

Smart Bike Security System

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Abstract: In this world, everyone and every industry like to keep pace with the advancement in the technology. Automobile industries are also not behind in this aspect. Now, a day's almost everyone has a Bike. As purchasing a Bike, people are really concerned about the advanced technologies in automobile industry. As urban living environment is becoming more and more complex with increasing number of vehicle theft, the need for a better vehicle security system is now an imperative measure that is to be carried out for the present scenario. As a measure to prevent theft or misuse of vehicles, a new system is proposed to provide security of the vehicles. Therefore, vehicle security and making advancement in bike features and its technology have been major concern in automobile industries.

Keywords: Arduino-uno, Bluetooth Module, RFID, Relay.

1. INTRODUCTION

Imagine the world, with the vehicle locking by using Bluetooth devices will be a great advantage in terms of time consuming. Now a Days, bikes are expensive and no additional security expect handle lock is provided by any of the Bike manufacturers in India. Although the handle lock can be easily Destroyed and anyone can able to ignite bike within a minute with very less efforts. Presently, there is no Bike ignite authorization system that stops anonymous user to prevent ignition. Many times we hear the cases of bikes getting stolen from parking area or sometimes we forgot to remove the key from bike by mistake. In these cases it is really difficult to get the bike back. Then, application will be implementing and develop for vehicle security system by using RFID, smart phone and bluetooth technology for bike ignition.

2. EXISTING SYSTEM

1. Variety of security systems is available in market that has the various functionality, operating principles.
2. The system uses GPS for location tracking.
3. No existing system for vehicle handle-locking system.

3. Proposed System:

The system will be constructed by integrating both hardware and software. This system for the bike security by using Arduino-Uno, RFID, Bluetooth Devices and Multi-channel relay circuit to allow authorized user to ignite bike.

Using bluetooth technology it only ignites the engine if the code replied by the trusted mobile or bluetooth compatible a device is valid. If the code received is not valid, the system will not ignite the engine and the system will be waiting to get the trusted pass code. The advantages of this system are user can able to ignite their bike at anytime and anywhere from 0 to 10 meter areas.

In the RFID, the password detector may be wont to alter the ignition lockup method that the user needn't to hold the lock keys beside him; he will simply bear in mind the password and use it later to open the ignition. Main thought behind this project is of a motorbike security system employing a password entered through computer keyboard. As well as turning on the Buzzer when password is entered wrong for multiple times. User can change this password anytime.

1. Bike ignition control by mobile through Bluetooth and RFID.
2. Build such modern and innovative system that allows igniting bike only for authorized user.
3. Build an application for Android Smartphone that control most features of bike.

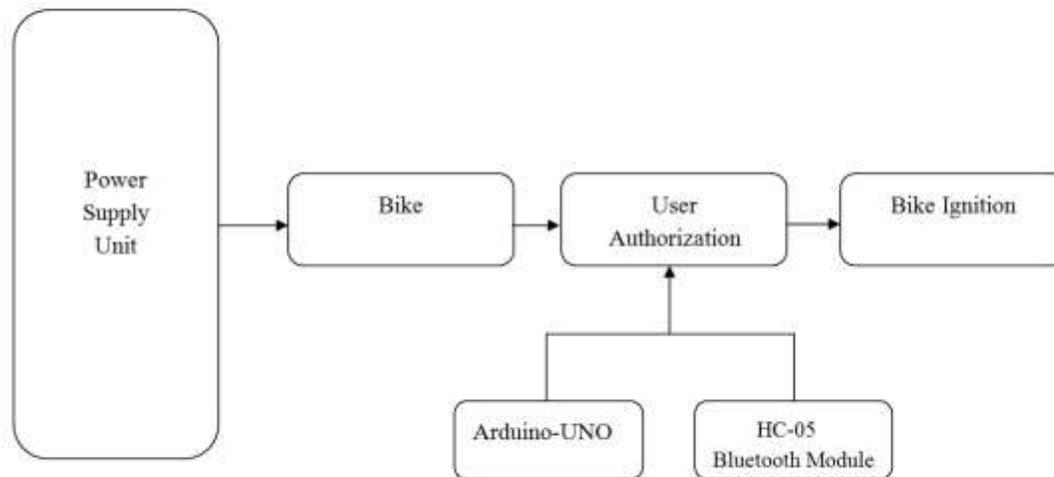


Fig.1 – Block Diagram.

In this block diagram, firstly power supply goes to the bike. After that bike connection check it's authorization through the Arduino-uno, Bluetooth module and RFID for the bike Ignition. Bike has been successfully ignited, when its User authorization has been successfully.

4. About Techniques:

A. Arduino-Uno:

Arduino Uno is a microcontroller board based on the ATmega328P (datasheet). It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz quartz crystal, a USB connection, a power jack, an ICSP header and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started. You can tinker with your UNO without worrying too much about doing something wrong, worst case scenario you can replace the chip for a few dollars and start over again. "Uno" means one in Italian and was chosen to mark the release of Arduino Software (IDE) 1.0. The Uno board and version 1.0 of Arduino Software (IDE) were the reference versions of Arduino, now evolved to newer releases. The Uno board is the first in a series of USB Arduino boards, and the reference model for the Arduino platform; for an extensive list of current, past or outdated boards see the Arduino index of boards.

B. Bluetooth HC-05 module:

HC-05 module is an easy to use Bluetooth SPP (Serial Port Protocol) module, designed for transparent wireless serial connection setup. The HC-05 Bluetooth Module can be used in a Master or Slave configuration, making it a great solution for wireless communication. This serial port bluetooth module is fully qualified Bluetooth V2.0+EDR (Enhanced Data Rate) 3Mbps Modulation with complete 2.4GHz radio transceiver and baseband.

C. RFID:

RFID stands for Radio-Frequency Identification. The acronym refers to small electronic devices that consist of a small chip and an antenna. The chip typically is capable of carrying 2,000 bytes of data or less. The RFID device serves the same purpose as a bar code or a magnetic strip on the back of a credit card or ATM card; it provides a unique identifier for that object. And, just as a bar code or magnetic strip must be scanned to get the information, the RFID device must be scanned to retrieve the identifying information.

D. Relay Module:

A unique feature of these relay packages is the integral fuse for the relay contacts which can easily be serviced through a front entry maintenance hatch. These relays are rated for switching loads of up to 8 Amps at 250 VAC. In

addition, visual indication of relay status is provided via an LED on top of the unit, thus simplifying system troubleshooting. Connections to the relay are made via pluggable connectors to speed installation and replacement if required.

5. Advantages:

1. Less cost.
2. Mobile data not required.
3. Wireless Authentication of User.
4. Comfortable to user.
5. Time saving.
6. Remote Access of bike.

6. Conclusion:

New technology that makes the life simple and also secures our vehicles. This system is cost effective if you embed this system in bike that makes the bike secure. Bluetooth based vehicle secured system with RFID, Arduino-uno and android application will be implementation.

7. ACKNOWLEDGMENT

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