MYBUS TRACKING SYSTEM

LOO SHI MIN

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

BORANG PENGESAHAN STATUS TESIS*

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Alamat tetap: 82, jalan batu injur 2, Taman bayu perdana, 41200 klang. Selangor Darul Ehsan.	Nama Penyelia : Dr. Massila Kamalrudin
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MYBUS TRACKING SYSTEM

LOO SHI MIN

This report is submitted in partial fulfillment of the requirements for the Bachelor of Computer Science (Software Engineering)

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY
UNIVERSITI TEKNIKAL MALAYSIA MELAKA
2015

DECLARATION

I hereby declare that this project report entitled

MYBUS TRACKING SYSTEM

is written by me and is my own effort and that no part has been plagiarized without citation

STUDENT: _____ Date: _____
(LOO SHI MIN)

SUPERVISOR: _____ Date: _____
(DR. MASSILA KAMALRUDIN)

DEDICATION

To my beloved parents whom I shall make them proud.

ACKNOWLEDGEMENT

I would like to take this opportunity to express my special thanks of gratitude and deep regards to my supervisor, Dr. Massila Kamalrudin for her guidance and monitoring throughout the progress of this report. I also would like to take this opportunity to express a deep sense of gratitude to my friends for providing support while I faced failures in completing the project. Lastly, I also would like to thank my parents for their constant encouragement, which has helped me to complete this project within the limited time.

ABSTRACT

Among all the services provided by the university, bus service is the major service that used by UTeM's student because the student hostel is mainly located outside the university. However, the current bus service in UTeM still need to be improved because the student cannot track the location of the bus. Sometimes, the bus may be delay or arrived late. Student may miss their class because they can't estimate the time that the bus will reach. Compare to university in oversea, UTeM do not used any system or application to track all their buses position in every bus stop. The management of the bus service is still run in manually where the bus schedule is done manually by the officer using excel and bus driver will work based on the schedule. This process waste a lot of time and human error may be occur when it is done manually. To overcome these problem, an application called "MyBus" has been develop to help UTeM student to have better bus service. MyBus is a mobile application that able to help student in tracking the location of the bus. The student will know the location of the bus and help them to estimate the time the bus will reach the hostel. Besides that, this system will also help the admin to save all the bus schedule information in more systematic way. The agile software development methodology has been selected as the software development reference to this project. This methodology is an iterative, team-based approach to development and it emphasizes the rapid delivery of an application in complete functional components. It is a good model for environments that encounters changes.

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CHAPTER I

INTRODUCTION

1.1 Project Background

Among all the services provided by the university, bus service is the major service that used by UTeM's student because the student hostel is mainly located outside the university. Student that without their own transport is highly depend on the bus service to travel from hostel to university and vice versa.

However, the current bus service in UTeM still need to be improved because the student cannot track the location of the bus. When student want to take bus, they need to wait at the bus stop before the time stated in the manual bus schedule. Sometimes, the bus may be delay or arrived late. Student may miss their class because they can't estimate the time that the bus will reach. Compare to university in oversea, UTeM do not used any system or application to track all their buses position in every bus stop. The management of the bus service is still run in manually where the bus schedule is done manually by the officer using excel and bus driver will work

based on the schedule. This process waste a lot of time and human error may be occur when it is done manually.

To overcome these problem, an application called “MyBus” has been develop to help UTeM student to have better bus service. MyBus is a mobile application that able to help student in tracking the location of the bus. The student will know the location of the bus and help them to estimate the time the bus will reach the hostel. By knowing the location of the bus, the student also can find the nearest bus stop to wait for their bus to go back hostel from university. Besides that, this system will also help the admin to save all the bus schedule information in more systematic way.

1.2 Problem Statement

One of the main problem in UTeM bus service is student cannot track the location of the buses. Student need to wait early at bus stop to prevent them miss the bus because the student do not know when the bus will reach the hostel and whether the bus reach the hostel or not. Sometime, student might feel impatient and anxious especially when they are rushing of time but the buses does not reach on time.

Besides that, the irresponsible driver cannot be known when there are no proper application for admin to track the location of bus. The bus driver may take chance to skip for their duty or does not follow their schedule. This situation will cause the students need to wait long time in the bus stop and they might become robbery target especially for student that take 7am bus because that is still early and the sky is still dark.

Furthermore, some of the hostel sharing the same bus is also a problem. For example, Hostel Emerald Park and Hostel Bunga Raya are sharing the same bus because this two hostel are in the same bus route. The number of student that take bus from this two hostel is many because most of the student that stay outside UTeM hostel will take bus in this two hostel but the number of buses is still not increased although this two hostels are sharing same bus. This causes the student

in hostel Bunga Raya always miss the bus because the buses is already occupied when it stop in hostel Emerald Park.

Lastly, the bus schedule for bus driver is done manually by the officer using excel which is time consuming and the data may lost easily. The officer will find it difficult to find for the driver that on duty on specific time because the schedule is done manually.

1.3 Objective

- **To track the nearby bus and save student time**
  By tracking the location of the bus, student able to estimate the time the bus reach and prevent them to miss the bus and miss their class. It also can increase the efficiency of the bus service because the driver no need to wait for the student to reach the bus stop.

- **To increase the productivity of the bus driver**
  When the bus is being track, the admin able to observe the bus and make sure the bus is working and can increase student safety in waiting bus.

- **To save admin time and save the data of schedule in systematically way**
  The admin can save time in prepare the schedule and the data stored in database will be more secure compare to save it in computer.

1.4 Scope

The scope is focus on how to help admin to improve the operation of the bus service in UTeM and help UTeM student to take the bus easily. The result of this project is to make sure the bus tracking system can bring more efficient and benefits to admin and student. The function of this system is to help admin in manage the bus

service more efficiency and effectively. The location of the project is focus on Universiti Teknikal Malaysia Melaka only.

1.4.1 Modules:

a.) Admin module

Enables the admin to perform administrative and manage information such as manage the bus driver schedule and view the bus status in map.

b.) Searching module

User of UTeM bus can get their current location and search for the active bus by the map shown in the application. The application will show the bus driver position on the map when the driver is switch on the gps on their phone and the driver position will disappear when they turn off the gps. This will allow the user to identify which driver is working.

c.) Bus positioning module

This module is to identify the position of the bus. This module will continuously update the bus position to the server and display by the admin through the webpage and bus user through the phone application.

1.4.2 User

a.) User of UTeM Bus

Student is the main user for UTeM bus because the main objective of these tracking system is to provide the location of the bus to student. When student wait at bus stop, they can access the system with their mobile device instead of using computer to access. This is the main purpose of bus tracking

system in mobile application is developed. Student able to search for the bus position based on the map shown

.

b.) Bus Driver of UTeM

Bus driver is the second important user of this system. They are the one who will update the bus position the bus is on the operating hours.

c.) Admin

Bus admin is the user that will manage the bus schedule and view the bus driver status in the webpage of this system.

1.5 Project Significance/Contribution

"Bus Tracking System" can help both the bus user in save time to wait the bus and bus admin in save time to manage the bus driver and can observe the bus in more effective way. Besides that, this system is convenient for user that stay far from UTeM bus stop because when they can track the location of the bus, they can estimate the time they should out from their house. Furthermore, when the system is being develop, the data of the bus schedule will not lose easily.

1.6 Expected Output

The result will be a mobile application that will be designed for user that take UTeM bus with the information about the bus current location and they can estimate

the time they should come out to wait for the bus and find nearby bus stop to wait for the bus.

1.7 Conclusion

In conclusion, this project can bring ease to student that taking utem bus. It can help user to search for the location of the bus and view the location through their mobile application. Besides that, it also help the bus admin to manage the bus schedule more effectively and can store the data in more systematic way. The next chapter will describe the literature review about the existing system and methodology used in this system.

CHAPTER II

LITERATURE REVIEW AND PROJECT METHODOLOGY

2.1 Introduction

MyBus is a mobile application that will help the students to track the location of the bus and enables the admin to observe the bus driver. This project required some research and fact finding to support it. Therefore, literature review plays an important role when a project is carried out.

In this chapter, facts and finding and literature review about the relevant project and research about this system will be discussed. The purpose of literature review is to find relevant literature to support the project topic and conclude all the information that found in the literature. It also let your reader know what knowledge and idea have been established on a topic and what the strengths and weakness are.

Project methodology was also developed in this chapter. Project methodology is to complete project using principles, techniques and methods. It refers how to collect data and gather information to be applied project. Next, project requirement such as software requirement, hardware requirement and other requirements will be defined applied to the project. Project schedule and milestones also will be defined in the project.

2.2 Facts and findings

In facts and findings, there are some ways to develop the system in order to solve the existing problem. For this literature review, the resources such as study and research can be found from the books and internet. These resources can show some of the relevant system that have been done before and to see how it can satisfy the user requirement.

2.2.1 Domain

Vehicle tracking is the process of detect the location of the vehicle by using the technologies of global positioning system (GPS). Real time tracking becoming increasingly popular as the GPS become more readily available. Letham (1999) stated that GPS is an outdoor location based service that is capable of determining the location of a receiver within 15 to 100 meters accuracy. GPS tracking and monitoring describe the use the GPS to determine the location based on the movements of the receiver.

2.2.2 Analysis of existing system

1.) Bus Tracking System by Asia Pacific University

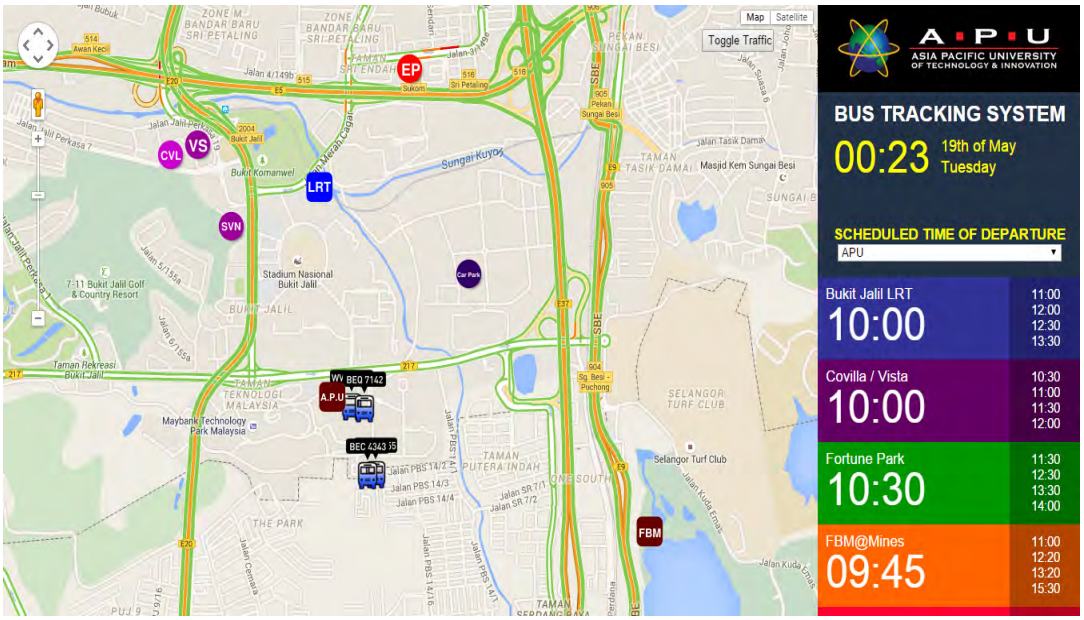

Figure 2.1- APU bus tracking system.

APU bus tracking system is developed by Malaysia premier private university- Asia Pacific University (APU). This system is embedded with google map and built in APU webpage to allow their student to check for bus traffic status. This system can be used by all the student as long as they have a device with internet access.

The bus icon with bus number are shown on the map of the system which indicated the real time position of the bus. The bus number show on the bus is to ensure that student take the right bus because different bus will have different route. Besides that, there are also timetable that show the arrival time of bus in each bus stop based on scheduled time of departure from APU, Faculty of Business & Management in APU (FBM) and South City Plaza (SCP). The features of the webpage is it will automatically refresh every 40 seconds.

2.) Rice University Shuttle Bus Tracking System

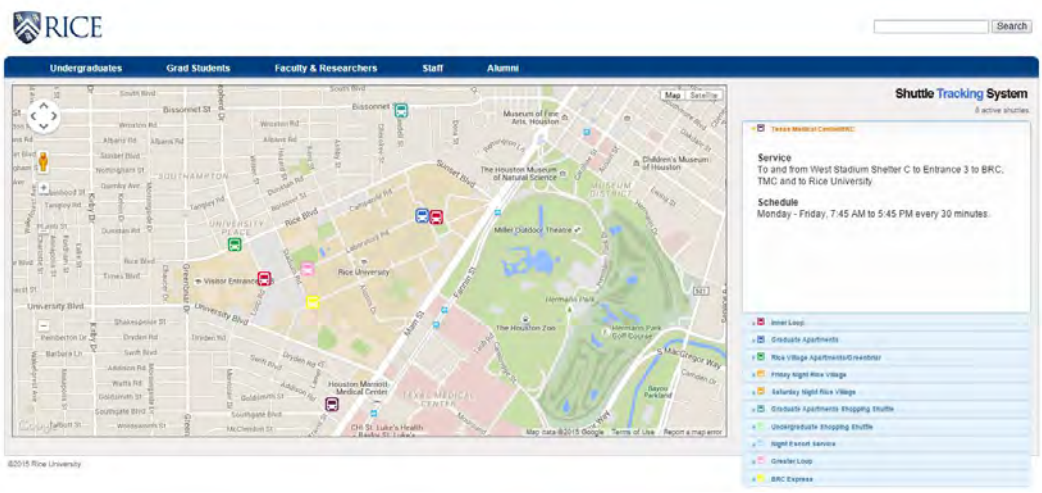

Figure 2.2 : Rice University Shuttle Tracking

Shuttle tracking system show in Figure 2.2 is developed by Rice University located in Texas, USA. The system embedded with google map and built in webpage with simple interface that display the information of bus service in Rice University.

The position of buses and the campus area of rice university are shown on the map. The colour of the bus icons that show on the map are different. This is to make the student easier to differentiate the different bus service amd bus route in the university. Besides that, there are few tab box at the right hand side of the webpage that show about the information of different bus route information such as the service of the route is from where to where and also time schedule of the route. The features of this system is the high update speed of the bus icon in the map that allow it to look like moving in the map.

3.) Northern Illinois University (NIU) Bus Tracking System

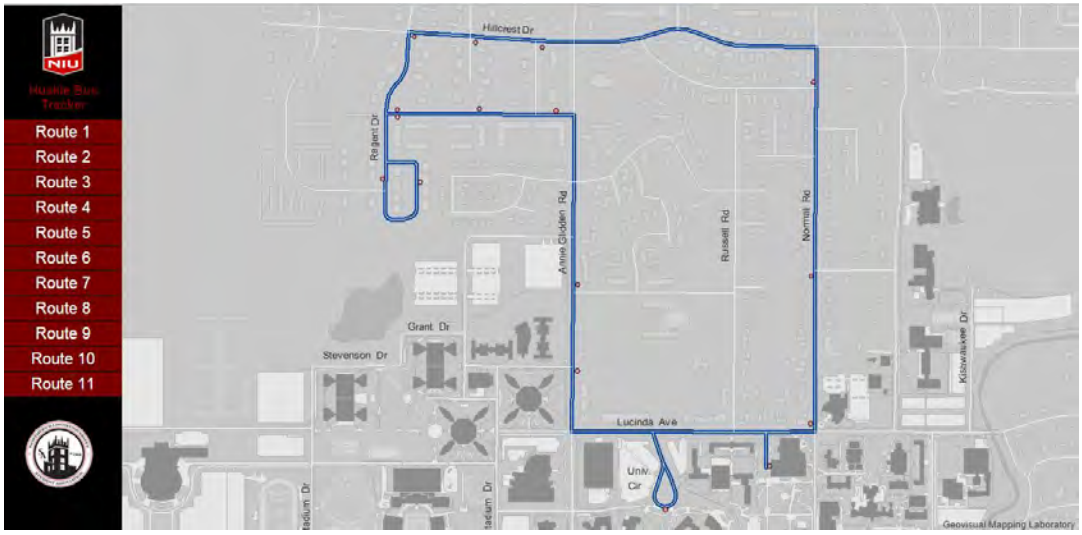

Figure 2.3- NIU bus tracking system- Route 5.

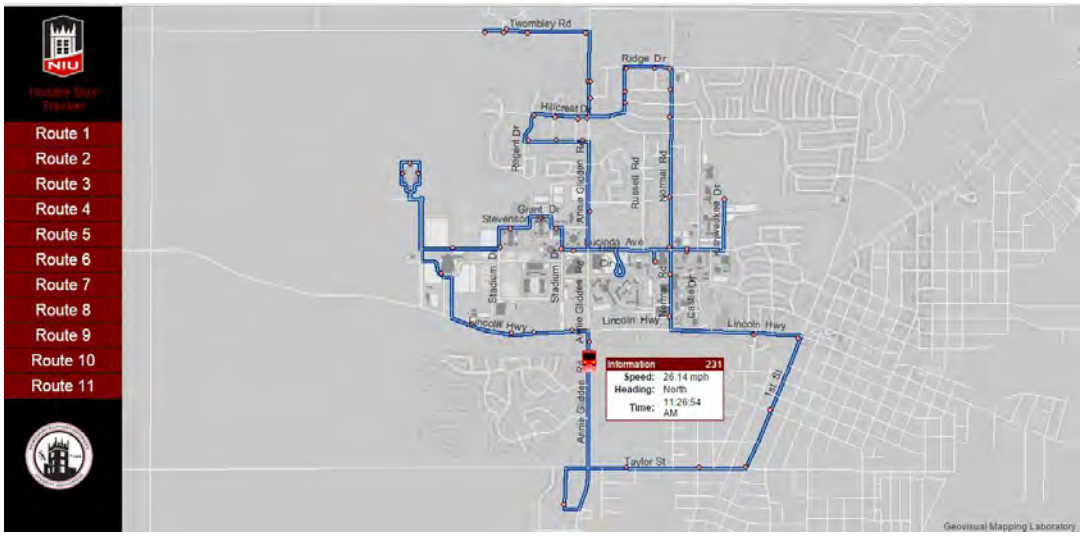

Figure 2.4- NIU bus tracking system- Route 11.

NIU bus tracking system show in figure 2.3 and 2.4 is developed by Northern Illinois University. The uniqueness of this system with other system is the map used is jpeg format map that converted from google map not google like others system. The purpose of using this type of map is to show different route on different map.