

An SMS-based Passenger Threat Alert System

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Abstract

The researchers have developed an android application providing the passenger with the basic information about the operator of the public transport vehicle at service. The project is solely created for the information acquisition on the tricycles of San Jose de Buenavista, Antique. This application can help in monitoring processes for the passengers can be able to transmit information through SMS to their family and friends. In case some things were forgotten in the vehicle, this can be useful for its retrieval by contacting the operator through the given contact details. In worse case scenarios, if abuse or threat is felt by the passenger, he can be able to transmit data and alert to the proper authorities.

Keyword: Android Application, Information System

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1. Introduction

In the age of technology, life became easier than it was before. When it comes to information acquisition, a few swipes and clicks and would do the trick. The development of new technologies resulted to the creation of tools which are powerful and easy to use and that you can bring them wherever you want to go. One of these advancements in the field of communication is emergence of smartphones.

Smartphones is a form of mobile phone which incorporated an advanced operating system [1]. This tool known as "PC in hands" became a part of many people's system [2]. Its popularization led to the growth of relationships between people in the society, business and government.

In this era, the operating system of smartphones is Google's Android [3]. This was developed through an open source. It's an OS that's available on devices made by a variety of manufacturers, giving the users with more choices of device style and pricing.

An Android application is useful, especially if it possesses a bulk of information which is reliable and can be beneficial to the user [4].

The researchers made this project to help passengers determine certain tricycle's route that will minimize the chance of the passenger riding to an exploitative operator that requires double payment or more to send them to their desired place. The application can also show basic information of the operator that could help police officers locate and get the abusing operator in custody immediately.

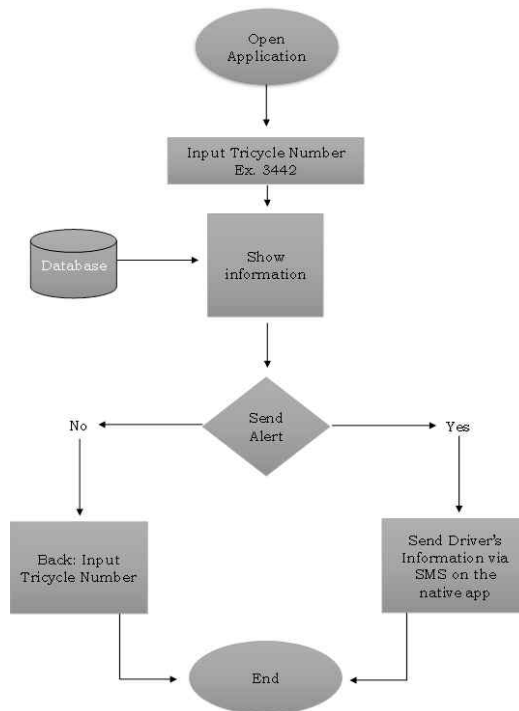
Updating and editing of information are not a part of this project. Other tricycles' information outside the town is not included; the information is exclusive from San Jose de Buenavista, Antique only.

2. Technical Background

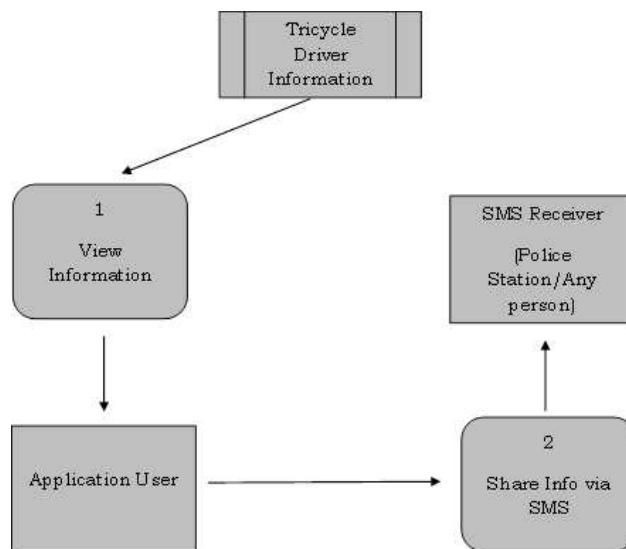
As a focal point of business in the province [5], there are lots of vehicles being driven in the streets of this town. The most prominent mode of transportation in small towns and cities in the country such as San Jose is through a motorized tricycle [6]. A tricycle is a three-wheeled vehicle that can accommodate 5 to 6 passengers and transport them to their designated areas [7]. In the town, tricycles are painted in white and have a 4-stickered number coloured in white on the passenger's windshield and it is more apparent than the vehicle's plate number.

There are some cases reported regarding abuses of the tricycle drivers to the passengers including theft and also minor violations like wearing shorts and slippers instead of pantaloons and shoes. These cases are not reported immediately or mostly neglected by the passengers caused by the lack of information to the driver and the tricycle's plate number.

Having information of the tricycle driver is a huge tool for passengers to help them identify the driver of the tricycle they are riding on. It is better when these details are produced into paperless information. The researchers have created an information system that can be installed on android devices that make passengers search information through the app by entering the 4 stickered number of the tricycle and can share the information via SMS to send an alert to the police station or to persons that have concerns to them. The passengers should make sure their phone is loaded and has a signal to send an SMS otherwise the sharing of information will be unsuccessful. This will make the passengers have a running start in case something will happen to them. Figure 1 shows the system flow chart while Figure 2 shows the data flow diagram.



[Fig. 1] The System Flow Chart

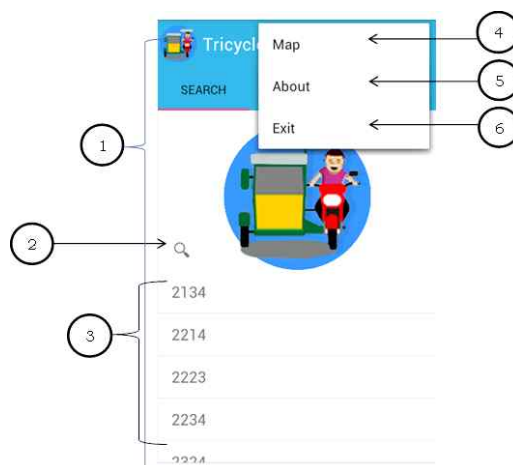


[Fig. 2] The Data Flow Diagram

3. Methodology, Results and Discussions

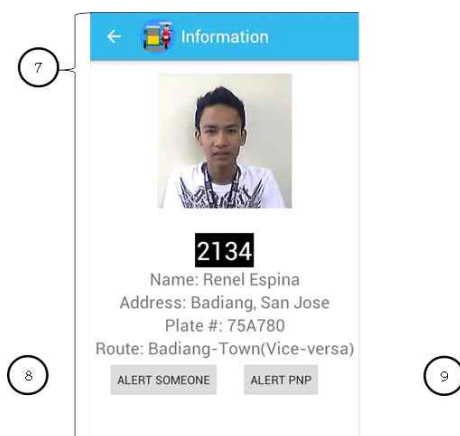
The researchers have used Android Studio, free downloadable software that can create an android application and used Java language to code the system. An SQL browser has been used to create the database and connects it to the system. The app has a search view in order for the user to search a tricycle. It will be directed to a new screen when clicked, and then it will display the information of the tricycle. Figure 3 and Figure 4 shows the screen shots of the application. Users must have pre-loaded Simcard and a signal on their courier in order to send the information. This application will help passengers of San Jose de Buenavista send an SMS alert if threatened or abused or simply send an alert. This application employs Google map features as well as SMS messaging. Figure 5 shows the cost and effect analysis showing that lack of information may lead to unreported abuses of tricycle drivers. Figure 6 shows the entity relationship diagram.

As a basic rule, costs must not exceed the benefits. The development stage of this application only required free applications, utilities, labour and expertise only. No other financial expenditures were made. On the part of the user of this application, it will just be free downloadable for the sake of information dissemination and security.



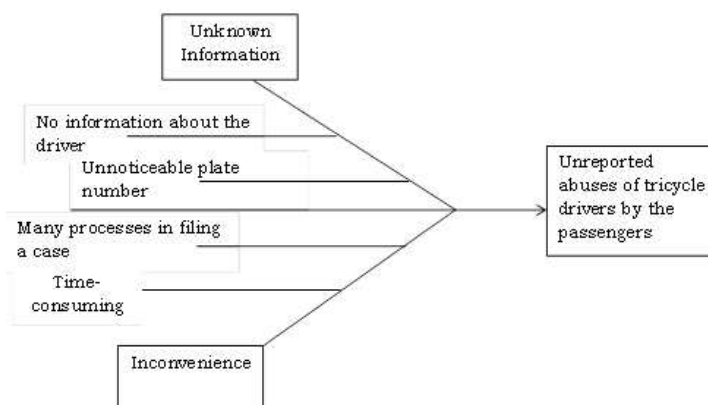
[Fig. 3] The Main Interface

- 1) Main user interface
- 2) Search view (where you will input the 4-digit number)
- 3) List of available tricycles with information
- 4) Know your location
- 5) Shows a pop-up information about the application
- 6) Terminates the application

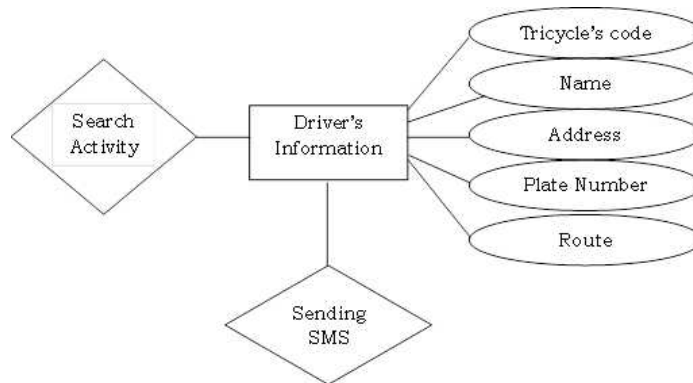


[Fig. 4] The Information Interface

- 7) Information interface
- 8) Button use to send the information via SMS
- 9) Button use to create a report about the driver



[Fig. 5] The Negative Effect of Lack of Information Regarding the Transportation Vehicle



[Fig. 6] Entity Relationship Diagram

To avoid the above scenario, this application must be used. This App is designed to work on android devices. Signals on the couriers is needed and a loaded simcard in order to execute the process of sending SMS. GPS locator must be present in the phone for the users can use the map option and be a guide to their location. This application must be installed on the android devices of San Jose de Buenavista's passengers to make them have the information of the driver and the tricycle's plate number in case they will need it.

Users must have an android phone that can support this application. The users can use the app using an android device.

Technical Requirement: This system can be used using android phones with an android 4.0.3(Ice Cream Sandwich) version up to the latest.

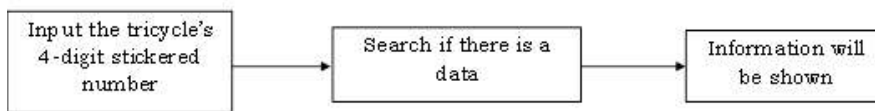
Performance Requirements: Fast and easy to use.

Usability Requirement: The users must have a load on their simcard and a signal in order for them to send and alert, otherwise the process will fail.

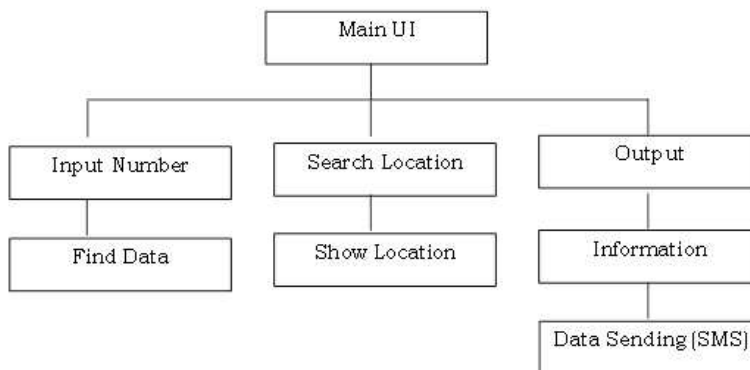
Reliability Requirement: Application must work smoothly and must contain accurate information.

Security Requirement: Only the pre-loaded information of the driver on the app can be used as a help by the passengers.

Figure 5 and Figure 6 shows the input-process-output. On the other hand, screenshots of this App can be seen in Figure 7 and Figure 8.



[Fig. 7] Input-Process-Output



[Fig. 8] Hierarchical Input-Process Output

4. Conclusion

This system can be a help to passengers especially when they need the information of the driver in case they will be abused or threatened. Negligence will be solved cause by the lack of information by just sending a report to the police station.

References.

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