S-Carpool: The Apps Development For UniKL MIIT Students

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Recently, the students studies in the capital of city such as UniKL MIIT students having more difficulty regarding on getting nearby public transportation within their campus. This is due to the cost of public transportation is increased and it will able to burden the students daily life. It is also probably makes the students face the issues of insufficient and hard to find the vehicle or transportation that can have the similar direction within the UniKL MIIT Campus. The aim of this project is to develop S-Carpool Mobile Application system for UniKL MIIT students that provide students the easiest and fastest way to move from one place to another place. This application will help students to use their mobile applications in order to book a ride from UniKL MIIT to the any nearby destination requested. The use of mobile application nowadays give a various opportunity especially to the students to fully utilized the easiest and fastest way to help them move from one destination to another destination. By using this S-Carpool: The Apps Development For UniKL MIIT Students, also can help students to find trustable and comfortable friends for car ride to avoid unwanted situation especially for the safety purpose. Besides, this project also will be able to help them to save cost by sharing the payment for every car ride. The use of Rapid Application Development (RAD) methodology model is developed to meet with the objective of this project. The outcome of this S-Carpool: The Apps Development For UniKL MIIT Students, the development system will not provide the benefit directly to the students as a whole but also for the driver which is also the students from UniKL MIIT to generate extra income to support their students' life that very challenging nowadays. This project also will be able to expand the use of the mobile application not only to the students but also to the staff and people who works in UniKL as a whole. As a conclusion, the proposed S-Carpool: The Apps Development For UniKL MIIT Students will benefits user in terms of time saving, early exposure and proposed new transportation method to help students easy to move from one destination to other destination.

Keywords— Carpool system, Mobile application, Management system

I. INTRODUCTION

Student life is very challenging especially students studying in the city. This is because the cost of living is very high and they had to make a part-time job to support their daily life as a student. Moreover, with the availability of vehicles it will makes easier for students to manage their life especially students who do not have a vehicle. Students who do not have own vehicle will make it difficult for their movement especially during the emergency case. Therefore, the vehicle or transportation is very important to students for easily having their daily routine life in commuting their way go and back to university and also for weekend life activities or students' survivor.

S-Carpool: The Apps Development For UniKL MIIT Students is a platform for UniKL MIIT students commuting drivers and passengers that heading the same way. This application is an arrangement between people to make a regular journey in a single vehicle. They will able to share the vehicle fuel and together with the toll payment. It also will be able to transform carpooling into a viable transportation alternative, so both driver & passenger can share the cost of the trip while meeting new people. In addition, it will reduce and preserving the environment.

For starting using this application user need to register as a member and fill in the details information they requested as the driver or passenger. This process can help them know the appropriate driver and destinations that they wish to find. Therefore it encourages them to use carpool system type for commute them not only from or to UniKL but to the other nearby destination as well. In the presence of S-Carpool: The Apps Development For UniKL MIIT Students, this mobile application can encourage students to realize about carpooling that can reduce traffic congestion. In addition, it also solves the problem of limited parking in the capital area such as Kuala Lumpur and also will help students overcome their problems based on vehicle and transportation hunting.

II. RELATED WORK

A. Concept Definition

The concept that is used in this project is mobile application and carpooling system approached. Definition of mobile application is a software application is developed specifically for use on small, wireless computing devices, such as smartphones and tablets, rather than desktop or laptop computers. Definition of carpooling is a service that encourages students to share vehicle while driving to class or nearby destinations (1). Mobile

application is a software application developed specifically for use on small, wireless computing devices, such as smartphones and tablets, rather than desktop or laptop computers. Mobile phones are more a necessity than a luxury because people can make calls and short message system (SMS) with others (2). Mobile application computes the attention of the research community for quite some time and also reached the commercial industry and mainstream consumers via smartphones and PDAs. According to (5), the development of mobile services was controlled and managed by the mobile network operators (MNO), phone manufacturers, some mobile application and content providers. Carpooling is a service that encourages students to share vehicle while driving to class or nearby destinations (1).

Carpooling system refers to the sharing ride with a driver with one or more passengers, where the ride sharing between individuals is not established in advance but coordinated on the spot (7). According to (4), the challenge on how to match between students that can share a ride and decide who picks up whom with their vehicle, so that will be worthwhile both for the driver and all passengers. Besides, the advantages of carpooling are multiple: it decreases the number of cars on the road, thus decreasing traffic congestion, vehicle emissions, air pollution and noise (4). Carpooling is one of the effective solutions to this problem. This service can be save fuel, time, and parking spaces also decreases the number of accidents. The car sharing aims to solve this problem by targeting the empty seats in private cars. According to (5), the students can go to class with this carpool services. This service can be done as they know each other and easy to communicate. So, the idea to develop this S-Carpool: The Apps Development For UniKL MIIT Students broke out when knowing that student have financial problem, and also has difficulty to find utilities shop when in an emergency time for course assessment submission. This project will also help students to spend their weekend life to move from one destination to other destination. Besides, this application also can have the opportunity to meet new friends and help driver to reduce their stress problem. S-Carpool: The Apps Development For UniKL MIIT Students is also help students to find other alternative transportation service anywhere and everywhere by using one clicking through mobile application. In addition, S-Carpool: The Apps Development For UniKL MIIT Students will be able provide students that have their own vehicle to generate extra income for life survivor.

B. The Benefit Of Carpool System

The benefit that user can get from vehicle carpool activities are help them to save money, such as helps to save the cost of vehicles repairs and maintenance and therefore less fear and damage to the roads that need to be repair each year using taxpayer's money. Additionally, carpool system also helps manage fuel sharing among friends that taken the same ride (8).

Vehicle carpooling also can reduce traffic congestion problems among those cities and might be a solution for maintaining the mobility (1). For example, in the city many people use their own vehicle for going and back to the office or their campus. It's easy for them to go anywhere after finish their work and class but sometimes they might also been stuck in traffic congestion. So, for reduce the traffic congestion, the carpooling system concept and service is the right solution.

Besides, it also helps the environment to cut down on the number of cars and vehicles on the road. A fewer cars means there is less carbon and other gasses and pollution getting into the air (2). It is also protects the environment by keeping the air, water and land cleaner. According to (2) numerous health reports and research, air pollution caused by auto emissions can significantly increase the likelihood of health issues. The likelihood of health issues such as asthma, allergies, lung cancer, and the like.

In addition, from the previous research it said that carpooling might be able to reduce stress by having an opportunities to meet interesting people (10). Therefore, this application will helps students to find out new friends and directly will help them reduce stress as a student. This is because when they use this application, they do not know each other until they meet them directly to get to know each other. Furthermore, carpooling can be far less stressful than simply commuting on your own.

C. Comparison between Previous Project and the Current Project

Table I shows the comparison between previous project that related to carpool system with S-Carpool: The Apps Development For UniKL MIIT Student project. Thus, the features of the system is stated in the table to meet the appropriate project requirements.

TABLE I. COMPARISON TABLE FOR S-CARPOOL

Features	iCarpool (2015)	Grab (2015)	Carpool Arabia (2013)	S-Carpool Apps for UniKL MIIT Students (2016)
Register	Yes	Yes	Yes	Yes
Driver (Gender)	No	No	Yes	Yes
Schedule	No fixed schedule	No fixed schedule	No fixed schedule	Yes, fixed schedule. It easy for them to ride.
Maps	Yes	Yes	Yes	Yes
Notification	No	No	No	Yes
Online Payment	No	No	No	Yes
Generate Receipt	No	No	No	Yes

III. RESEARCH METHODOLOGY

Research methodology is generally as a guideline for any research project to solve the problems that occurs with specific components such as method, task, phases, technique and tools. The research methodology that used in S-Carpool: The Apps Development For UniKL MIIT Students is Rapid Application

Development (RAD). Figure 1 shows Rapid Application Development Methodology Model for this project.

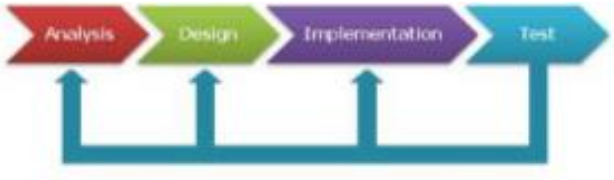

Fig. 1: Rapid Application Development Methodology Model

A. The System Architecture

Figure 2 shows the overall process for S-Carpool: The Apps Development For UniKL MIIT Students system. It's started when the driver offer ride to any requested passenger through this mobile application. The passenger can find and request the ride and choose the right ride and destination inside the system. All the ride requested data will directly processed and saved into the system data directory inside the database system. After they choose the ride, the passenger must pay the ride amount and the system will automatically provide the payment receipt to the passenger. This payment receipt is basically as the report generated for every ride requested for the system database purpose.

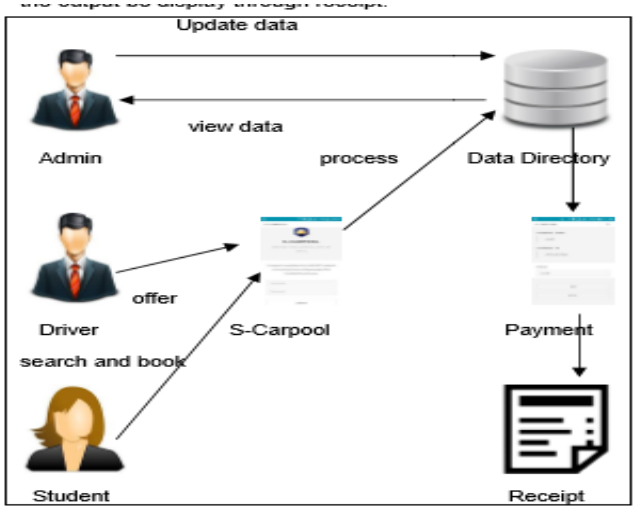

Fig. 2. The System Architecture for S-Carpool: The Apps Development For UniKL MIIT Students

B. Business Model Canvas

Business model canvas is a strategic management and lean startup template for developing new or documenting existing business models. It is a visual chart with elements such as value propositions, customer relationships, customer segments, channels, key partners, key activities, cost structure and revenue streams. Figure 3 shows the business model canvas that shows overall components taken from this project.

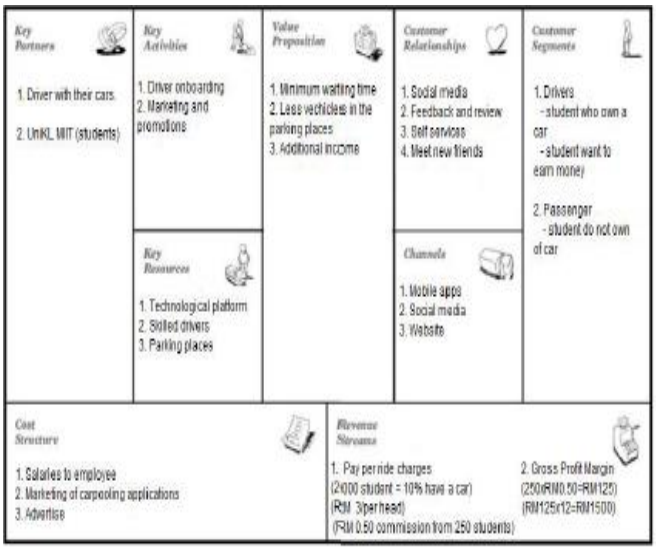

Fig. 3. Business Model Canvas For for S-Carpool: The Apps Development For UniKL MIIT Students

IV. PROJECT TESTING

System testing is the final testing process to verify the applications to be directly delivered to user. The system testing has several types such as usability testing, acceptance testing, functional testing, non-functional testing, structural testing and web testing. This project used functionality testing to verify the system's input-output behavior. Thus, the functionality testing to test the entire requirements stated inside this project development for final system implementation. This project consist of two system user which are system admin and the user(UniKL MIIT students). For the admin page, admin can login into the system page by enter the username and password. Admin able to update, edit, delete, view details of car request, list of driver and list of student. For this page, user will test the entire requirements that includes in this application. The entire requirements for this application is register page, login page, booking page, approved page, payment page, receipt page and log out page.

TABLE II. TESTING FOR S-CARPOOL: THE APPS DEVELOPMENT FOR UNIKL MIIT STUDENTS

No	Page	Test Objective	Expected Outcome	Result
1.	Register	User fill full name, choose type user, email, username, password and re-password	After correct user fill full name, choose type user, email, username, password and re-password	No error
2.	Driver / Student	User need to choose type of user such as driver or student	After check on button, it leads to username	No error
3.	Login	User enter username and password	After correct username and password entered	No error
4.	Book Now	To test button book now and fill the requirement	After check on button, it leads to requirement form	No error
5.	Admin	Test the edit and delete data	After check on button, it leads to admin material	No error
6.	Notification	To test display notification	After correct requirement form, driver and student get notification	No error
7.	Payment	To test payment button	After check on button, it leads to user account	No error

The result from functionality testing shows that S-Carpool: The Apps Development For UniKL MIIT Students are ready for deployment and fulfill the system specification and requirements.

V. CONCLUSION

S-Carpool: The Apps Development For UniKL MIIT Students is a project that can be useful to be used as the right platform for UniKL MIIT students to manage their daily life in term of their day to day movement within their campus to the other nearby destination. The mobile application system will provide students the benefits in terms of reducing time constraint, by directly register and request the ride through the system. Apart from being portable and time saving, the device is very flexible to use and cost free which can easily access anywhere and anytime.There are several features that can be added or upgraded for the future enhancement. For future, students can manage ride booking by choosing their driver such as male or female passenger that be more preferable. Hence, the user will have a good opportunity on planning their ride with their close friend that they really suitable with. The notifications part is the most important for S-Carpool: The Apps Development For UniKL MIIT Students because driver and student will know their appointment requested either its accepted or not. So, the future pop up notifications will appear directly from the user mobile application. This project is planned to be commercialized to the whole UniKL branches including directly to the students and even to the staff. As a conclusion, S-Carpool: The Apps Development For UniKL MIIT Students is an effort to reduce traffic congestion by car-sharing and make students more safety and able to save time and cost. This application doesn't that we can meet new friends but the best way is to helps students to get some money as an extra income. Besides that, in S-Carpool: The Apps Development For UniKL MIIT Students has their advantage for students to booking the ride and can easily go everywhere for their prefer destination. The impact from this project is the students will be able to use their own mobile application as current technology medium to easily find and book vehicle in UniKL MIIT.

ACKNOWLEDGMENT

We would like to acknowledge and express our gratitude to Universiti of Kuala Lumpur for funding our final year project.

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