

# Boseh Mobile Registration Workspace Design: Based On Time And Motion Study

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**Abstract** The BOSEH is a bicycle rental system in public areas/bike-sharing in the city of Bandung which was established since July 2017. BOSEH is an acronym of the Bike On the Street Everybody Happy, literally meaning Word activities pedaling bikes (pedal). However, in its application, several problems occurred, such placement place semi-permanent registration in a sidewalk only provides 3 places of registration, placement of shelters did not fit with the design of the Master Plan, and system BOSEH that less than optimal socialization. The purpose of this design is to design the workspace means the registration BOSEH that can facilitate the communities to register. The method used in this design is a flow activity approach. Data is collected by observation, interviews, documentation, and analysis techniques using time and motion study. This technique focuses on the time and movement of the operator is doing a job. From the research, a draft registration BOSEH workspace had to be created can move from one place to another. The conclusions obtained from this research are designing a registration BOSEH workspace with efficiency and according to the ergonomics and Anthropometry of the human body.

**Keywords** Transportation, Bandung, Bike-sharing

## 1. Introduction

Mid-2017, the government of Bandung finally inaugurated the bike-sharing facilities named Bike on The Street Everybody Happy (BOSEH) so that residents and tourists who visit Bandung to cycling in the city. The function of the bike-sharing the main thing is to support mass transportation so as to facilitate the mobility of people. Government of Bandung using smart card system as a means of lending transactions. Bike-sharing also has the android-based application by the name of Bike Sharing Boseh Bandung. With the application, residents, and tourists Bandung can see the location of shelters and how many bikes in the shelter.

The existence BOSEH now has begun to fade, many shelters BOSEH empty and inactive, thirty shelters just nine active shelters. According to data from the Master Plan BOSEH of 270 bikes planned to be deployed, there are only about 70 bikes distributed throughout shelter in Bandung. In the application there are several problems that occur, such as the placement of registry semi-permanent on the sidewalks violate government rules which should sidewalk only be used for pedestrian and quite a few places of registration provided that there are only 3 places throughout Bandung, placement of the shelter is not in accordance with design Master Plan, as well as less than optimal BOSEH

dissemination system so that local people still do not know what it BOSEH resulting BOSEH use is not optimal.



Picture 1 Registration Place Conditions BOSEH  
Source: Documentation Authors (2019)

In an effort to optimize the registration place BOSEH, this study did development workspace BOSEH efficient means of registration. Researchers conducted the design workspace BOSEH registration means that the registration process easier BOSEH.

The approach used in this study is the workspace analysis approach according to Gie, 2000. Based on the aspects of ergonomics and anthropometry. To support the design process requires empirical data and literature. The empirical data is the data obtained by conducting field research.

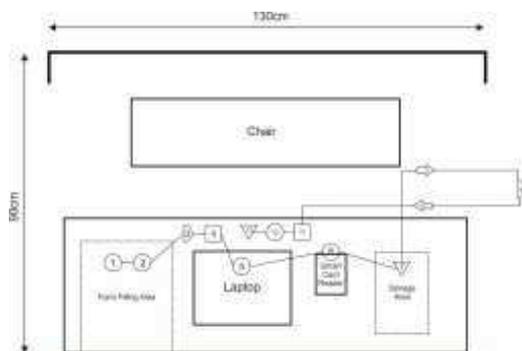
Things to do may include field observations, interviews with the Master Plan, and documentation. While the literature data obtained by collecting literature review of various sources. After the data collected, further analysis of the data.

The analysis technique used in writing is a triangulation technique to verify the data. Triangulation can be performed using different techniques, observation and documentation (Nasution, 2003, p. 115), Triangulation is only used to check the correctness of data is also made to strengthen data. According to Nasution, other than that triangulation can also be useful for researchers investigating the validity of the interpretation of the data.

## 2. Empirical Grounding

Bikesharing is the mode of transport for traveling short distances, for example from the place of residence or stay, to a shopping site or the bus stop and the train station. Special stations are provided to take the bike and return it at another station that is closest to the destination user. Mid 2017, the government of Bandung finally inaugurated the bike-sharing facilities named Bike on The Street Everybody Happy (BOSEH) so that residents and tourists who visit Bandung could be cycling in the city. The function of the bike-sharing the main thing is to support mass transportation so as to facilitate the mobility of people.

Bandung city administration system using smart cards as a means of lending transactions. How to get the smart card is to register on bike-sharing booth which is located near bike shelter, Bandung residents live register at the booth to show identification (ID / KTM / Passport). Once enrolled, Bandung residents will be given a smart card. Residents or tourists can return the bike to the shelter provided for docking the bike is still empty. Bike-sharing also has the android-based application by the name of Bike Sharing Boseh Bandung. With the application, residents, and tourists Bandung can see the location of shelters and how many bikes in the shelter.



Picture 2 Registration Process Flow Diagram BOSEH  
Source: Documentation Authors (2019)

### Term of Reference (T.O.R)

#### a. Design Consideration (Consideration)

- 1) A workspace should have a layout that corresponds to anthropometry.
- 2) A color workspace should create a comfortable operator.
- 3) Where registration using mobile systems.

#### b. Limitation of Design (Constraints)

- 1) Layout workspace can not be less or more than the anthropometric standard operator.
- 2) A color workspace should not be made uncomfortable operator.
- 3) Indoor facilities are semi permanent employment.

#### c. Design Hypothesis (Description)

Design workspace on the registration means BOSEH have room ergonomics layout according to user anthropometry by using blue or white to a color workspace so that the user comfortable while working. Using the working facilities such as chairs, tables, and a semi-permanent storage area so that when the place of registration on the move, orking facilities do not fall.

## 3. Concept Design and Visualization Works

### 1. Concept Design

#### a. Basic Idea Design

The initial idea of designing and hypotheses have been an advanced design that provided the basis for the design needs to be done on the analysis set forth in the design aspect. This analysis becomes the reference design of the workspace means BOSEH registration Bandung.

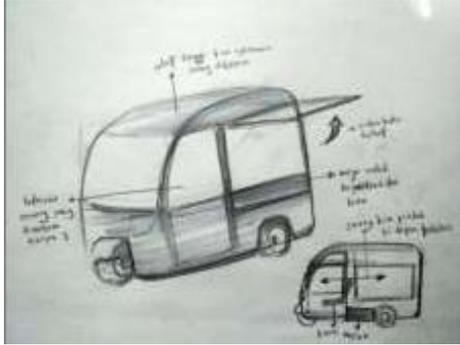
#### 1) Focus Issues

Issues relating to the registration means BOSEH less optimal in terms of still many people who do not know where registration BOSEH.

#### 2) Solutions

Means registration mobile BOSEH designed so as sensitizing the public about their BOSEH in the city and where registration can adjust the placement in accordance with the community crowds in the city. Coupled with an easy registration system making it easier for people to use BOSEH.

### b. Formulation Design



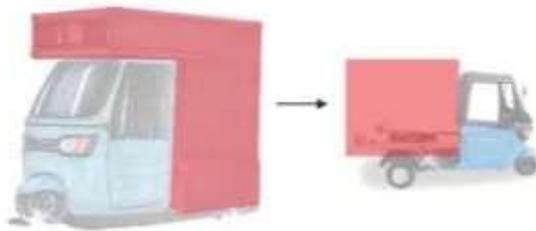
Picture 3 Concepts Early Mobile Register BOSEH  
Source: Documentation Authors (2018)

1) Main Products

Mobile registration BOSEH with TVS Cargo vehicle base.

2) Design Focus

In this report, the design is done is to design a mobile workspace BOSEH registration. The design is done in the area behind the vehicle box.



Picture 4 Blocking Design Mobile Register BOSEH  
Source: Documentation Authors (2018)

c. Proximity Diagram Component

In BOSEH registration activities, the necessary components should be arranged well in order to optimize the work process. The closeness between the components shown in Figure



Picture 5 Diagram Component Proximity  
Source: Documentation Authors (2018)

The necessary components are generally divided into components that need to be designed (KHD) and the unnecessary components designed (KTPD).

1) No Need to Design Components (KTPD)

Components do not need to design is a component of products already available on the market and does not require the design process (Palgunadi, 2008). In this design, the unnecessary components of a design are: the exterior front, machinery and electrical vehicles, lighting systems used, the drive system of the vehicle, and a locking system which is used.

2) Must Component Design (KHD)

Components must design are the components that require special design and is not available on the market (Palgunadi, 2008), include the exterior and interior rear, storage, and visual vehicles.

d. Blocking System

The designing process diagrams need to consider the proximity of components to optimize system work product (Palgunadi, 2008). Components prepared in accordance with the order of closeness between the components. Overall optimal design results visualized in Fig.



Picture 6 Blocking System Bosph Mobile Registration  
Source: Documentation Authors (2018)

To optimize the distribution of blocking, it can be concluded that in this design obtained two main parts consisting of exterior and interior..

4. Final Sketch

a. Sketch

1) Interior 3D modeling



Picture 7 3D Models Interior Bosph Mobile Registration (1)  
Source: Documentation Authors (2019)



Picture 8 3D Models Interior Boseh Mobile Registration (2)  
Source: Documentation Authors (2019)



Picture 9 3D Models Interior Boseh Mobile Registration (3)  
Source: Documentation Authors (2019)



Picture 10 3D Models Interior Boseh Mobile Registration (4)  
Source: Documentation Authors (2019)



Picture 11 3D Models Interior Boseh Mobile Registration (5)  
Source: Documentation Authors (2019)

## b. Visualization Works

### 1) Description Design and Product Details



Picture 12 Design Visual Boseh Mobile Registration  
Source: Documentation Authors (2018)

1. Product Name: Mobile registration BOSEH
2. Basic Products: TVS Cargo
3. Product Functions: Means the registration and dissemination BOSEH.
4. Product purpose: Enables people to register BOSEH and introduce BOSEH to the people residing in the city.
5. Target Product: People who are in Bandung
6. Product users: Operator Boseh registration
7. Product Benefits: Facilitate the community to register BOSEH as well as socialize BOSEH itself.

### 2) Final Design



Picture 13 Final Design Boseh Mobile Registration  
Source: Documentation Authors (2018)

### 3) Product Operations



Picture 14 Figure Operations Boleh Mobile Registration  
Source: Documentation Authors (2018)

### 4) Product Mockup



Picture 15 Product mockup Boleh Mobile Registration  
Source: Documentation Authors (2018).

## 6. Conclusion and Recommendation

### A. Conclusion

Based on the results of the discussion of the design in the previous chapter about mobile BOSEH workspace design registration, it can be concluded:

1. BOSEH workspace that is less effective and the limited space available BOSEH registration.
2. Many people who do not know their place BOSEH registration and the registration process is done in less effective.
3. With the method of Time and Motion Study, were

registration in the design of more effective.

4. This design results in the form of a mobile workspace BOSEH registration by using the Time and Motion Study.

### B. Suggestion

For further development of the mobile workspace BOSEH registration, the author gives advice to the designers further discussion of time and motion study:

1. Noting the weaknesses and needs of the operator.
2. Dimensions of designing and laying the component tailored to the human body anthropometry.
3. The components are designed not to be added to the burden or complicate the operator when using it.
4. The material used does not require excessive costs.

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