

DEVELOPMENT OF EVENTS PUBLICATION APPLICATION IN BANDUNG CITY BY USING LOCATION-BASED SERVICES BASED ON ANDROID

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ABSTRACT

One of the charms of the city of Bandung is the many creative events held, ranging from local events to international scale events. But many of the peoples of Bandung city still do not know what events will be held. This is because the publication is still done manually and minimal technology. A good publication is a publication that can touch individuals directly but still mass so that it spreads quickly and evenly, information about the event needs to reach every individual community from a long time ago. Besides, peoples certainly expect convenience in participating in the event, therefore e-ticketing and online payment systems will be implemented using the Midtrans payment gateway. The technology used in the development of this application is the Location-Based Services (LBS) technology. The technology consists of devices used to store and distribute data and information based on geographic coordinate systems in a real-time manner. The Alpha test results by using the black-box method and BETA testing can be concluded that this system has helped the event organizer to publish the event so that there is no need to use print media and electronic media, the ticket sales process is more effective with an e-ticket. peoples as an event seeker can easily find events to be held, and the community is easier in the administration of event ticket payments because it can be done wherever and whenever.

Keywords: Events Publication Application, Location Based Services, Payment Gateway, E-Ticketing, Black-box Testing, BETA Testing.

1. INTRODUCTION

1.1 Background

The city of Bandung is known for sustainable tourism, which is an industry that supports to provide a positive effect on the surrounding environment [1]. One of the attractions of the city of Bandung is the number of creative events/events held in this city, ranging from local events to international scale events. Not infrequently a lot of migrants who come to the city of Bandung deliberately looking for entertainment from events in

this city, but many are also among immigrant communities or even residents of Bandung city themselves who still do not know what events will be held. No one knows about the event in the city of Bandung, one of them is because the publication is still manual or the technology for the publication of the event is still very minimal, so information does not reach individuals who are looking for the desired event. Information about the event needs to reach the community in advance so they can visit other schedules.

In addition to event information from afar, the public can also assist in the administrative process when participating in the event, such as making it easy to make payments and ticketing processes with verification processes. The easiest payment method is to use an online payment method, which is payment using a virtual account that has been provided by a third party; one of the companies engaged in online payments is PT. Midtrans. One method that facilitates the ticketing process is to use e-ticketing. E-ticketing is a system for processing tickets without issuing documents to speed up expenses, reduce waste, and speed up the entry process of visitors [2].

In the event and implementation of the event can not be separated from the event management event or commonly known as Event Organizer (EO), EO is a structured group whose job is to organize events ranging from opening events, meetings, event management, use of technology, and other aspects [3]. One of the famous EO in Bandung is PT. Dealpro Indonesia, in terms of the publication of PT. Dealpro Indonesia uses social media and mass media such as radio, with the number of visitors coming to the event held by this EO proving that this EO was quite successful with its publication methods, but the author of the number of visitors who were present could use other methods/technologies.

Based on a good publication is a publication that can be accessed by individuals who are permanent but mass so that it spreads quickly and evenly, one of the right ways is publication using a smartphone that is most widely shared by everyone. Many technologies are used by Android devices to facilitate one's activity, one of which is Location-Based Service (LBS) technology, LBS provides

place-based information based on the Geographic Information System (GIS) or electronic maps related to latitude and magnified to get an accurate location [4].

1.2 Research Purposes

The objectives to be achieved in this study are:

1. Provide a method of publication for PT.Dealpro Indonesia so that information about the event carried out can reach the community individually.
2. Providing an effective ticketing event system for PT. Dealpro Indonesia.
3. Facilitate the public in getting information on events to be held.
4. Facilitate the public in the process of administering event ticket payments.

1.3 Software Development Method

The software development method used is using the waterfall model. The waterfall model is a sequential and systematic information system development model [5]. Figure 1 shows an illustration of the waterfall model.

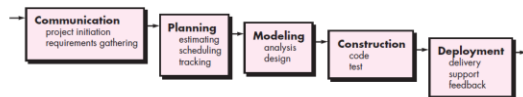


Image Source: *Jurnal Membangun Sistem Informasi Monitoring Data Inventory Di Vio Hotel Indonesia* [6].

Figure 1. Illustration of the Waterfall Model

1.3 Research Methodology

In this study using applied research methodology, this research method aims to provide solutions to certain problems efficiently. At this stage of the study starts by identifying the problems that occur at the PT. Dealpro Indonesia and also the people of Bandung. The following is a research methodology such as Figure 2.

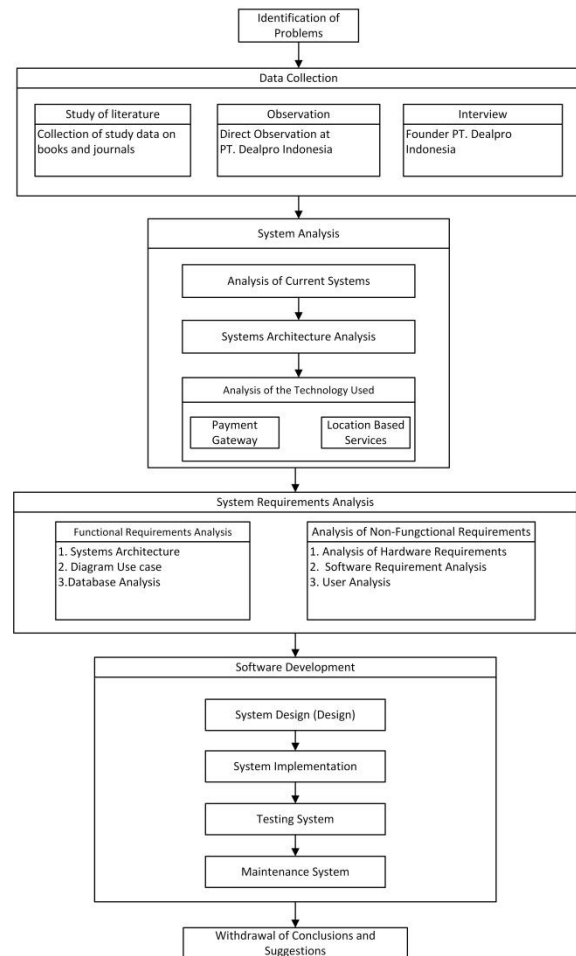


Figure 2. Framework Research

2. DISCUSSION

2.1 Event Publication

The event publication process starts the implementation process of information dissemination activities for the event to be held. Publication means the announcement, broadcasting, or publishing done with the aim of announcing, broadcasting, and publishing information about products, institutions/organizations, activities, and so on to the public [7]. Event publication is a component relation which is quite important to support the success in promoting an event activity.

Stages of publication can begin from processing information to the outputs produced where the output can reach the public. The publication is one of the most crucial activities and must be accountable because it is public with the public [8], because the publication process is related to information that will be known by the public. Therefore the information submitted must be in the form of facts and reliable.

2.2 Android

Android is a device that uses a Linux-based operating system. Android was created for touchscreen mobile devices such as smartphones and tablets. Android itself facilitates an open platform

for developers to carry out software development as expected [9].

The Android system uses a database to store important information needed to remain stored even if the device is turned off [10]. The Android system uses SQLite to store data in a database, where SQLite is an open-source database that is widely used in various small-sized hardware devices.

2.2 LBS (Location Based Services)

LBS (Location-Based Service) is a service that is used to determine the position of the user, then uses that information to provide services and applications that are personal [11]. Location-Based Services can provide the possibility of communicating and interacting from two directions. Therefore the user can tell the service provider to get the information he needs, by reference to the user's position. Location-based services can be described as a service that is at the confluence of three technologies, namely: Geographic Information System, Internet Service, and Mobile Devices [12].

2.3 Geocoding

Geocoding is a technology which is a process for finding geographical coordinates (latitude and longitude or latitude and longitude) from a specific address (street name, city name, postal code, country name) [13]. The opposite of geocoding is reverse geocoding, which is looking for geographical data based on geographic coordinates [14].

Geocoding is defined as the process of storing a location as part of a record. If the data has been geocoded, identification has been added to the note to the location on the map [15].

2.4 Systems Architecture Analysis

The android platform is one of the subsystems that will be used to build this application. Therefore there is a software architecture on this android platform that will explain how to define components that are more structurally specific. The software system architecture that will be built is an android device requesting data to the server via the web services API, then the server receives the data request and determines the type of request requested, if the server receives a location request then the server calls the Mapbox API, then Mapbox sends a response to the server, system architecture built can be seen in Figure 3.

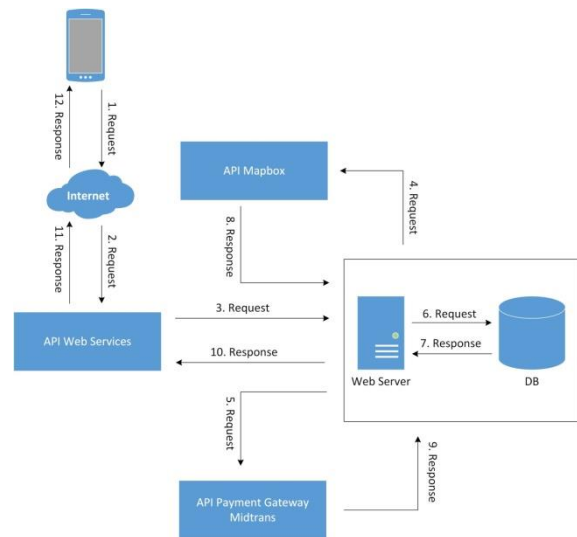


Figure 3. System Architecture

2.4 Problem Analysis

Analysis of the problem can make it easier to describe every problem that exists in the running procedure. Later the results of this problem analysis can be used as a reference in designing the application to be built. The following problems occur:

1. How to provide event publication applications that can reach the community individually.
2. How to build applications that can sell event tickets effectively.
3. How to build applications that can facilitate payment of event ticket administration.

2.5 Analysis of the System to be Built

In the application that is built will utilize QR code in terms of ticketing, participants are required to complete payment of ticket reservations in advance, QR code itself is generated based on the Order ID at the time of booking. From this, we need a system that functions as an encoder and decoder. Analysis of the System to be Built can be seen in Figure 4.

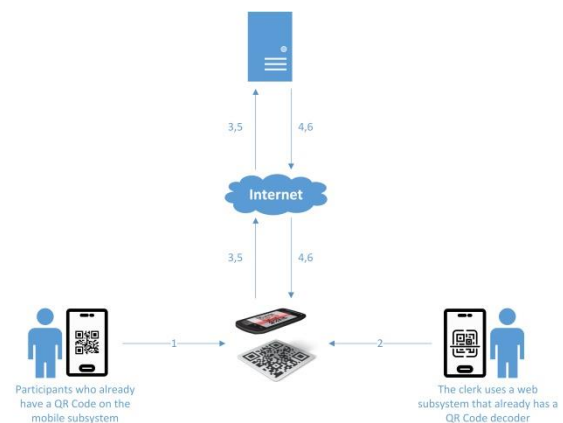


Figure 4. Analysis of the System to be Built

2.5 Analysis of the Technology Used

Analysis of technology used to find out what technology is needed in the construction of applications to be built. Technology to be used:

1. Geocoding

One of the technologies used in developing this application is geocoding using Mapbox. Geocoding is a process whereby changing street names or location names to latitude and longitude coordinates. The workings of using geocoding technology in this application are to change an address into a geographical location to be able to place pins. Pim placement is required as a marker of the location of the event to be held.

2. Payment Gateway

Payment gateway functions in the development of this application as a means of online payment. The payment gateway used in this study uses Midtrans. Several requirements are required to be provided before integrating with Midtrans, agreed:

- a. Merchant are required to register for a Sandbox / Production Midtrans account through the address <https://midtrans.com>. The sandbox account is used during the development period while the production account used by the merchant compilation has finished integration and is ready to go live. Sandbox mode with production can be distinguished by color if the production mode uses blue, and the sandbox mode uses orange.
- b. Complete the information needed in the Merchant Admin Portal.
- c. Record Access Keys from Midtrans accounts that have been created. Access Key, There are Merchant ID, Client Key, and Server Key in the Access Key.

3. QR Code

The ticketing system that was built will use a QR code, so a system that can burn QR code is needed. The QR code version used in this application is the 25x25 version. In the coding process into a QR code, there is a change in the data from the order ID type string with a length of 14 characters to a QR code consisting of an image. Ticket order ID with a total of 14 characters is then divided into two parts. The first four characters are short for "Order" while the next ten characters are taken from the timestamp when participants order tickets.

2.6 Functional Requirements Analysis

Analysis of the functional requirements of the system that will be discussed in this study is modeled using the Unified Modeling Language (UML). The modeling stages in the analysis using UML include Use case Diagrams, Use case Scenarios, Sequence Diagrams, and Class Diagrams.

2.5.1 Functional Requirements Specifications

The functional requirements of the system can be explained in Table 1 below:

Table 1. Functional Requirements Specifications

SKPL Code	Software Requirements Specifications
SKPL-FM-001	The system provides a login feature
SKPL-FM-002	The system provides event data features
SKPL-FM-003	The system provides event booking features
SKPL-FM-004	The system provides ticket payment features
SKPL-FM-005	The system provides a history booking feature
SKPL-FM-006	The system provides account data management features
SKPL-FM-007	The system provides the QR Code print feature
SKPL-FM-008	The system provides a logout feature

2.6 Use case Diagram

Use case diagrams are constructs to describe the relationships that occur between actors and activities contained in the system. Following Figure 5 use case of the system to be built.

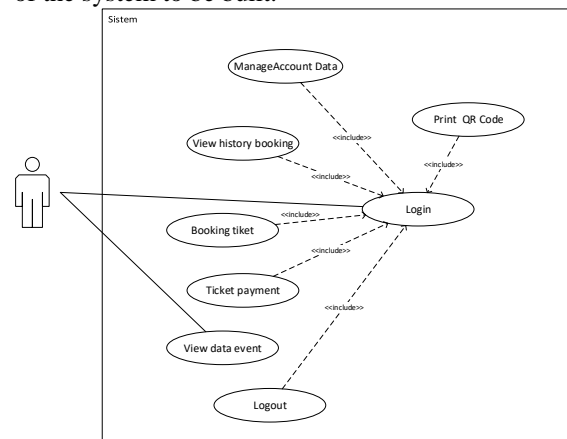


Figure 5. Use case Diagram

2.7 Use case Scenario

The use case has a scenario where each section of the Use case shows what processes occur in each part of the Use case. The user can give commands to all sections and see what response can be given by the system to the user after the user gives commands in each section of the Use case.

Table 2. Scenario Use case Booking Tiket

Actor Actions	System Reaction
Normal Scenario	
	1. The system displays the event data page
2. choose the desired event	
3. The actor presses the buy button	
	4. The system

	performs the process of adding data
	5. The system displays event ticket data that has been added
Alternative Scenarios	
	1. The system displays the event ticket booking data page
2. Actors choose the desired event	
3. The actor presses the buy button	
	4. The system performs the process of adding data
	5. The system failed to add event ticket booking data

2.8 Class Diagram

Class Diagrams are used to display classes in the system and provide a static picture of the system and relations — class diagram of the application to be built as in Figure 6.

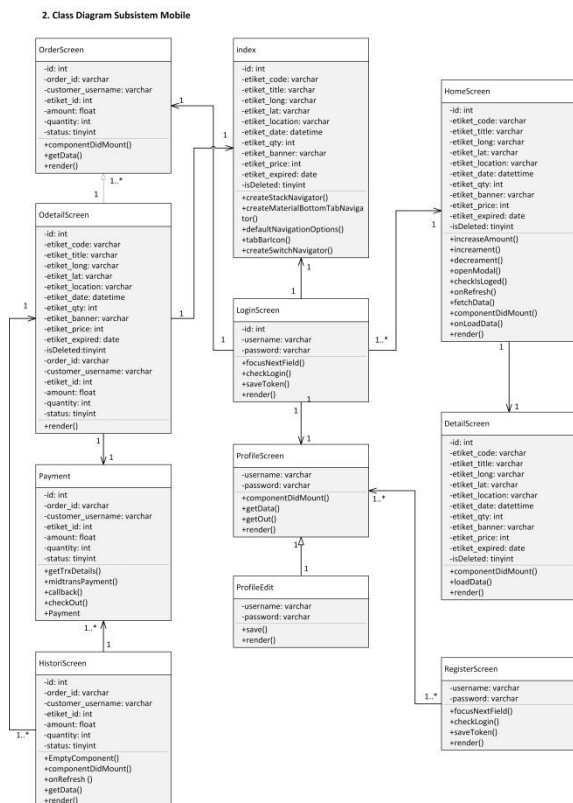


Figure 6. Class Diagram

2.9 Sequence Diagram

Sequence Diagram illustrates the sequence of activities that occur in the system. This diagram shows the sending of messages that pass objects involved in the system. Sequence diagram can be seen in Figure 7:

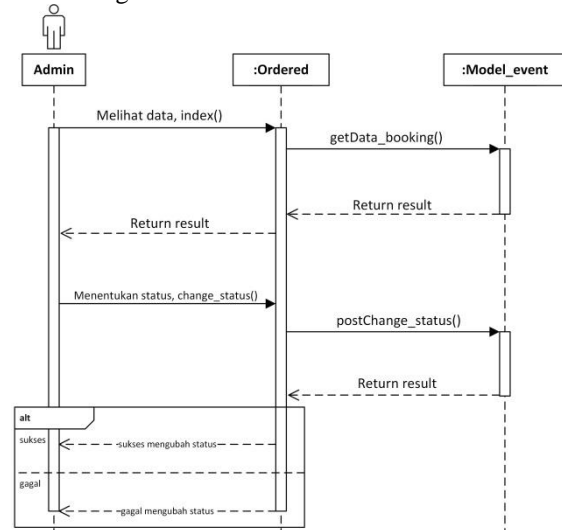
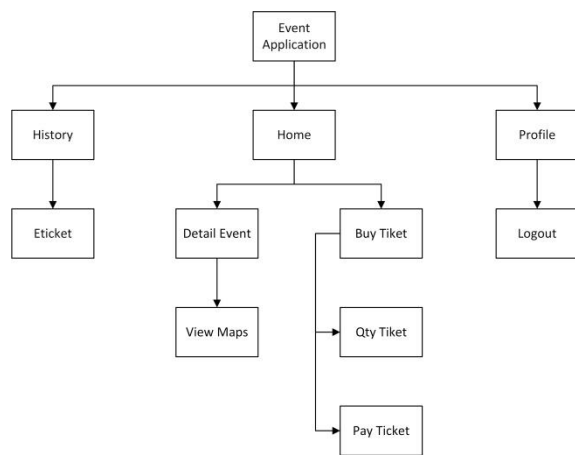


Figure 7. Sequence Diagram Booking Tiket

2.10 System Planning

2.10.1 Architectural Design Menu

The menu architecture design is a framework that was designed before implementing code into computer language. In addition, the design of the menu architecture serves to provide an overview related to what menus or options will be available on the system later. The menu structure of the software is built as in Figure 8.



Gambar 8. Architectural Design Menu

2.10.2 Interface Design

The design of the application interface is used in order to facilitate the user in operating the software to be built so that it is expected to make the interaction as simple and efficient as possible to achieve the user's goals. The following is an overview of the interface of the application to be built.

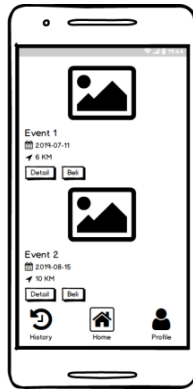


Figure 9. List Event



Figure 10. QR Code Tiket Event

3 FINALE

3.1 Conclusion

Based on the results of research conducted starting from problem identification to the discussion of analysis, the design of event publication applications in the city of Bandung is in accordance with what is expected to be then done in a testing phase.

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