

ANDROID MOBILE BASED SECURITY LOCK FOR BIKE IGNITION

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ABSTRACT

Android mobile based Security lock for Bike ignition is a replacement for traditional locks on the bike and two-wheelers. We have designed android based bike locking system to avoid this problem. This project provides an additional security layer after the ignition lock. In this project, the user needs to insert a key and then the user needs to send a password from his/her mobile using an android app. Many times we forgot to carry the key of our bike or key gets lost in these case it is really difficult to get the bike started. This project is designed to solve this purpose. Concept behind this project is of relay operating using password entered through android mobile. It also turns on buzzer when wrong password is entered.

Keywords: Bluetooth Module, Microcontroller, Relay, Buzzer, LCD, DC Motor.

I. INTRODUCTION

Many times we hear the cases of bikes getting stolen from parking area. Or sometimes we forgot to remove the keys from bike by mistake. In these cases it is really difficult to get the bike back. This project is designed to solve this purpose. Main concept behind this project is of a bike security system using a password entered through Android mobile. This project turns on a Buzzer when entered password is wrong. An access control for bike forms a vital link in a security chain. The microcontroller based bike locker is an access control system that allows only authorized persons to access the bike.

Android mobile based Security lock for Bike ignition is a replacement for traditional locks on the bike and two-wheelers. In the traditional two-wheeler locks, a user inserts a key in the ignition lock and then he can start the vehicle. However, thieves can steal the bike using duplicate keys. We have designed android based bike locking system to avoid this problem. This project provides an additional security layer after the ignition lock. In this project, the user needs to insert a key and then the user needs to send a password from his/her mobile using an android app.

Description: Android mobile based Security lock for Bike ignition is a replacement for traditional locks on the bike and two-wheelers. In the traditional two-wheeler locks, a user inserts a key in the ignition lock and then he can start the vehicle. However, thieves can steal the bike using duplicate keys. We have designed android based bike locking system to avoid this problem. This project provides an additional security layer after the ignition lock. In this project, the user needs to insert a key and then the user needs to send a password from his/her mobile using an android app.

Working of the Android bike locking system project:

At first, the user needs to do the Bluetooth pairing of his mobile with the Bluetooth receiver in the project. Then the user needs to enter a password using an Android mobile. This password is received in the circuit using If the password is correct then the DC motor is rotated. A buzzer is activated whenever a wrong password is entered. LCD display shows various information messages and instructions to the user. Wireless communication is used to send commands to the project. Bluetooth technology is used in this project.

II. PROPOSED METHODOLOGY

Block Diagram:

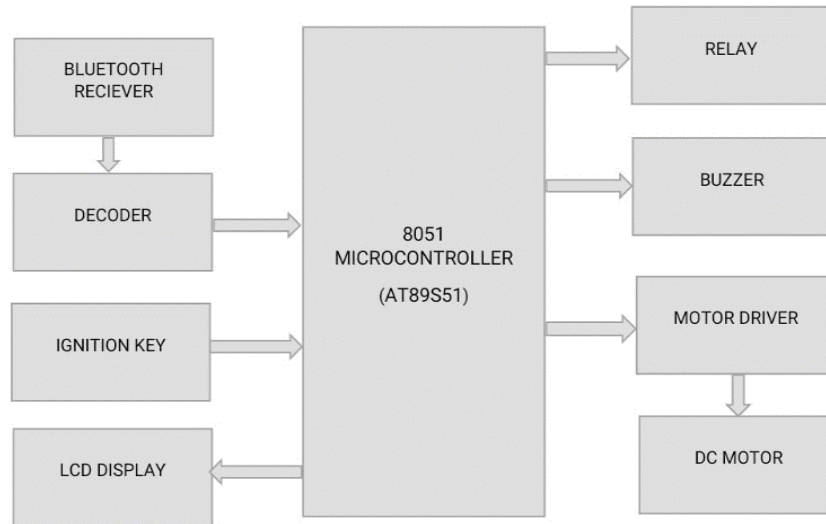


Fig 1: Block Diagram of System

1. Microcontroller :

This is the CPU (central processing unit) of our project. We are going to use a microcontroller of 8051 family. This is the most important segment of the project, i.e. the microcontroller 8051. The controller is responsible for detection each containing 16 characters.

It is used to display the password entered and the status of the password. It can be used to display the various options and all the readings that have been stored in the EEPROM. LCD or 7 segment LED display can be used. Here the LCD used is the 16×2 line LCD. We can also use 16×4 line LCD. Liquid Crystal Display which is commonly known as LCD is an Alphanumeric Display it means that it can display Alphabets, Numbers as well as special symbols thus LCD is a user friendly

2. Bluetooth receiver:

This module enables you to wireless transmit & receive serial data. It is a drop in replacement for wired serial connections allowing transparent two way data communication. You can simply use it for serial port replacement to establish connection between MCU or embedded project and PC for data transfer. This board operates on 5V and has LED indication.

Features:

- 5V power operation
- UART interface – Serial communication protocol
- 10 meters range
- Status LED

Product Specifications

- Bluetooth protocol v2.0
- Baud Rate: 9600 bits per second
- Power Supply: +5 VDC 50mA
- Operating Temperate: -20C to +55 C
- Dimensions: 26.9 mm x 13 mm x 2.2 mm

HC-05 module is an easy to use Bluetooth SPP (Serial Port Protocol) module, designed for transparent wireless serial connection setup. HC-05 is 6-pin Module. The module has 6 pins labelled on the back, but most modules only have 4 of those populated with pogo pins. KEY & STATE seem to be not required, as KEY is used for flashing the device and STATE simply indicates if the device is awake or not. So that leaves only GND, VCC, TXD, RXD. For connecting The Module with Microcontroller, we need to use the Serial (Tx and Rx) pins provided on the board.

3. Android mobile with application installed:

User will enter a password using the Android mobile.

4. Buzzer :

When any one-parameter crosses its level then microcontroller turns on buzzer. We have used a piezoelectric buzzer in our project. It is used for alert indication. A transistor is used to drive the buzzer. The buzzer will be turned on when sensor value goes above the desired value.

5. Motor Driver:

This IC is used to convert 5v to 12v which is required to drive the DC motor, which is used to open the gate. The L293D is a quadruple half H-bridge bidirectional motor driver IC that can drive current of up to 600mA with

1) more blood. As the heart relaxes, the volume of oxygenated blood is decreases. That the time between increase and decrease of oxygenated blood, pulse rate is determined voltage range of 4.5 to 36 volts. It is suitable to drive small DC-Geared motors, bipolar DC motor etc.

6. DC Motor:

A DC motor is a brushless, electric motor that can divide a full rotation into a large number of steps. The motor's position can be controlled precisely without any feedback mechanism. Unlike a brushless DC motor which rotates continuously when a fixed DC voltage is applied to it, a step motor rotates in discrete step angles.

DC motors work on the principle of electromagnetism. There is a soft iron or magnetic rotor shaft surrounded by the electromagnetic stators. The rotor and stator have poles which may be teathed or not depending upon the type of stepper.

7. EEPROM:

We need to store the parameter values in some device. We have chosen EEPROM for this purpose as since it is a non-volatile memory and can hold data after power-off. We can use AT24C02/ AT24C04/ AT24C08/ AT24C16 depending on the memory size requirement.

8. RELAY:

Relay acts as a switch which is used to control the 230 volt AC supply. This relay will be turned off if there is no person inside the room. This relay can be used to turn off the electrical appliances like fan, tubes etc.

Power supply:

Power supply provides 5V and 12v supply to the circuit. Power supply has a four stages that are transformer. Rectifier, filter and voltage regulator. In this circuit we are using stepdown transformer which taking 230V AC and provide output 15V at the secondary winding. this 15VAC will rectified by bridge rectifier by using four diodes, that bridge rectifier converts the AC wave into fully rectified wave. After that filter is used there which consists the capacitor, which converts fully rectified wave into DC wave. At the last regulator is used, that regulator remove the entire ripple and gives pure DC. (1) Transformer: We have used stepdown transformer for generating 5V supply. That's why we have used 12V/500mA transformer, which means it's output will be 12V AC with a current rate 500mA. (2)Rectifier: Rectifier is used to rectify the negative half cycle of the output signal of secondary winding of transformer. input of rectifier is it will be AC signal with both positive and negative cycles and the output of rectifier is only positive cycles. We have to use capacitor to filter out the AC of the output signal. (4) Voltage Regulator: After capacitor filter voltage regulator is used. It generate the constant DC voltage supply of 5V. Output of the capacitor filter is gives to the voltage regulator then we will get 5V supply at the output of voltage regulator.

Flowchart :

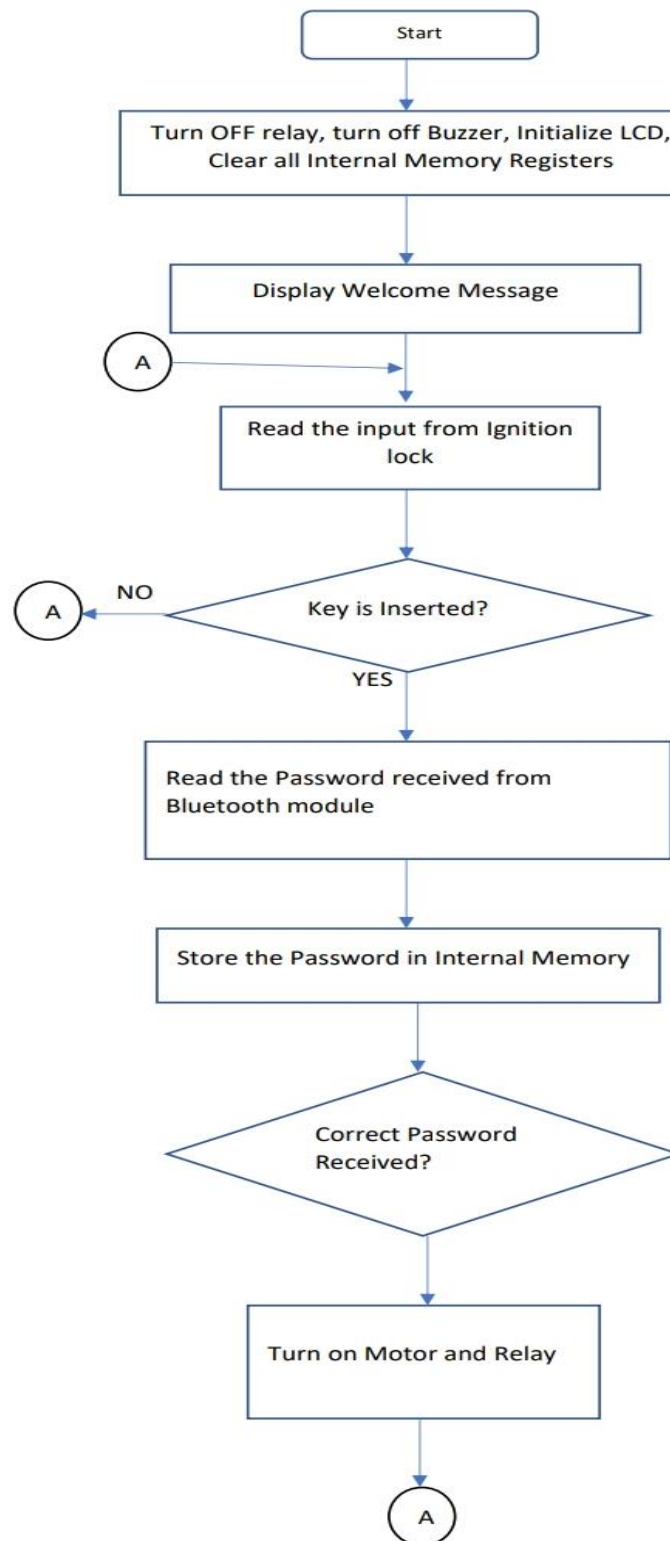


Fig 2: Flowchart

III. CONCLUSION

With the knowledge of new techniques in 'Electronics' we are able to make our life more comfortable. One such application of electronics is used in "Password based Bike Lock". The approach we followed and which is explained in this project report is novel and has achieved the target of "Password based Bike Lock" satisfying user needs and requirements. The development of this project has shown how much hard work goes into the

creation of a system. "Password based Bike Lock" was a project based on microcontroller, due to which hardware requirement is reduced.

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