PALS System

Software Requirement Specification

March 31, 2016

Submitted By:
Alvin
Andi Darmawan
Fakhria Nur Shabrina
Muhammad Farhan Mubarak

Table of Contents

1 Introduction

This document will provide an overview of the specifications used in the development of the PALS System. It will include the scope of the project, target user of the system, the requirements of the system, the system constraints, the system work flow and how the system will be used.

1.1 Goals

The goal of this system is to help the drivers or riders that having the difficulty in finding the location of public accommodation such as ATM, gas stations, and repair shop in Depok.

1.2 Scope

PALS is a mobile application intended to help people, especially riders, who have difficulty in finding the location of public accommodation around their position. Therefore, the non-technical scope for this system is as follows:

- Public accommodation that are served by the application, for now, is limited only to the ATM, gas station and repair shop
- For the coverage area, only include Depok city and surrounding area.
- Search range to find nearest location of the public accommodation is limited from 300 meters (with increment of 300 meters) to 1,5 kilometers
- The data is not stored in the app itself but in the website database managed by the administrator
- New location from user will be shown in the application if only it is approved by the administrator.

And for the technical scope for this system is as follows:

- The Android application was developed using the Eclipse IDE and Java Android programming.
- It needs remote MySQL database to store and retrieve data.
- This application can only be run on android platform mobile device version 4.2 (jelly bean) to Android 6.0 (marshmallow).
- The application needs internet connection to get the data from the server and location services permission (by GPS or network)

This specification explains how these rules will be applied and the constraints that will be placed on its implementation.

1.3 Glossary

Terms	Definition
PALS	Public Accommodation Location Service.
Go-Pals	Developer Team Name
Requirement	A need or necessary condition of the finished product
User	Person(s) who will deal with the completed product of this specification.
Administrator	Person(s) who manage the database for this system.
JSON	An open-standard format that uses human-readable text to transmit data objects consisting of attribute–value pairs.

2 Operation Scenarios

The PALS System will be used as a service to help drivers for searching accommodation in Depok area. User as a driver will be able to find the accommodation location such as ATM, Gas Station, and Repair Shop, choose location radius, get direction from current location to destination location, call the repair shop if the number is available, and add new location. The user preferences will be sent to database and user receive the result from database that managed by administrator. GUI interface in PALS mobile app will display the result.

3 Requirements

This section discusses all of the system requirements and system constrains.

3.1 Object Location:

- ATM: BCA, Mandiri, BNI, BRI, DKI, Bukopin, Danamon, Mega, OCBC NISP, Panin, Permata
- Gas Station: Pertamina and Shell
- Repair shop:
  - Car (Toyota, Honda, Daihatsu, Suzuki)
  - Motorcycle (Honda, Yamaha, Suzuki, Kawasaki)

3.2 System Feature and Function:

The developed system consists of two different applications, that are PALS Android application and Administrator Website. The PALS Android application will allow the user to use several features and functions that are:

- Find Location By Category (ATM, Gas Station, and Repair Shop).
  - Nearby radius: 300 meters to 1.5 km with increment of 300 meters.
  - View all location for each category.
  - View location information.
  - Get direction from current location to place location.
  - Make a phone call (just for repair shop).
- User Input Location (required to be confirmed by administrator before it can show in maps).
- Help Menu
- About Menu

And for the Administrator Website, there will be seven main function that can be used by Administrator, that are:

- Administrator Login (username and password already defined so it not necessary to register)
- View Data (ATM, Gas Station, Repair Shop)
- Insert Data (ATM, Gas Station, Repair Shop)
- Update Data (ATM, Gas Station, Repair Shop)
- Delete Data (ATM, Gas Station, Repair Shop)
- Edit User Inputted Data (ATM, Gas Station, Repair Shop)
- Confirm User Inputted Data (ATM, Gas Station, Repair Shop)
- Reject User Inputted Data (ATM, Gas Station, Repair Shop)
- Log out

3.3 Softwares and Tools used to Develop:

- Apps:
  - Eclipse IDE
  - Android ADT and SDK
  - Google Play Services Library
  - Google Maps for Android API key
- Website:
  - Notepad++
  - Bootstrap css framework
  - Google Maps for Website API key
  - Apache and XAMPP Control Panel
  - Web Browser (Chrome/Firefox)
- Database (Shared for Apps and Website):

- - o MySQL
  - Design:
    - o Inkscape
    - o Adobe Photoshop
  - Miscellaneous:
    - o Web hosting (000webhost)

3.4 System Constrains:

- Android OS 4.1 (Jelly Bean) to 6.0 (Marshmallow) can be used to run the PALS application
- Internet Connection
- Location service enabled (GPS or wifi or mobile data)

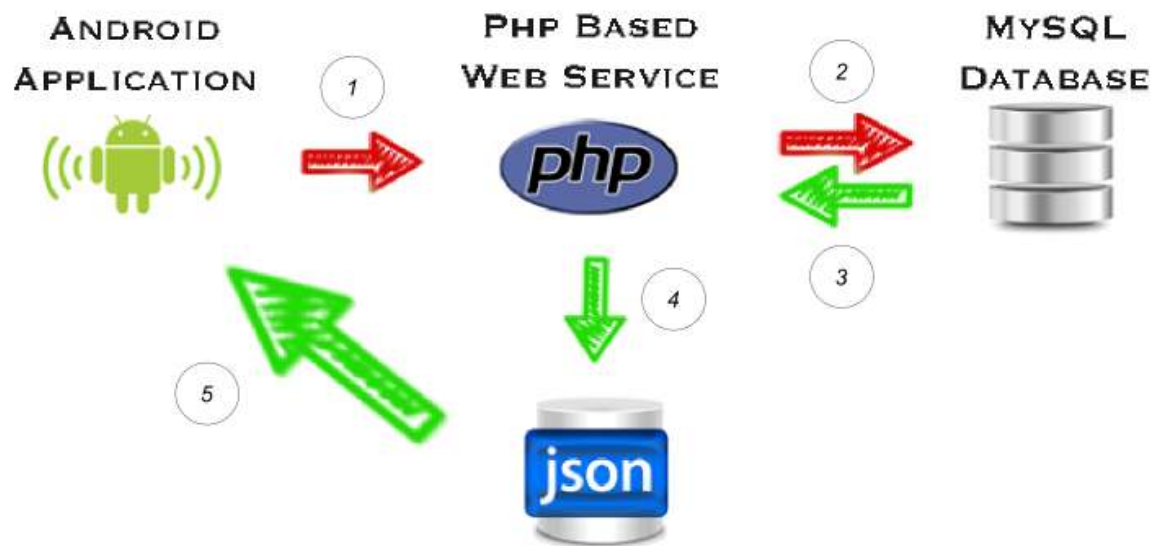## 4 Function Definition

4.1 System Workflow

Figure 1: System Workflow

The above figure represents how the system workflow works.
1. PALS Android application sends a request (to get data or input data) to PHP web service in Administrator Website.
2. PHP web service tries to connect to MySQL database to process user's request.

3. MySQL database send the data response back to PHP web service.
4. PHP web service encodes the response to JSON Format.
5. The JSON response sends back to PALS Android application, and parsing the JSON format to get the data and display it on the application.

4.2   Major Functions

4.2.1   PALS Android Application Function

Find ATM location nearby particular radius
Function Description
When user clicks the "Find ATM" button in "Main Menu" page, the app will display "Find ATM Page". In that page, user can select the bank name and the radius. When the "Find" button clicked, the app will send a request to PHP web service to get the data according to user selected bank name. When the app gets the JSON response back, it will parse the JSON response to get the data and if data is available, the app will calculate the radius from user current location to ATM locations obtained from database. App will select the ATM locations that suitable with user specified radius, and after that, app will sort it by the nearest radius and display it in list.
Find gas station location nearby particular radius
Function Description
When user clicks the "Find Gas Station" button in "Main Menu" page, the app will display "Find Gas Station Page". In that page, user can select the gas station company and the radius. When the "Find" button clicked, the app will send a request to PHP web service to get the data according to user selected company. When the app gets the JSON response back, app will parse the JSON response to get the data and if data is available, the app will calculate the radius from user current location to gas station locations obtained from database. App will select the gas station locations that suitable with user specified radius, and after that, app will sort it by the nearest radius and display it in list.
Find repair shop location nearby particular radius
Function Description
When user clicks the "Find Repair Shop" button in "Main Menu" page, the app will display "Find Repair Shop Page". In that page, user can select the vehicle type, brand and the radius. When the "Find" button clicked, the app will send a request to PHP web service to get the data according to user selected vehicle type and brand. When the app gets the JSON response back, app will parse the JSON response to get the data and if data is available, the app will calculate the radius from user current location to repair shop locations obtained from database. App will select the repair shop locations that suitable with user specified radius, and after that, app will sort it by the nearest radius and display it in list.
View Location Information
Function Description

When user clicks one of the places in result list, the app will open a map page that show the marker of user current position and place location. When the place location marker clicked, the information dialog will display the information such as place name, address, phone number (only for repair shop).

Get Direction
Function Description
When user clicks "Direction" button on information dialog, the app will access Google Direction API and get the direction and display the direction in form of polylines.
Make a Phone Call
Function Description
When user clicks "Call" button on repair shop information dialog, the app will display confirmation dialog. When user clicks "Ok", the app retrieve the phone number data from database then making a phone call. (Note: "Call" button is only available if user search category is repair shop)
Input Location
Function Description
When user clicks "Input Location" icon on action bar options menu in "Main Menu" page, the app will display a page that contains a list of object category (ATM, gas station and repair shop). When user selects one of a category, the app will display a map page. The map area will be centered to the user position. To mark the location, user can add a marker by touching any position on the map. Then user must click "Checklist" button to display a page that contains a form that should be filled out by the user. The form fields will be different depending on selected category.
View Help
Function Description
When user selects "Help" option on action bar in "Main Menu" page, the app will display "Help" page. This page consists of a list of help option that can be selected to display various user guide info to further understand the apps.
View About
Function Description
When user selects "About" option on action bar options menu in "Main Menu" page, the app will display "About" page that shows information about the application version, the developers involved in making the apps, license, and credits.

4.2.2   Administrator Website Function

Login
Function Description
When administrator opens the website, he/she must login first by inputting username and password before entering the system. If the username and password are correct, it will open the website home page.
View Data
Function Description
When administrator selects "ATM", "Gas Station", or "Repair Shop" in sidebar menu, the website will open a page that shows a table which contains data for each selected category.
Add Data
Function Description
When administrator clicks "Input Data" button on selected category page, the website will open a data input form. Administrator is required to fill all empty fields, and then click the "Submit" button to complete the data input process. Once that is done, the website will open the table page with the added data.
Edit Data
Function Description
When administrator clicks "Edit" icon besides the desired data on selected category page, the website will open a data input form. Administrator is required to change the desired fields, then click the "Submit" button to complete the data edit process. Once that is done, the website will open the table page with the edited data.
Delete Data
Function Description
When administrator clicks "Delete" icon besides the desired data on selected category page, the website will show a message box to confirm the delete process, then click the "ok" button to complete the data delete process. Once that is done, the website will open the table page without the deleted data.
Search Data
Function Description
When administrator input a keyword in search box, the table will be adjusted to show the records that have similar values with the keywords in any fields.

Edit User Inputted Data
Function Description
When administrator clicks "Edit" icon on the particular record in user entries table page, the website will open the data input form that have been filled with related data. Administrator can edit any field, and then click "Submit" button to complete the data editing process then the website will open the table page with the edited data.
Confirm User Inputted Data
Function Description
When administrator clicks "Confirm" icon on the particular record in user entries table page, the website will show confirmation message box to confirm the data, and then click the "ok" button to complete the process. The confirmed data will be added to related category and then the website will open a user entries table page without the confirmed data.
Reject User Inputted Data
Function Description
When administrator clicks "Reject" icon on the particular record in user entries table page, the website will show confirmation message box to reject the data, then click the "ok" button to complete the process then the website will open a user entries table page without the rejected data
Logout Data
Function Description
When administrator selects logout on sidebar menu, the website login session will be terminated then brought back to login page.

5   References

Pressman, Roger S. <u>Software Engineering - A Practitioner's Approach</u>. Fifth edition. The McGraw-Hill companies, Inc.

Kaner, C., Falk, J., Nguyen, H.-Q. <u>Testing Computer Software</u>. Wiley Computer Publishing, 1999.