E- BICYCLE LOCKING SYSTEM

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Abstract -This paper abridges a number of thinks about on E-Bicycle Locking Frameworks. The number of bicycle robberies has expanded, and there aren't sufficient security safety measures for two-wheelers. In arrange to ensure that the client keeps up control of the bicycle, the program employments a security bolt. The bicycle won't begin unless the client turns on the security bolt within the program. Implies in case client begins security locks in his/her application at that point as it were the bicycle will be begin. There's equipment in bicycle to control android application. The major advantage of the system is, you'll be able too make the security bolt off and halt the bicycle from beginning when your bicycle is as well distant from the region after you are as of now present means proprietor have control of his/her bicycle from exceptionally long separate. GPS framework is additionally utilize in which client set settle zone extend in application and in case bicycle is gone out of that zone, at that point consequently notice will be show in application through GPS equipment display in bicycle. At that point client can as of now store 4 or 5 contacts in application. So, in case any crash is occurred in bicycle, at that point consequently notice will be sent to all of those contacts. which are as of now enlist within the application through GSM equipment display in bicycle. And in case of fire or slammed in bicycle, the buzzer is beeped conjointly it'll donate notice to the client in application. And we utilized Accelerometer it faculties the vibration and changes over that vibration into the piezoelectric impact.   A piezoelectric impact happens when vitality is created due to weight and push.

Key Words: Internet of things, Security, Theft, GPS, GSM.

1.INTRODUCTION- At the show time an Hostile to - Robbery bicycle framework is
of fundamental significance. Right now, the open has its claim bike; burglary is found within
the stopping parcel and some of the time in places of frailty. The security of the bicycle/bike is amazingly imperative. In "E - Bicycle Locking System" There's an android application which
is valuable to avoid the burglary of bike since robbery of bicycle is expanded day by day. There's no any security is given for two wheelers in robbery till presently. In this framework, three layers of assurance is utilize, in to begin with layer of security, security bolt is utilize through which the control of the bicycle getting
to implies beginning remains within
the client hand. Implies on the off chance
that client will begin security bolt in his/her application at that point as it were the bike will be begin and in the event that the client does not begin a security bolt implies make the security bolt in off condition, at that point the bike will be not begun in any way. And in other
side implies for bike there's equipment in control of android application. So, the control of the bicycle is done through that equipment in application. Major advantage of the framework is that, client can moreover make the security bolt off indeed in case your bike is stolen and run absent as well distant. Implies your bike is as well distant from the zone once you are right now display. That time on the off chance that you make security bolt off at that point your bicycle motor will be getting to off so proprietor still have control of his/her bike from exceptionally long remove. In moment layer of assurance,
GPS framework is utilize through which client can know the area almost bicycle, in which client will set
or settle range area in application and in case bike will go out of that area at that point consequently the notice will be show in application and for that
GPS equipment is utilize in bicycle. In third layer of assurance, client as of now store 4 or 5 contacts in application so on the off chance that any crash is occurred in bike at any time anyplace, GSM
is utilize in equipment which is able send
the notice around the crash of bicycle to all of those contacts which are as of now put away in to the application. And in case of fire or smashed the buzzer is
beeped additionally it'll provide notice to the client in application For bike there's equipment in which GSM
is utilize for sending the notices almost the crash of bike to relatives, GPS for following the bike, and
other equipment we utilize for control supply, hand-

off control, sensors and Arduino device etc. and android application to control that equipment and keep security of bike.

2. LITURATURE REVIEW - Writing study on E-Locking Framework:

2.1 Sharma A, Belokar RM. This paper presents the concept of Esteem Building in a well-articulated way which can be effortlessly seen.
The demonstrate of Esteem Building and
its diverse stages are clarified in brief which can
be actualized for the optimization of any item.
Each portion of
the Esteem Designing work arrange is talked about and executed to induce the point by
point data approximately the item. A case consider has been talked about and an examination has been carried out by this handle to
attain the item optimization. Different instruments are utilized for the investigation of
the item whereas assessing the item at the functional level. With the precise approach and basic investigation, the ultimate item turns out to be
a effective exhibit of Esteem Building.
2.2 Ruchita J. Shah and Anirudh P. Gharge GSM based car security framework GSM
(worldwide framework for versatile communication) related data and how to execute it.
2.3 Vishal P. Patil Dr. K.B. Khanchandani In this paper, we show an
immobilizer car security framework utilizing confront location and acknowledgment.
The Vital Component Examination (PCA) calculation is utilized to recognize a particular confront, and to discover and compare the vital components of the current confront to those of the known clients in a database built in advance.Designand Usage of Car Security Framework utilizing ARM Processor. How to plan a item and usage of conceptual plan. And how to plan the item keeping security is beat most need.2.4 Brain W. Evans This paper show For an presentation to the Arduino and intuitively plan, allude to Banzi's Getting Begun with Arduino, aka the Arduino Booklet. For the courageous few fascinated
by the complexities of programming in C, Kernighan and Ritchie's The C Programming Dialect, moment version, as well as Prinz and Crawford's C in a Nutshell, give a few understanding into the first programming sentence structure.

2.5 S. P. Pingat, Shubham Rakhecha, Rishabh Agrawal, Sarika Mhetre and Pranay RaushanStand-
alone worldwide situating framework collectors are broadly utilized these days to precisely finding one's position.
By utilizing stand-alone GPS recipients,
the remove between two areas on soil can too be measured. This venture is point to plan and execute a low-

cost Worldwide Situating Framework appropriate to be utilized for climbing, climbing and cruising exercises. The work of the GPS is to find the position of client. The impacts of line of sights
in connection to distinctive tested areas are moreover examined. In this extend, the equipment utilized is
PIC18F4520 coordinates with GPS collector written FV-M8. The GPS modules will create the arranges of scope and longitude as well as the bearing points between two positions.

3 METHODOLOGY-

3.1 HARDWARE USED:

1. Arduino UNO

2.Realy module

3. Lock System

4. GSM Module

5. GPS Module

6. Bluetooth Module

7. Accelerometer

3.2 SOFTWARE USED:

1. Proteus

2. IDI Arduino UNO IDE

The Arduino Uno is an open-source microcontroller board based on the Microchip ATmega328P microcontroller and created by Arduino.cc and at first discharged in 2010. The board is prepared with sets of computerized and analog input/output (I/O) pins that
will be interfaces to different extension sheets (shields) and other circuits. The board has 14 advanced I/O pins
(six competent of PWM yield), 6 analog I/O pins, and is programmable with the Arduino IDE
(Coordinates Improvement Environment), by means
of a sort B USB cable. It can be fueled by the USB cable or by an outside 9-volt battery, in spite of the fact
that it acknowledges voltages between 7 and 20 volts. It is comparative to the Arduino Nano and Leonardo.
The equipment reference plan is dispersed beneath a Imaginative Commons Attribution Share-Alike 2.5 permit and is accessible on the
Arduino site. Format and generation records for a few forms of the equipment are too accessible. The word "uno" implies "one" in Italian and was chosen
to check the introductory discharge of Arduino Software. The Uno board is the primary in a arrangement of USB-based Arduino sheets; it and form 1.0 of the Arduino IDE

were the reference adaptations of Arduino, which have presently advanced to more up to date discharges. The ATmega328 on the board comes preprogrammed with a bootloader that permits uploading unused code to it without the utilize of an outside equipment Software engineer.


Fig.1: Arduino Uno

A hand-

off is an electrically operated switch. It comprises a pair of input terminals for a single or several control signals, as well as a pair of working contact terminals. The switch may have any number of contacts in different contact shapes, such as make contacts, break contacts, or combinations of their own. transfers are used where it is necessary to control a circuit by a free low-

power flag, or where only a few circuits must be controlled by one flag. To begin with, transfers were made in long separate transmit circuits.
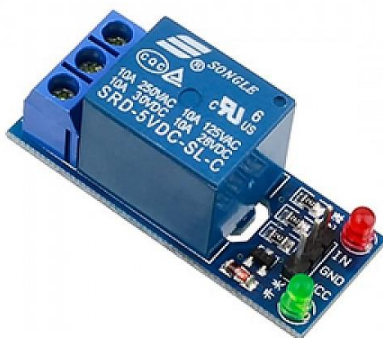

Fig.2: Relay Contact

The HC-05 is a popular module which can add two-way (full-duplex) wireless functionality to your projects. You can use this module to communicate between two microcontrollers like Arduino or communicate with any device with Bluetooth functionality like a Phone or Laptop. There are many android applications that are already available which makes this process a lot easier. The module communicates with the help

of USART at 9600 baud rates hence it is easy to interface with any microcontroller that supports USART. We can also configure the default values of the module by using the command mode. So, if you looking for a Wireless module that could transfer data from your computer or mobile phone to microcontroller or vice versa then this module might be the right choice for you. However, do not expect this module to transfer multimedia like photos or songs; you might have to look into the CSR8645 module for that.
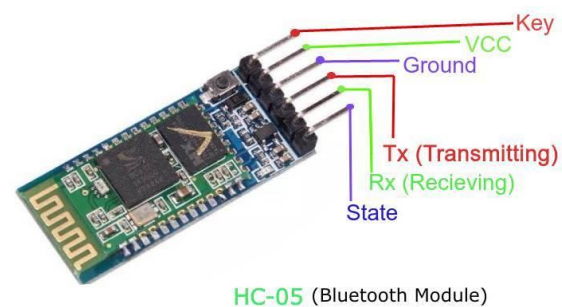
Fig.3: Bluetooth Module

An accelerometer is a device that measures the vibration, or acceleration of motion of a structure. The force caused by vibration or a change in motion (acceleration) causes the mass to "squeeze" the piezoelectric material which produces an electrical charge that is proportional to the force exerted upon it.
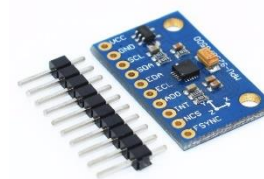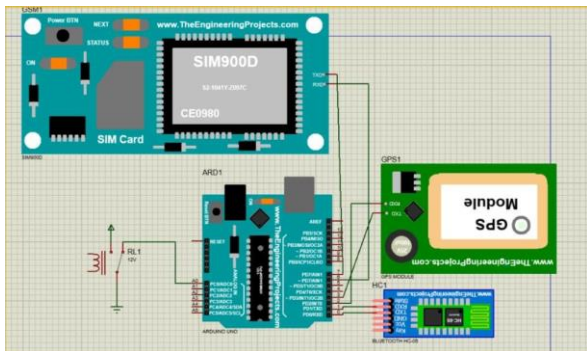

Fig.4: Accelerometer

The ultrasonic sensor measures the distance of the nearest object, sending the result to the serial port. It can work from 2 cm to 3 m. It measures the time spent by the signal to reach the object and return to the sensor and stop the bicycle when object sensed.
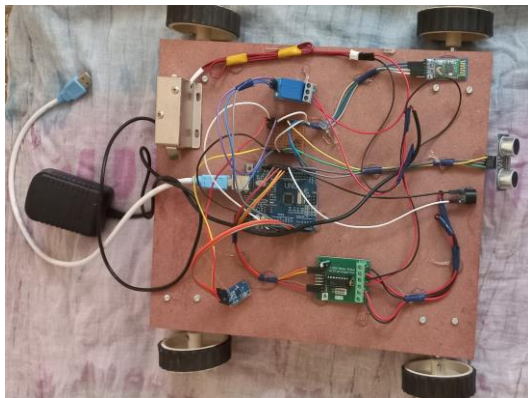
Fig.5: Ultrasonic sensor

4. SCHEMATIC CIRCUIT DIAGRAM

Fig. 6: Circuit Diagram

Fig 7: Actual project

5 FUTURE PLAN

In future, extra sensor in the hardware can be used to detect if the person is alcoholic or not. If the person is alcoholic the bike will not start. By this feature in the bike, we can stop the accident of the particular person who is going to ride the bike, this feature facility can be enable or disable via android application. Another feature can used is another hardware part which will check whether the person sitting on the bike has worn the helmet or not. If the person did not wear the helmet the bike will not start. This feature facility can also be enabled or disable via android application.

6 CONCLUSIONS

Our proposed Bicycle Security System is the advanced, reliable and robust version of security mechanism for Bicycles. The proposed security system also gives space, in terms of hardware and software, to add up custom applications to make the product even more user-friendly. Proposed system can be installed on Bicycles of any company.

7 REFERENCES

1. Brian W. Evans, "Arduino Programming Notebook" First Edition 2007
2. Van Lierop, D. Grimsrud, M. & El-Geneidy, A. (2015). Breaking into bicycle theft: Insights from Montreal, Canada. International Journal of Sustainable Transportation, 9(7), 490-501
3. Garvit Pareek, M. Vinay, "IoT based Prototype for Smart Vehicle and Parking Management System", IEEE 2018.
4. Amit Bhoyar, Rajeev Varma, "GPS Based Real Time Vehicle Tracking System for Kid's Safety Using RFID and GSM", IEEE 2018.
5. Archie O. Pachica, Archie O. Pachica, Jessy Mae P. Geraga, Jhestine M. Ong, Michael D. Sajulan, "Motorcycle theft prevention and recovery security system", IEEE 2017.