

## Smart Bike Security System

Nitin Kumar, Jatin Aggarwal, Chavi Sachdeva, Prerna Sharma, Monica Gaur

Department of Electronics & Communication

SRM University NCR Campus

Modinagar, Ghaziabad

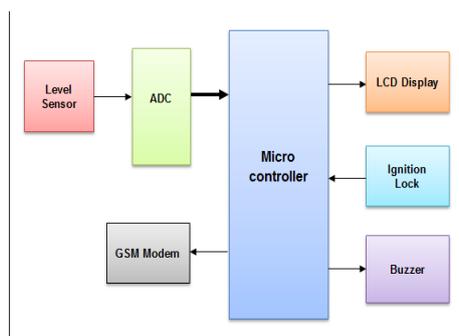
### ABSTRACT-

Vehicle and Fuel theft cases are increasing day by day all over the world. So, Vehicle Security system plays an important role nowadays. Most of the advanced vehicle security systems best suit the four wheelers. As of the security system for two wheelers is concerned, the systems available in market are of no match to the well-equipped thieves. When under attack, these systems can only immobilize the engine and sound a loud alarm. It is a serious limitation. In our proposed security system a new features is included in addition to the engine immobilizer and alarm i.e. alerting owner by SMS about the theft attempt, allowing user to control the system remotely by SMS. When anyone tries to steal the bike and fuel then this circuit will start conducting and the buzzer starts sounding. This sound indicates that somebody is trying to steal the bike and fuel, so this circuit is used to protect the vehicles from thieves.

### I. INTRODUCTION

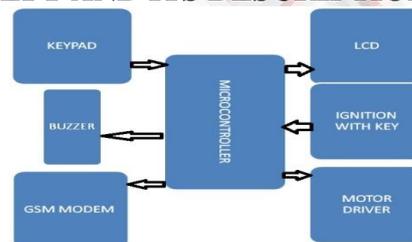
In Smart Bike Security System, sim 300 GSM modem is used for sending and receiving sms. If anybody tries to steal the bike or fuel from the bike then the system sends a message to a predefined number and blocks ignition system of the bike. Also 89s52 controller is used. In every 8051 series controller there is one UART port for serial communication. Pin 10 and 11 is available for this purpose. Pin no 10 is for receiving whereas pin no 11 is the transmitter pin. Output of the 89s52 is 5 volt (TTL). A comport port base GSM modem (RS232 base)is used. For this purpose, max232 chip is also used to convert TTL data to RS232 .IC MAX232 is responsible for converting TTL data to RS232 data. With the help of transistor circuit a proper current to DC motor is provided. Motor operating current is approximate 200 mA. So it is not possible to drive the motor directly, so one PNP and one NPN transistor is also used to drive the motor. The same circuit is used for the Buzzer circuit also. Keypad is connected to port p1 and port p3 pins directly. All the switches are connected to controller with common ground. When a switch is pressed then that particular pin becomes zero. The motor starts only when the correct code is entered. If the password entered is wrong for three consecutive times then the buzzer turns on and system is locked. Keypad is active again only when the system receives a password from the user via GSM modem. The Fuel sensor incorporates an op-amp comparator circuit. Op-Amp output is connected to the pin no 23 of the controller. When anybody tries to steal the fuel from tank then Op-Amp provides an output and controller senses the signal and immediately sends a sms.

### II. BLOCK DIAGRAM OF FUEL THEFT AND ITS DESCRIPTION



- A. Liquid level sensor: The function of liquid level is to detect the variation in fuel level and it gives variable output voltage as per the variations in level. This liquid level sensor can be used for any type of liquid. So it can be used for petrol as well as diesel or in some cases it can be used for water level detection as well.
- B. ADC: ADC is analogy to digital converter. Output of level sensor is in analog form and the 8051 microcontroller is not able to read the analog voltage signal, so we have used analog to digital converter. ADC reads the analog input voltage and gives digital output data which is corresponding to the analog data received. The output of ADC is 8bit format which is compatible to the microcontroller.
- C. Microcontroller: Various functions of microcontroller are:
- To read the data from ADC which is the data received from level sensor.
  - To calculate the variation in liquid level.
  - To display various information in LCD display.
  - To turn on buzzer if the liquid level crosses threshold value.
  - To send SMS when there is change in liquid level.
- D. LCD display: It is known as Liquid Crystal Display. It displays “Petrol theft is in progress”, “Sending SMS”, “SMS send successfully”. It also displays variation in petrol level. LCD is mainly important for testing the project, however in actual use LCD is optional.
- E. Buzzer or siren: A buzzer is turned on whenever petrol theft is going on or petrol is stolen. Buzzer will be turned on as soon as there is decrease in petrol level without ignition key. Loud noise of buzzer will draw attention of persons in the surrounding so they can come to know that something wrong is happening with the bike. This can save further fuel theft.
- F. GSM modem: GSM modem is used to send messages to the owner of the car or bike. We have to insert a GSM sim card into this GSM modem. Microcontroller sends the commands for sending SMS to the GSM modem. These commands are sent through serial communication port. This technology is used because many times we go out somewhere and we park bike on the road or in the parking area so we are not near the car or the bike. Whenever petrol theft is going on user will get SMS and user can rush to the bike or car to check the safety of bike.

### III. BLOCK DIAGRAM FOR BIKE THEFT AND ITS DESCRIPTION



A. Microcontroller: This is the CPU (central processing unit) of our project. We are going to use a microcontroller of 8051 family. The various functions of microcontroller are like:

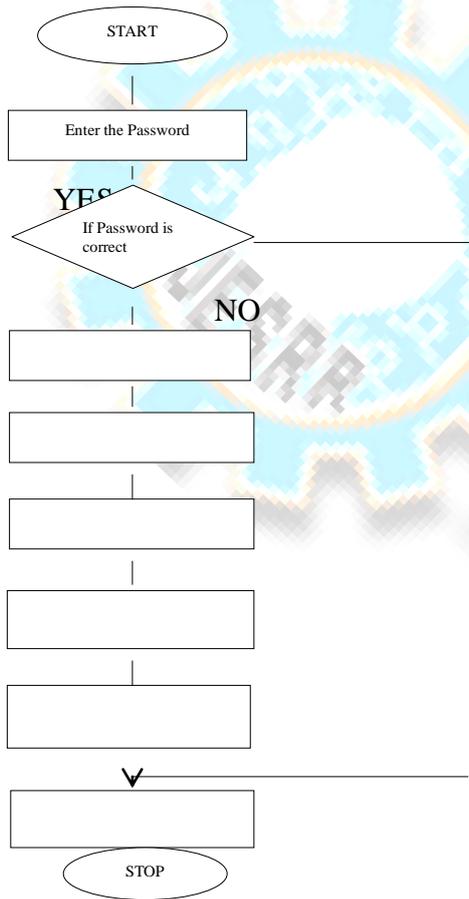
- Reading the digital input from Keypad
- Sending this data to LCD so that the person operating this project should read the password.
- Sensing the password using keypad and to check whether it is a correct password or a wrong password and rotate the motor if the password entered is a correct password.

B. LCD: It is known as Liquid Crystal Display. It displays “BIKE THEFT”, “Sending SMS”, “SMS send successfully”. It also displays variation in petrol level. LCD is mainly important for testing the project, however in actual use LCD is optional.

C. Buzzer: We are going to use a buzzer to indicate the wrong password to open the ignition. Loud noise of buzzer will draw attention of persons in the surrounding so they can come to know that something wrong is happening with the bike. This can save further BIKE theft.



B. Bike theft:



VI. APPLICATIONS

- a. To provide security for vehicles



- b. To provide security for house doors.



## **VII. ADVANTAGES**

- a. This circuit is easy and simple to understand.
- b. This circuit is used wherever security needed.

## **VIII. FUTURE DEVELOPMENT AND CONCLUSION**

### **A. Future Development:**

We can provide voice feedback system.

We can add vibration sensor to the car or bike. In case when the bike or car locked and somebody is try to open the door or open the bike lock then vibration will be produced and vibration sensor can sense this vibrations and turn on the buzzer.

### **B. Conclusion:**

It is cost-effective anti-theft system, which can be expected to drastically reduce the automobile thefts, are entirely feasible as factory installed devices. Also a wide range of theft methods have been used, the most prevalent current methods include the use of a door lock mechanism.

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