

Anti Theft System for Two Wheeler

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Abstract: *Bicycle theft has increased in the developing countries in the recent years. Being light and easy to hide, a stolen bicycle is often difficult to search. It has, therefore, become a pressing need to develop a low cost, easy to use solution to track the bicycles. DiChokro, proposed in this work, is a solution to that widespread problem of Bicycle 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 a GPS Module that sends the location of the cycle to the cloud, highly sensitive vibration sensor and a processor. Users can search for the secured parking locations, track their parked bicycle through the android application that is connected to the device through the cloud. The vibration sensor installed in the device helps users to get informed if someone attempts to steal the bicycle. The proposed solution is very cheap (<\$30) and will be able to address the issue of bicycle theft. Keywords— bicycle, protection, safety, cycle parking, cycle locator etc.*

Keywords: Bicycle theft

I. INTRODUCTION

Bicycle is one of the most economic and eco-friendly personal vehicles [1]. It saves time from outrageous traffic in the road and riding on it is also a good exercise for the healthconscious people. It is therefore very popular and widely used all over the world. Bike- sharing system has recently been encouraged in some cities to improve urban transportation system [2, 3]. The use of Bicycle is no longer limited within environment friendly transportation, as some believe this will be a valuable means of monitoring air prolusion [4] in smart city. Others used this green vehicle as an alternative way of creating record system of ground conditions [5]. According to International Crime Victim Survey [6] about 56% of bicycle thefts are reported to the police across 17 countries annually. Other source like National Crime Victimization Survey (NCVS) informs about 1.3 million incidents of theft from bicycles all over the world. Bangladesh the third-largest bicycle exporter of European Union (EU), suffer from the same issue. Bicycle users particularly in urban areas have increased significantly in recent times. A low cost and easy to use anti-stealing system is therefore a crying need for the bicycle users here Advancement of embedded systems and IoT technology and their availability at low cost mean we can now monitor anything around us all the time. Here, we propose to solve the rampant security issues of the bicycles. Since maintaining safety is the best way to prevent stealing, suggests the rider's safe parking places or parking racks near the areas where the riders are visiting. Once parked in a place, provides the users the ability to lock their bicycle through mobile application. The user can monitor their bicycle, get notified if it is touched or moved by someone, and even can track it on their mobile if it is stolen. This is done by establishing a constant communication between the app and the device attached to the bicycle through the cloud. All the information is stored in the cloud and can be accessed via user app anytime. The proposed system is the cheapest digital security system for the bicycle as of our knowledge. II. The IOT Based BLYNK App provide safety parking system. which give good facilities for parking and give anti-theft system for vehicles.

II. LITERATURE REVIEW

Sudharsana Vijayan etal [6] in this paper the authors have laid emphasis on reducing the number of accidents caused by the carelessness of the riders (i.e. driving in a drunken condition or not wearing a helmet while riding a two wheeler). The authors have tried to implement an electronic technique which does not makes it very easy to bypass the basic rule of wearing a helmet & not consuming alcohol while riding. The authors have designed a system which checks two conditions before turning ON the ignition of the bike.

It includes an alcohol sensor (MQ3) and a helmet sensing switch which is used to detect whether the biker is wearing helmet or not. Alcohol sensor is used to detect whether the biker is drunk or not. The output of these two checks are fed

to the microcontroller if both the checks give digital 1 the bike gets its ignition ON, if both or any one of the checks fail to give digital 1 there is no ignition. The surface of the sensor is sensitive to various alcoholic concentrations. It detects the alcohol from the rider's breath; the resistance value drops leads to change in voltage (Temperature variation occurs). Generally the illegal consumption of alcohol during driving is 0.08mg/L as per the government act. Except for demonstration purpose, we have a tendency to program the drink limit as 0.04 mg/L. An ear lobe detector sense that is fitted with the helmet unit senses the blood flow within the ear lobe region. So the wearing of helmet is confirmed by our system and similarly alcohol sensor fitted in the mouth piece of the helmet.

Manjesh N etal [7] the authors have proposed a model for the accident prevention which states when the system is switched on, LED will be ON indicating that power is supplied to the circuit. The RF is used to start the two wheeler firstly it check whether the driver is drunken or not if drunken it will not allow to start two wheeler .The small voltage of ignition of the two wheeler is grounded. In normal condition when the helmet is used the pressure sensor is senses pressure and the RF transmitter radiates the FM modulated Signal.

The RF receiver is connected with the two wheeler which is receive the radiated signal and activate the relay . The relay is remove the ignition wire from the ground and connected with the starter switch now the two wheeler will start. When driver met with accident vibration sensor sends message to microcontroller. The GPS receives the location of the vehicle that met with an accident and gives the information back. This information will be sent to a mobile number through a message. This message will be received using GSM modem present in the circuit. The message will give the information of longitude and latitude values. Using these values the position of the vehicle can be estimated.

Krutika Naidu etal [8] in this the author's tell about how to make two-wheelers secure from theft. The aim of this project is to alert the surroundings and the vehicle owner via buzzer and a text message about the theft of the vehicle. To check the authentication of the rider in this project a Fingerprint Biometric Module is used. If the fingerprint matches with the fingerprint stored then the ignition is turned ON by using a relay and if not then the alerting system comes into an action. There is also a reminder system attached in this project to remind the owner about the necessities and the formalities about the vehicle like air filling, insurance, servicing, etc. using a GSM modem. An LCD display is also attached with the circuit to continuously indicate the status of the vehicle. The hardware used in the project is 89C51 microcontroller, LCD display, MAX 232 for serial communication between microcontroller and the memory, GSM modem and a Buzzer. Manjesh N etal

[9] a smart helmet is an innovative concept which makes two-wheeler driving safer than before. This project focuses on whether the helmet worn or not? , is the rider riding drunk or not? And did he met with any accident? In the project a pressure sensor is used to detect whether the rider is wearing helmet or not and accordingly send the RF signal to the receiver. Similarly an alcohol detector is used to check whether the driver is drunk or not and do the needful. For the detection of sensor is attached with the helmet which will sense a vibration at the time of accident of the rider and send the location and a text message to the mobile number defined in the memory of the GSM module.

The GPS module will send the latitude and the longitude of the driver to the GSM module which will be forwarded through the message to the mobile number. An LCD display is attached also to indicate the messages and present condition of the helmet and the rider. The components used are P89V51RD2 microcontroller, Alcohol detector, LCD display, Pressure sensor, Vibration sensor, Relay, GSM & GPS Module.

Nimmy James etal [10] the authors of this paper reveals how an alcohol detector provides a unique method to curb drunken people. The designed system detects the content of alcohol in the breath of the rider and thus it attempts to clamp down alcoholics. This device provides much advanced facilities in the present day life as it can easily be implemented in vehicles. The alcohol sensor, which detects ethanol in the air is one of the straight forward gas sensors so it works almost the same way with other gas sensors. Typically, it is used as part of the Breathalyzer or breath testers for the detection of ethanol in human breath. This sensor measures the content of alcohol from the breath of drunken people. The sensor delivers a current with linear relationship to the alcohol molecules from zero to very high concentrations. Output of the sensor is directly proportional to the alcohol content. When the alcohol molecules in the air meet the electrode that is between alumina and tin dioxide in the sensor, ethanol burns into acetic acid and more current is produced. So more the alcohol molecules, more will be the current produced. Because of this current change, different values from the sensor are obtained. Output of the sensor is then fed to the microcontroller for comparison. The output of the sensor is in the analog nature which needs to be converted into digital format. This is done by the analog to digital

converter of the microcontroller unit. The microcontroller controls the entire circuit. When embedded in automobiles, each time the driver starts ignition, the sensor measures the content of alcohol in his breath and if the driver is found drunk, the system automatically switches off the vehicle which will stop the drink and driving offenders. Thus alcohol related road accidents can be reduced and hence these kinds of detectors have a great relevance.

They can also be used in schools, colleges, offices and some public places such as hospitals, libraries etc.

K. DineshKumar et al [11] in modern days a vehicle antitheft system is of prime importance. The safety of vehicle is extremely essential for public vehicles. First layer of protection in system is fingerprint recognition, based on which locks are opened. Fingerprint matching is done by using a finger print module. If finger ridges match, solenoid valve is open for fuel supply and also a message is sending to owner by GSM. If finger ridges doesn't match it makes vehicle immobilized and an alert message is sent to mobile of owner. If the vehicle is stolen by someone, place of vehicle can be identified by the GPS tracker. This system is more secured, reliable and of low cost. The experimental results proved the functionality of antitheft in working environment. On March'15, three students of bachelor of technology ECE dept. Worked on above stated technology under guidance of Mr. Raghuvaran, Vaishnavi Khadasane et al [12] Project is to create authentication system for two wheelers based on most popular biometric that are nothing but finger print recognition of finger print is based on certain factors such as unique patterns, reference points etc. Project consists of AVR microcontroller ATmega328, fingerprint scanner module and GSM module. As soon as finger print module acquires finger print, finger print module immediately interacts with microcontroller and check if fingerprint is valid or not. If it is valid, the ignition system is started provided sufficient fuel must be present. If invalid then a message will be sent to owner of vehicle using GSM module.

On March 2016, four students from Electronics Engineering Department, Mumbai University work on above stated technology and published this paper. Their model can be further modified with attaching a GPS Tracker along with GSM to get the exact location of the vehicle in case of theft.

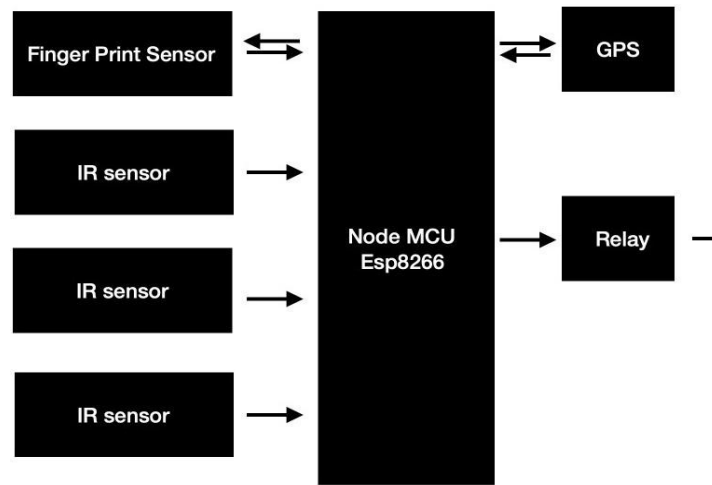
Prof. P. H. Kulkarni et al [13] The authors of this respective paper aims at designing an embedded system for implementing an efficient alcohol detection system that will be useful to avoid accidents. There are many different types of accidents which occur in daily life. Accidents may be caused due to many reasons. It may be due to some failure in the mechanism of the vehicle such as a brake fail, or due to the recklessness of the driver in most of the cases. In many of the accident cases, the driver is found drunk which contributes to a large proportion of road accidents. Though there are laws to punish drunken drivers but they cannot be implemented absolutely. For instance the traffic police cannot be everywhere to keep a check on whether the driver is sober or not. This can be a major reason for accidents. So there is a need for an effective system to keep a check on the soberness of the drivers. Therefore in order to avoid these accidents the authors have implemented a prototype project. In that project, it is checked whether the person is drunk or sober by using the MQ3 GAS sensor. In this system, sensor circuit is used to detect whether the alcohol was consumed by driver or not. To that very end, a system is designed which regulates the ignition of a car on the basis of the soberness of its driver. What the system does is that when some alcohol concentration is detected in the breath of the driver, the car will be stopped and the related information will go to a nearby location through GSM. The project is based on EMBEDDED C programming using AVR ATmega16 microcontroller. The alcohol detector (MQ3) as stated in the paper is suitable for detecting alcohol concentration just like your common breath analyzer. It has a high sensitivity and fast response time. Sensor provides an analog resistive output based on alcohol concentration which is given to inbuilt ADC of microcontroller.

III. PROPOSED SYSTEM

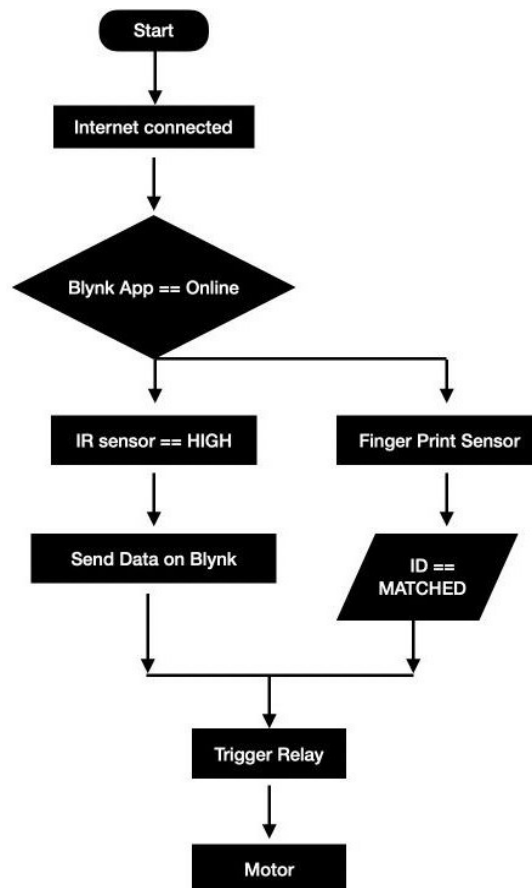
3.1 Methodology

The proposed system is the combination of smart parking and the Slot allocation with the web application Above diagram shows the modular representation of the automated car parking lot. Here four (this number can be changed according to the demand of the parking slots.) parking slots have been showed where IR sensors are placed. Outside the main entrance there is an ultrasonic sensor to sense to presence of a car which is trying to make entrance inside the parking lot. The Arduino circuit is placed in a suitable place to which all the components are connected, and it is powered through a battery.

3.2 Block diagram



3.3 Flow chart



IV. BLYNK APP

Blynk is a Platform with IOS and Android apps to control Arduino, Raspberry Pi and the likes over the Internet. It's a digital dashboard where you can build a graphic interface for your project by simply dragging and dropping widgets.

4.1 Working

This project we are using node MCU. The node MCA is work as an Wi-Fi communication. We also use fingerprint sensor which help to get or to detect the finger print of that person who is the owner of that vehicle.

Here we are using for IR sensor which detects the parking location of vehicle.

We give the power supply to the node and see you and that no them see you get connected to Wi-Fi or with hotspot that power supply is going to the another all sensors the register finger print will apply on fingerprint sensor then relay get started. With relay there is also a model of lock. After that lock will get unlock LED gate start blowing due to this blowing of LED we can identify the engine of vehicle get ON.

In our project we also use GPS module. Module is used for sending the location of bike where it was get parked. if someone try to stole bike then print can't match applying three times with fingerprint sensor then the buzzer will get start blowing continuously. Simultaneously the bike live location and the parking history is also display on Blynk App in the form of longitude and latitude.

V. CONCLUSION

In this project, we have presented the IR sensor to detect the bration or pressure applied to the two wheeler. The Vibration can be detected without any error. It does not give the alert when the minimum vibration is applied. This idea can be implemented in all motor vehicle companies to increase the security system of two wheelers and also the safety of the riders, and this system will effectively applied in the future and also the result will be better. This project is to detect the theft of two wheelers, and detect the user met with an accident and gives the first aid at a quick instant.

VI. FUTURE SCOPE

In our project we use Accelerometer sensor so there will be a huge amount of existing models that can be more helpful and useful that can avoid the theft happenings and immediate arrival of the ambulance by locating the accident spot, that the message is send to the registered number and easily get first aid. In the use vibration sensor when travelling due to the external air pressure and speed braker or some cracks in the road may cause maximum impact on the two wheeler so accelerometer is better to use.

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