Motorcycle Tracker Using Android Phone

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Abstract— Motorcycle is one of the most essential needs of the people. Commuters are planning to have their own to fast tract their daily routine in terms of work. GPS tracker is also important to locate objects through Google Maps. This system shall reinvent motorcycle tracker using android phone from a traditional and centrally dependent unit towards a more inclusive and citizens-oriented scheme. It essentially aims to protect and locate the motorcycle in terms of Global Positioning System (GPS) through Google Maps. The researcher has adopted the prototype methodology in the development of the system. It focuses on creating and testing system features, graphical user interface and SMS link. This link lays down the foundation for development which includes functionality and usability testing to ensure the effectiveness, efficiency and reliability of the developed system. The researcher has likewise utilized the available device from the target enterprises or inventors to conceptualize the entirety of the system. And lastly, the researcher recommends for the upgrades of the system as well as the transliteration of system contents to local dialects for extensive user conception.

Keywords— Motorcycle, GPS Tracker, Android Phone, Google Maps, effectiveness and efficiency.

I. INTRODUCTION

People are contented of what they have or what they use in their daily routine. They are still using their manual process even though it consumes much time. With this, they invented machines to aid them in finishing their work within a short span of time. Still unsatisfied, the power of technology found its way. In today's generation, we are living in a highly-ordered technology devices and machines that make daily works fast and convenient. Phone is one of the advance technologies we use today. This device will serve as the main component of the proposed system.

A Motorcycle Tracker was used by the proponents in planning for the design of this study. For installation purposes, the project was designed for giving an easy and specific location of the motorcycle which needs an immediate rescue. Motorcycle Tracker running on Android Device is a design system that enables to know every motorcycle being installed in your contact list that has been saved by sending them a message. The system works by turning on the Wi-Fi connection or the data cellular connection when tracking the motorcycle. The program that was designed only shows the user of the specific location of the motorcycle. The location of the motorcycle will appear, if performed as expected, would be helpful when it comes to security and could warn the concerned authorities.

The proponents aim to develop Motorcycle Tracker running on Android Devices for all motorcycle owners, yet very specifically to women users who are more prone to abuse. The proponents also aim to assist the concerned agencies with the accurate location given by this system and it's tracking abilities, to help lessen the work of the concerned agencies. Overall, it contributes to the society by giving a chance to people that are in need of help in crucial and critical times, and have no other way of getting it.

The proponents saw that there was no mobile application that will help the concerned agencies to automatically locate and determine the motorcycle that is in need for rescue. When actions are made manually, it tends to be inaccurate and time-consuming. The proponents aim to develop android app which is named as Motorcycle Tracker running on Android Device to assist user's safety in unexpected emergency cases. It specifically aims to:

- To provide an accurate acknowledgement to the contact list.
- To provide a specific location using GPS.
- To immediately respond to emergency situations and to provide fast, efficient and accurate details for tracking of the user's exact location when there is an emergency.
- To provide individual safety awareness of the user in case of emergency.
- To provide the user an easy way to locate the motorcycle in times of emergency using the google maps.
- To provide an accurate acknowledgement to the contact list.
- To provide a specific location using GPS.
- To immediately respond to emergency situations and to provide fast, efficient and accurate details for tracking of the user's exact location when there is an emergency.
- To provide individual safety awareness of the user in case of emergency.
- To provide the user an easy way to locate the motorcycle in times of emergency using the google maps.

The Motorcycle Tracker serves as a tool in monitoring the motorcycle's safety. This will help the concerned agencies to lessen the time consumed in manual process of locating the Motorcycle that is in need for help or in critical time. User – User's has a big benefit in the system. They were the one's who uses the system; the users have two sides, the user's sender; and the user's receiver. In user's sender they will sent an SMS containing a message and a link to motorcycle for sending a command. The use of link in this system was to give the exact location of the sender. And in the user's receiver, he/she now receives the SMS that the device response to the specific command. The link must be executable in google maps.

II. METHODOLOGY

The researchers conducted a study by using System Development Life Cycle (SDLC) methodologies for Personal Safety Alarm. The following sections are presented to describe the different stages in the development of The Motorcycle Anti Theft Tracking Device. This research study utilized Quantitative and Qualitative type of research methods.

The researcher will conduct a survey in the school especially the students to find out how concerned they are in helping each other when it comes to security issues. Below are the types of research methods tools that the proponents will be using in gathering data for the improvement of the system.

Qualitative Method

Is the first method where the proponent's will interview some students for their opinions about the device and what they want to contribute to make the device more efficient and user – friendly.

Quantitative Method

It is a survey forms. A tool use for conducting a survey about the said system.

System Development Life Cycle is a term used in systems engineering, information systems and software engineering to describe a process for planning, creating, testing, and deploying an information system. A system can be made up of only software, only hardware, or a combination of both, hence the systems development life cycle idea is applicable to a variety of hardware and software combinations.

In designing and developing the "The Motorcycle Anti-Theft Tracking", there are several procedures or phases involved. These are the following:

1. Planning
2. Analysis
3. Design
4. Development
5. Testing and Debugging
6. Implementation
7. Maintenance

Planning Phase

In this phase, the proponents plan to give an accurate solution to the concerned agencies with the help of the system proposed.

Requirements And System Analysis Phase

The data collected will be examined and solutions will be analyzed in this phase. The researchers also cited a different problem that needs to be taken into action. Different ideas now are combined to be as one. The type of circuit diagram is also included in the discussion.

Designing Phase

This phase now represents the Graphical User Interface (GUI), where the data flows are being designed. It includes Data Flow Diagram (DFD), and the System Flow Chart.

Development Phase

In the development phase, the programmers will do electrical circuits for the system functionality and wide analysis is being applied. Also, the proponents did the testing and debugging before the system could be implemented.

Implementation

If the developed system is successful, there is a chance for it to be implemented to everyone.

Maintenance

Once the system is being used by the user, maintaining its functionalities are tasked to the person who's assigned in the operation.
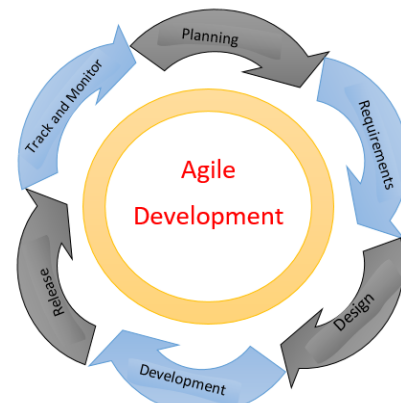

Fig. 1. Agile Model showing the App creation

ARCHITECTURAL DESIGN

Fig. 2. Architectural Design

Algorithm

Outdoor navigation for those with visual impairments typically relies on information from GPS maps and Geographic Information Systems (GIS). In areas without GPS maps or where the maps are not accurate and detailed enough, such devices cannot be used for navigation. An algorithm for real-time GPS track simplification is described in this article. The test results reveal that the proposed algorithm (RSTS), which is thought to be the best for track simplification, has efficiency comparable to the Douglas-Peucker algorithm. Over 90% of the locations are fewer in different transportation modes while maintaining the shape of the route. The track description file has had its size decreased by more than 30 times. The algorithm determines the route's crucial intersections. This makes it possible to navigate along the track without having to convert it to a route. The algorithm is a component of a Java 2 Mobile Edition (J2ME) programme for visually impaired navigation that is both inexpensive and widely available.

The proponents identified the statement of the problem of the system and come up with solutions that will solve the problem.

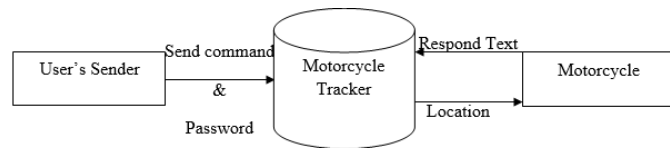*Main Problem*: What technology would give best solution about time consuming of safety issues in today's high – tech generation?
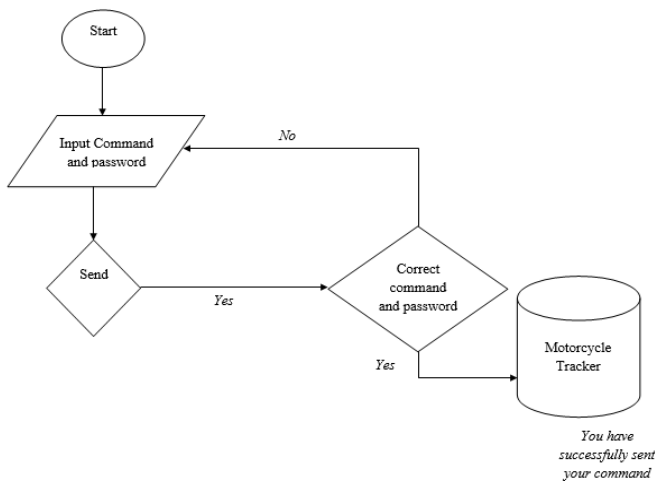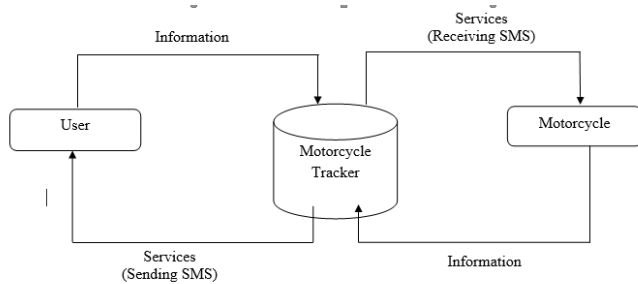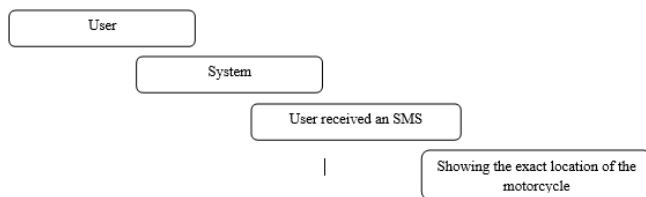

Fig. 3. Data Flow Diagram

In manual process, the police officer or the concerned agency will manually search the Motorcycle's location is their main problem and cannot give an immediate rescue or help to the owner. By searching a motorcycle in manual process, it can consume a lot of time and too much for a hassle to people who has given the task or may be busted.


Motorcycle Tracker is the systemized process for finding the location of a certain motorcycle. It contributes a big help to the owner and concern agency for searching a motorcycle's

location because the system will give the exact location of the motorcycle. Before the systemized process will give the location, it will do the first thing which is sending the SMS with a link together with a message to the user's receiver. The new system can improve the uses of the service by transforming it into a computerized system with more efficient features that is shown below:
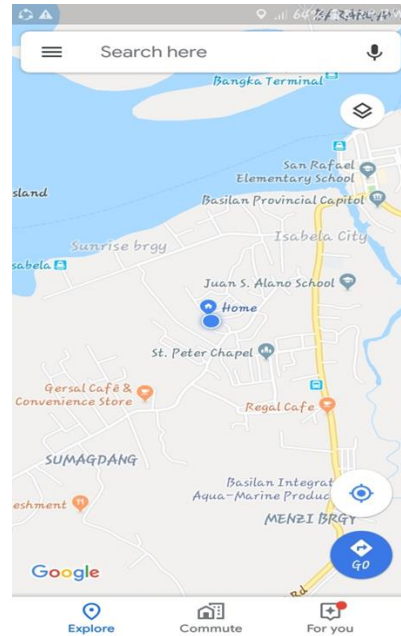
In this figure shows the location of a person holding his/her android phone.
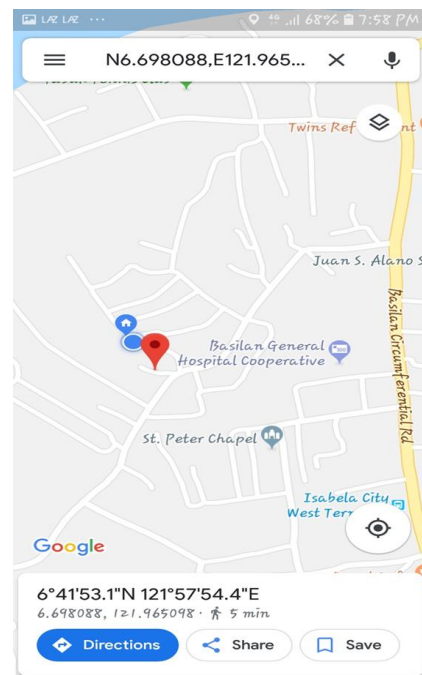
Shown in this figure the location of the owner and the motorcycle. The Google Maps allows user which serves as to show the exact location of both party. The device is capable to

respond a message. Using this feature the users can easily locate the motorcycle by sending a command through SMS, motorcycle when in danger.

After the user sent a command and password through SMS, the device will automatically respond an SMS link to be executed through Google Maps where the motorcycle is located. At This point, if the motorcycle is running, you can shut down the engine through SMS.


This figure shows the shutdown engine part. The user or the person will send an SMS containing shut down command. After the response, it will execute.
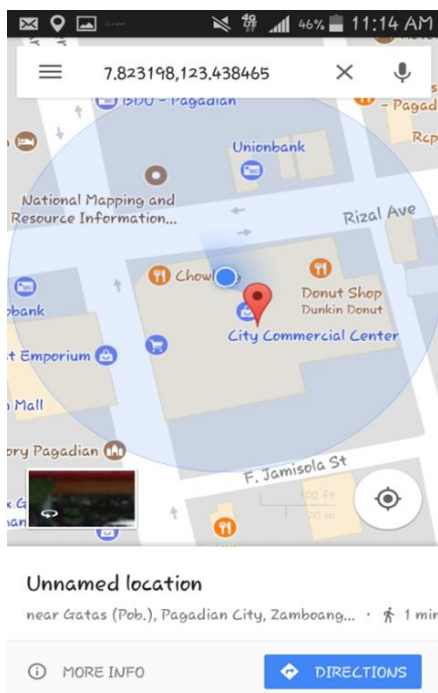
In this figure, it shows the exact location of the motorcycle so that you can find it when somebody brings it. The Google map shows the location where you can find the motorcycle of the owner. Also, the Google map is one way to find out where is the owner's location.

In this figure, it shows the Geo-fence part. The user or the person will send an SMS containing geo-fence command to set the parked motorcycle within the set radius. If the motorcycle is being moved within the set radius, the device will send an SMS alert that the motorcycle was being move from the parked place.
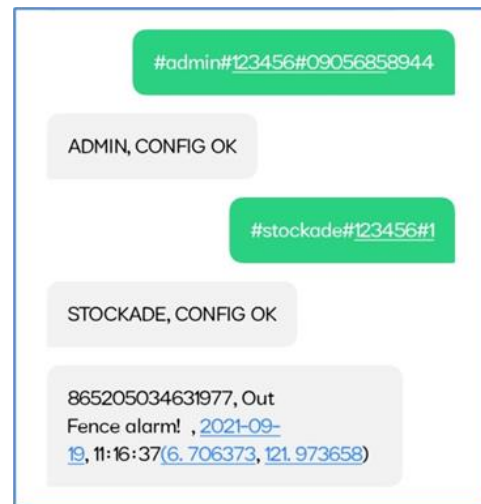
III. SUMMARY FO RESULTS, CONCLUSION AND RECOMMENDATION

Summary of Results

The existence of device in the market today has always been very overwhelming to smartphones users. Through the creation of this device, with the help of related literatures in the international field, the proponents were able to come up with the Motorcycle Tracker.

The Motorcycle Tracker enables the user to pre-determine location of a motorcycle which will be immediately rescued in case of emergency and be sent an SMS with a link indicating the location of the motorcycle. The device will run on android phone when tracking. After the creation and analysis of the system, the device was then ready to be tested to all users.

Conclusion

It is therefore concluded that the Motorcycle Tracker is a new technology in our country, although there are other Tracking Devices in the local market but it has not been programmed in a motorcycle. Motorcycle Tracker is a good companion for everyone for it will be use in a situation where an emergency might occur with just one text. It will be used in the community if it will be implemented in a wide scale implementation. Motorcycle Anti-theft Tracking Device will still be appreciated to assist individual if not lessen the crimes in the society. With its Google Service features, it is best to be used for motorcycles anywhere they would go.

Furthermore, most android phones today have this location service which enables Google Map Service to locate the user anywhere in the world. Showing only more proactive, useful,

safe and efficient system that is integrated in our daily gadget use.

Recommendation

The device has been subject to various recommendations from different experts in the field. With the creation of the device, it has been found that the system is well functioning and 99.9% working. Therefore, anyone with android phone can use the device working in their motorcycles as long as they have the minimum requirements.

Moreover, the system does not only aide in the safety of the user, but will also assist in lesser crimes if it will be fully implemented. Safety is not something that should be taken for granted nowadays since unsolved crimes are prevalent in the society. In this case, the device is fully functional. It is then recommended to users to provide security in cases of emergency, particularly any situation that needs immediate response.

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