application can use gadgets/smartphones that everyone owns. With AR technology, people can see and feel space in different dimensions in real-time, as if returning to the past.

To support this, it is necessary to consider pedestrians as museum circulation and signage as a means of conveying information. Pedestrian walkaway needs to be expanded because the pedestrian walkway is relatively narrow so that if additional facilities are placed, it can interfere with circulation. The pedestrian walkaway is expanded by taking the existing on-street parking area. The parking area can later be moved to one parking area. So those people who go to the shops are expected to be able to walk from the parking area.

#### Mapping of Building Object

The Open-air Museum in the Kayutangan Corridor takes historical buildings as the objects. Building objects are scattered in 13 points along Jalan Basuki Rahmat. The designated buildings are colonial buildings that are still surviving and buildings that have changed in appearance to modern ones. Thus, the hope is that visitors can find out and compare the past and present colonial architecture through digital technology.

#### Signage Placement

To support the concept of a museum, that is integrated with AR technology, it is necessary to have a device that acts as a medium that connects gadgets/smartphones to AR services. The device can also be designed with an information screen that displays building maps in Kayutangan, histories, and other information to act as digital signage.

Digital signage is placed along Jalan Basuki Rahmat at several points, with a street length of about 850 meters. This digital signage will be placed every 100 meters on the left and right side of the street, for a total of 16 points. It is so that pedestrians do not cluster at one point.

Besides, to support the Dutch era's shop atmosphere, the selection of street furniture can be an aspect that needs to be considered. For example, benches and modern billboards need to be replaced with a sign with a colonial nuance. Thus, Kayutangan's image as a heritage area is getting stronger.



commerce milli service confice million religious facility 2000 empty building mill house 2000 education facility 2000 public facility

Fig. 13. Mapping of Building Object



commerce in service office in religious facility isso empty building in house isso education facility isso public facility;

Fig. 14. Location point of Digital Signage



Fig. 15. Old-fashioned benches and enamel boards which are popular in the Indies era (Source: google)



Fig. 16. Main Nodes (Source: author)

#### CONCLUSION

The Open-air Museum in the Kayutangan Corridor is an idea to bring back historical memories of Kayutangan in the past and is the result of pedestrian and signage analysis so that an open-air museum design can answer the existing context. Jalan Basuki Rahmat is expected to be not only a movement circulation but also a museum with colonial buildings that pedestrians can enjoy. It's expected to bring the crowd to this main street to revive the shops along the street and bring back the image of the past as the center of the economy while preserving the historical values.

For pedestrians' comfort and safety, it is necessary to solve the problems that exist on the existing site. Pedestrian paths need to be reorganized to fulfill the function of the museum, not just as circulation. With the addition of facilities such as benches and digital signage, it is necessary to widen the pedestrian path so that it does not interfere with circulation. The widening uses an on-street parking area. The parking area can be moved to one parking area/building later. So those people going to the shops are expected to be able to walk from the parking area.

Open-air Museum in the Kayutangan Corridor displays information about the building's history as a museum by using digital signage. Digital signage is used to attract the young generation and is more suitable with modern era. The placement of the signages is every 100 meters along the street. The total available digital signages are 16 pieces. Additional facilities are benches. The placement of the benches is every 10-20 meters. An old-fashioned style is used for bench and signage design. Apart from that, the shop's nameplate theme also needs to be likened to more ancient so that the Kayutangan Heritage character becomes stronger.



Fig. 17. Layout Plan of the Pedestrian Walkaway



Fig. 18. Pedestrian Walkaway Design

The digital signage scattered along the Kayutangan Corridor functions as a medium of information about Kayutangan Heritage, starting from building maps, history, and other information. This signage design includes ornaments to strengthen the region's character, touchscreen screens as screens that convey visual information, speakers as information media in the form of audio, and brochure or postcard holders.

The Augmented Reality feature can be used using a gadget or smartphone. This feature contains information about colonial buildings, which can be displayed using a gadget. The information presented includes building data, old building models, and history/stories about the building. The way to use it is quite easy. Visitors need to point the gadget at the building, and the information will automatically appear (only applies to certain buildings designated as objects). Thus, historical information about Kayutangan is easier to convey to the young generation.



Fig. 19. Digital Signage



Fig. 20. Augmented Reality Feature (Source: author)

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