Anti-Theft System for Two Wheelers

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Abstract -

In the recent years, the theft of two wheelers has increased in the developing countries. Bikes, scooties are one of the most used personal vehicles. It saves time from the outrageous traffic in the road. That's why, it is very popular and widely used all over the world. As two wheelers are easy to hide, a stolen two wheeler is often difficult to search. Therefore, it has become a pressing need to develop a low cost, easy to use solution to track those two wheelers. This project is a solution to that widespread problem of two wheelers theft and has two major components : a device and an android application based tracking facility that can be availed through any smart phone. The device contains Microcontroller, Relay, Optocoupler and an android application. Users can use this system for various purposes such as, through this system the user can control bike from anywhere using the android application, whenever key is inserted in it, a telegram notification will be sent to the user which can help to detect if that two wheeler is been stolen. This project provides users the ability to lock two wheeler through mobile application. The user can monitor their two wheeler, get notified if it is moved by someone, and even they can track it on their mobile if it is stolen.

***Key Words*:   Anti-Theft, Microcontroller, Two Wheeler Theft**

1.INTRODUCTION

In the recent years, the theft of two wheelers has increased in the developing countries. Bikes, Scooties are one of the most used personal vehicles. Therefore, it is very popular and widely used all over the world. As two wheelers are easy to hide, a stolen two wheeler is often difficult to search.

To avoid such problems, an anti-theft system for two wheelers is most required. Such anti-theft systems can protect the two wheelers from being stolen. This project can help the two wheeler users to use them safely and they don't have to worry about the two wheeler being stolen.

Users can use this system for various purposes such as through this system the user can control bike from anywhere using the android application. For Example, Bike On or Off, Location Tracking, Notification if key is inserted, etc.

This project provides users the ability to lock two wheeler through mobile application.

2. LITERATURE REVIEW

1.DiChokro: Anti-theft protection for two wheels: Bicycle theft has increased in developed countries in recent years. Stolen bikes are often difficult to detect because they are worn and easily hidden. Therefore, developing a low-cost, easy-to-use bike tracking solution has become an urgent need. DiChokro proposed in this project is a solution to the problem of bicycle theft and has two main elements: the device and the Android app-based tracking device that can be used by any smartphone. The device consists of GPS module which sends the bike's location to the cloud, which is a highly sensitive vibration sensor and a processor. Users can search for safe parking and track parked bikes through an Android app connected to the device in the cloud. Vibration sensors installed on the device help the user receive warnings when someone tries to steal the bike. The solution is very cheap (<$30) and solves the bike problem.

2. Design and use of anti-theft smart bikes based on biometrics: A lot of research is currently being done on biometrics. The ideas presented in this article focus on biometric technology on two wheels, specifically motorcycles and scooters. There are many motorcycles that get lost in our daily lives and have difficulty finding their places. This article provides good solutions to be safer and prevent illegal use of your motorcycle. In this project, a simple and useful finger-based generator is requested. Simple and effective products are designed, used and tested on motorcycles. Test results showed that the developed system could detect the right person and allow the right person to operate the bike.

3. Two-wheeler anti-theft system: This project offers a smart bike with a system for tracking cyclists in the Internet of Things (Internet of Things). The system is designed to monitor the health of cyclists and cyclists. There are various sensors throughout the system, such as heart rate sensor, pulse oximeter sensor, magnetic reed sensor and GPS module. The sensor is connected to a microcontroller and a Wi-Fi module and can be accessed through the IoT platform called Blink application. Cyclists and their coaches can track the cyclist's data and performance. First of all, the heart rate sensor is used to monitor the driver's heart rate in real time, while the pulse oximeter is used to measure the oxygen

saturation in the person's body. At the same time, a magnetic sensor is attached to the bike to measure the cyclist's speed and distance. Additionally, the GPS module is used to track and track the cyclist's location. Data transfer can be synchronized or viewed on smartphone via flash app.
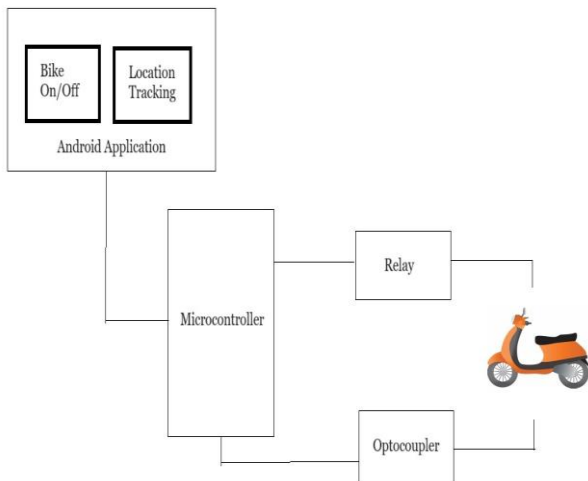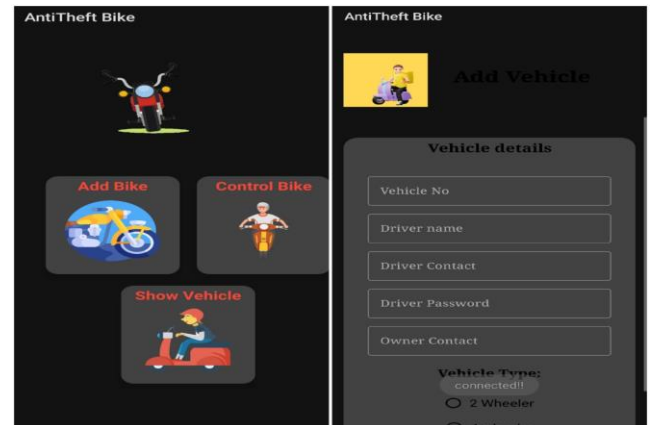
3. BLOCK DIAGRAM

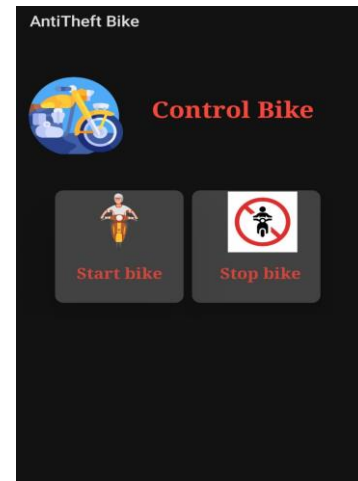Fig 1. Block Diagram

Step 1   Step 2
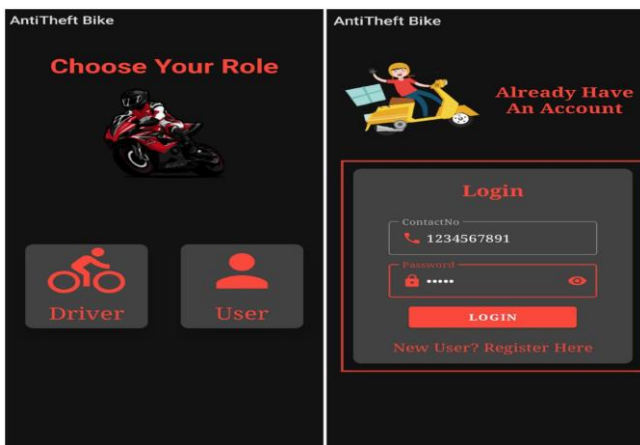

Step 3   Step 4
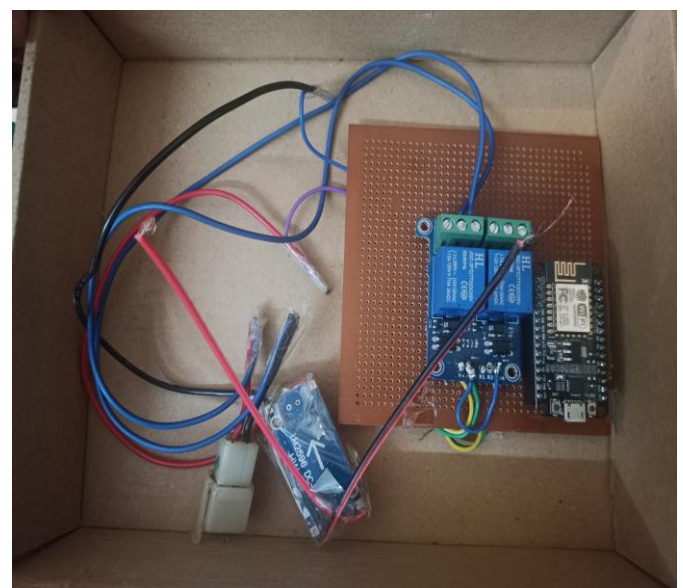

Step 5

Fig 2. Android Application

Fig 3. Electronic Device

4. METHODOLOGY

The system is a combination of a device and an android application. The device is small and can be attached in the two wheelers so that the thieves cannot know about it. First of all, the user can have security while using the app. In this system, user will have an android application through which they can control their two wheelers. They can lock or unlock their two wheelers. The user can lock the two wheeler using the app. Here, the locking means activating the device. As the device starts working, the app will connect to the Microcontroller through the cloud connection.

The Microcontroller will send the data to Relay. As relay works as a switch, it will operate the locking and unlocking of the two wheeler. Then the Optocoupler will communicate between Microcontroller and two wheeler and the data will be send to the user. The user can access the data or get notified of the status via telegram which readily collects information from cloud all the time. As the user gets notified of any suspicious activities, user can rush into the place where the bike is parked at and check whether the bike is safe or not. Even if the user is late to find out of what had happened and the two wheeler is already stolen, user can track it by checking the location of the bike via the app. This is how the device and android application will co-ordinate and help to control and detect the stealing of two wheelers.

An android app will consist of two ways : one for driver and one for user. So this app will have options to control two wheeler through buttons with bike On and bike Off. Also it will have buttons for buzzer on/off which will help to protect the two wheeler. We also have system such that if any accident happens to the vehicle, application will detect and will let the user know if someone is using our vehicle. Even we can have system to detect if user has wear helmet or not. If user hasn't wear helmet, vehicle will not start which will help the user to follow rules and be safe while driving.

This is how the circuit and android application will coordinate and work to keep the vehicle safe and prevent it from being stolen.

5. APPLICATIONS

Personal Two Wheelers : Individuals use anti theft systems to protect their bikes. This systems help prevent theft and increase the chances of recovery if the bike is stolen.

Two Wheeler sharing programs : Many anti sharing services use anti theft systems to ensure the safety and security of their fleet.

Two Wheeler Rentals : Bike rental companies use anti-theft systems to protect their rental bikes, enhancing customers to enjoy their rental periods without the fear of theft.

Couriers and Delivery Services : Companies that rely on bike couriers and delivery riders use anti theft systems to protect their valuable assets and maintain efficient operations.

6. ADVANTAGES

Enhanced security : Many systems use advanced technologies which makes it easier to locate and recover a stolen bike.

Peace of mind : Owners have greater peace of mind knowing their two wheeler is protected, which can encourage more frequent use.

Control from anywhere : Using this system, the user can control a two wheeler from anywhere.

Modern technology : This systems can provide the more efficient way to reduce the thefts and to recover stolen two wheelers.

7. CONCLUSIONS

Here, we have proposed an anti- theft system for two wheelers user community that has been built using some low-cost device and mobile application. It comes with a small device that is able to send the data to the cloud and app that reads the data from the cloud and shows it to the user in real-time. The proposed device is low cost, can easily be hidden in a two wheeler, and the app is easy to use. We believe such system will be beneficial for the users in tracking their two wheelers and protecting them from getting stolen.

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