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RF ID BASED VEHICLE IGNITION SYSTEM CUM SECURITY

Siddesh.N. Bevinahalli, Neelakanthareddy.Y.B, Harish Mudagannavar, Senthilkumar S
Dept. of Mechanical Engineering, Rural Engineering College, Hulkoti, Karnataka, India

1.INTRODUCTION

To cater to the need , here we present a miniature model of an RF ID based ignition system to regulate the theft of vehicles since there is no key required to make the vehicle on. After the initial installation, the system requires no manual control. Everything, right from starting the vehicle is done through **RF ID tag.** We have seen often in the news paper that is theft of cars and taking them to far places and removing the engine and they sell it. So to solve all these problems to some extent we thought of designing the project called " RF ID BASED VEHICLE IGNITION SYSTEM CUM SECURITY"

2. SYSTEM OVERVIEW

As soon as the tag is swapped the bike or any vehicle gets started. Here the card is swapped on the RF ID card detector, the output of card reader is interfaced to the 8051 micro controller. With the help of embedded programmer the vehicle is controlled.

This project is also provided in detecting the theft of vehicles. As soon as the vehicle is theft they take to far distance to remove the parts and they will sell it. In this project the theft of vehicle can be avoided to some extent. As soon as we come to know that the vehicle is theft, just by giving a ring from your mobile, the ignition of the car and the fuel of the engine are blocked. Further thieves can not take the car.

3. OVRVIEW OF RF ID:

RF ID means Radio Frequency Identification Device. RF ID is an automatic identification method, relaying on storing and remotely retrieving data using devices called RF ID tags. An RF ID tag is an object that can be attached to or incorporated into a product for the purpose of identification using radio waves, chip based RF ID tags contain silicon chips and antennas .It is also a technology that has been used for electromagnetic or electro statics coupling in the radio frequency a portion of the

3.1APPLICATIONS OF RF ID:

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- Receiving
- Sortation
- Product genealogy
- Put away and picking
- Inventory management
- WIP Tracking
- Just- in-sequence verification
- Shipping
- Label tracking and security
- Plant equipment and maintenance

- **Block Diagram of Bike Security using RF ID Tag**

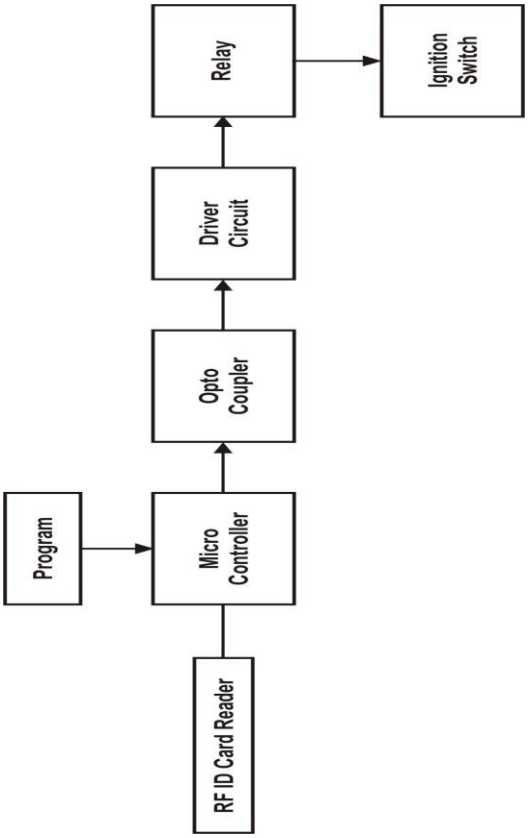

Figure 3.1 Block Diagram of Bike Security using RF ID Tag

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3.2 GENERAL BLOCK DIAGRAM

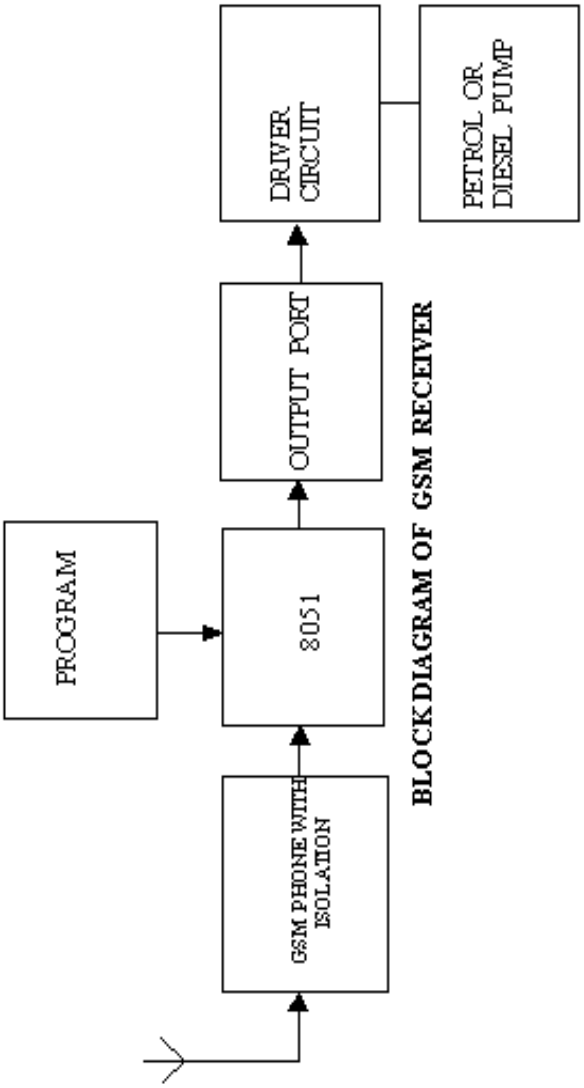

Fig 4.1 general block diagram

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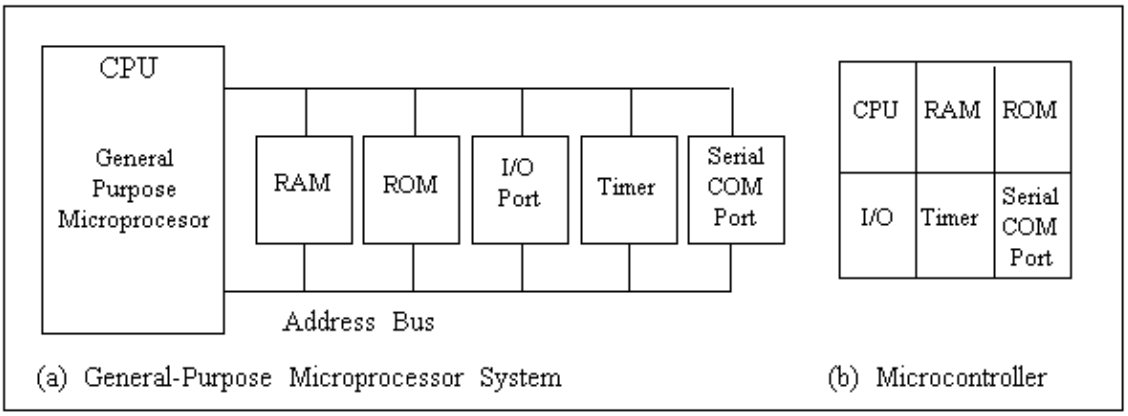
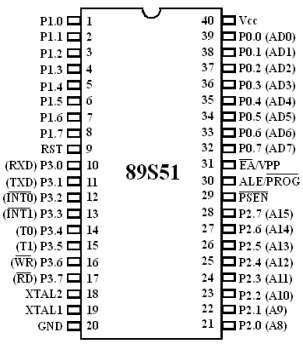
4.1.1 OVER VIEW OF MICROCONTROLLER



4.1.2 Microcontrollers for embedded systems

In the literature discussing microprocessors, we often see the term embedded system. Microprocessors and microcontrollers are widely used in embedded system products. An embedded product uses a microprocessor (or microcontroller) to do on task and one task only. A printer is an example of embedded system since the processor inside it performs one task only; namely, getting the data and printing it. Contrast this with a Pentium-based PC (or any x86 IBM-compatible PC). A PC can be used for any number of applications such as word processor, print-server, bank teller terminal, video game player, network server, or internet terminal. Software for a variety of applications can be loaded and run. Of course the reason a PC can perform myriad tasks is that it has RAM memory and an operating system that loads the application software into RAM and lets the CPU run it. In an embedded system, there is only application software that is typically burned into ROM. An x86 PC contains or is connected to various embedded products such as the keyboard, printer, modem, disk controller, sound card, CD-ROM driver, mouse, and so on.

4.1.3 8051 PIN DESCRIPTION



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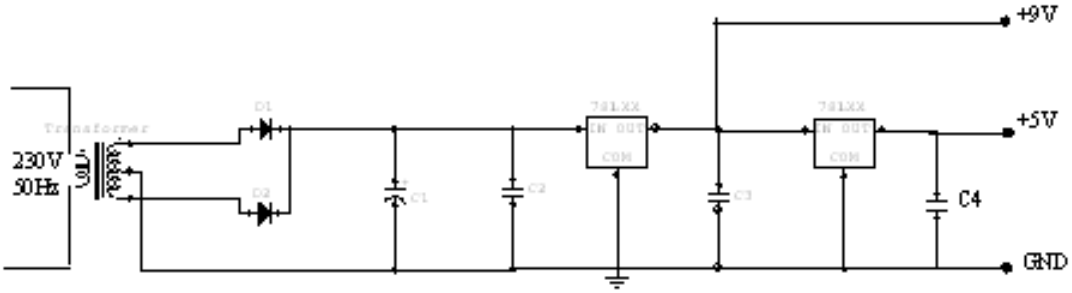
4.2 CIRCUIT DIAGRAM OF POWER SUPPLY



WORKING OF DUAL POWER SUPPLY:-

In every project we need different voltages for different circuits. So we need to construct different power supply of different voltages employing different voltage transformers, rectifier circuits, filter circuits and regulator circuits. This type of construction requires many components (transformers, capacitors, regulators.....etc). So the size of the power supply becomes bulky and costly. To overcome above disadvantages by using regulator IC'S the different voltages (12V,9V.....etc) can be obtained with only one transformer.

The circuit diagram of Dual power supply is shown in the figure. The function of each component of the circuit is explained below. The circuit consists of following stages.

1. Transformer
2. Rectifier
3. Filter and
4. Regulator

1. **TRANSFORMER**: It is an electrical device which transfers the power from one winding to the other winding with isolation. All the electronic gadgets work for less voltage (normally 3V to 12V). So a step down transformer is used, whose function is to step down the AC voltage from 230V to required voltage depending on the need. In this project 12V-0-12V is used. The output of transformer is 12V AC which is connected to the diodes for rectification.

2. **RECTIFIER CIRCUIT**:- It employs diodes, which converts AC voltage into DC voltage. The output of rectifier circuit is not a pure DC. It also consists of some AC components, which is called ripples. In order to remove these AC components, filter circuits are employed. So the output of rectifier circuit is fed to the filter circuit (capacitor).

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3. **FILTER CIRCUIT**:- Filter circuit employs electrolytic capacitors in order to remove the AC components. As we know the capacitor does not allow DC components to pass through it because it offers high reactance to the DC component. And offers less reactance to the AC component so all AC components will be bypasses through the capacitors to ground.

4. **REGULATOR:-**Regulator is an electronic circuit whose function is to keep output always constant though the input is varied. In this project the three terminal IC regulators of 7809 and 7805 is used for providing output DC voltages. Eg 7809, the number 78 represents the positive regulator IC and 09 represents the output voltage i.e. output is 9V. Similarly 7805 provides regulated power supply of 5V.

4.2.1 SOFTWARE

PROGRAM

```
setb p2.0
up1:  jb p1.0,a1
sjmp up1
on:  acall delay
clr  p2.0
here:sjmp here
delay1: mov tmod,#10h
mov R3,#10
again:  mov tl1,#08
mov th1,#01
setb tr1
back:  jnb tf1,back
clr tr1
clr tf1
djnz r3,again
ret
```

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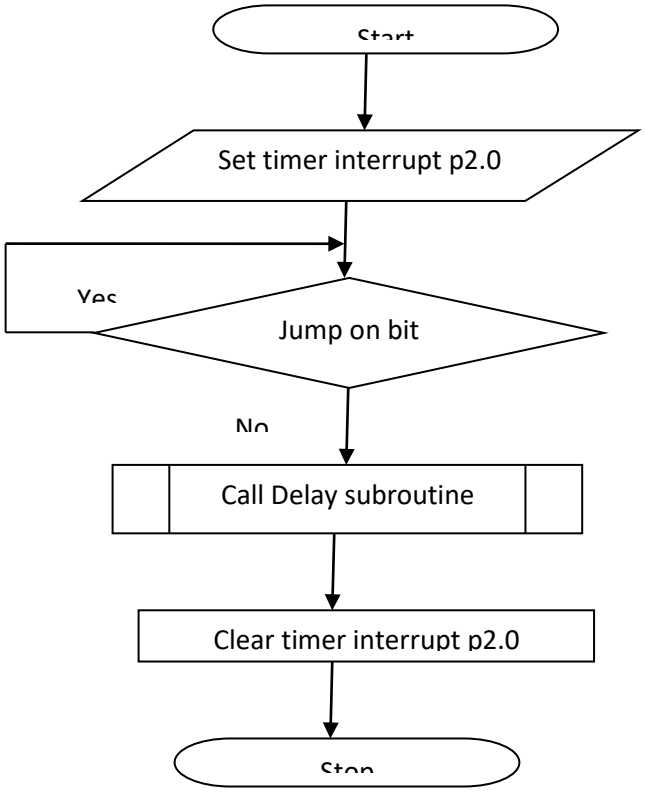
4.2.2 FLOW CHART



5 RESULT

The results obtained by implementing this project were satisfactory. This project mainly concentrates on the problems faced by owners of the vehicles when thefted. In this project we have used Microcontroller, GSM at user convenience and RF ID tags to start an ignition system.

The results obtained in this project are as follows:

1. When vehicle is theft, the system performs calling operation to the owner.
2. Return call from the owner makes the system to turn off the fuel pumping and ignition of the vehicle.
3. Similar kind of keys can be eliminated by RF ID tags.
4. Duplicate RF ID tags cannot be made.

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6 CONCLUSION

In this project we are intended to prevent the thefts of vehicle. We are successfully tried to solve the problems faced by the owners of the vehicles through a easy way.

As soon as the vehicle is theft, owner gets call from the car automatically and by giving a return call to the mobile which is placed in the car, the ignition of the car is made off and the fuel is cut to the vehicle through valve. The ignition systems of vehicles can be started by using RF ID tags.

Thus the project is very economical, safe and can be implemented very easily.

Hence we conclude that, for vehicle theft problems our project is most secure.

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