



SMART HELMET WITH HI-TECH SYSTEM

Dr. Deo Raj Tiwari	Department of Mechanical Engineering, IIMT College of Engineering, Greater Noida, U. P., India
Akshay Kumar Sharma	Department of Mechanical Engineering, IIMT College of Engineering, Greater Noida, U. P., India
Akhlaqur Rahman	Department of Mechanical Engineering, IIMT College of Engineering, Greater Noida, U. P., India
Ahmar Kamran	Department of Mechanical Engineering, IIMT College of Engineering, Greater Noida, U. P., India
Ajit Agrahari	Department of Mechanical Engineering, IIMT College of Engineering, Greater Noida, U. P., India

ABSTRACT This paper provides an excellent alternative to remove the accident avoidance. Nowadays most of the countries are forcing the motorcycle riders to wear helmet and not use the vehicles when the person is in drunken condition and also when the person is use phone, smart helmet checks automatically whether the person is wearing the helmet and has non- alcoholic breath while riding. The helmet which can be applied in two wheelers to accident on roads. GPS and GSM technologies are used to find the present location of the rider and sent SMS in case of accident. Here we have a RF transmitter at the helmet and RF receiver at the bike.

KEYWORDS : Helmet, Accident, Alcohol sensor, RF signal, microcontroller (ATMEGA 32A)

1. Introduction

Providing safety to a person while riding the bike is of prime concern. One of them by making it mandatory to wear helmet while riding a bike. the system design provides solution this problem. The system makes it mandatory for the rider to wear helmet before starting vehicle and also shouldn't consumed alcohol. If rider fails follow these conditions the vehicles cannot be started. In India more than 41.6 million people are using two wheelers nearly 1214 people lost their lives in road accidents could survived had they worn a helmet. The risk of death is 2.5 times more among riders not wearing a helmet compared with those wearing a helmet. So smart helmet is solution of this problem. The components of electronic system are sufficiently small and rugged for use in the helmet ensuring that the helmet is lightweight and durable.

1.1 Objective OF Project

The objective of this project is

- a. To design the circuit that can improve the safety of motorcyclists.
- b. To develop a smart safety helmet for complete rider.
- c. To study and understand the concept of RF Transmitter and RF Receiver circuit in implementing the project.

2. SYSTEM DEVELOPMENT

2.1 Block Diagram

Block diagram of this project is as given below on behalf of process going in a manner.

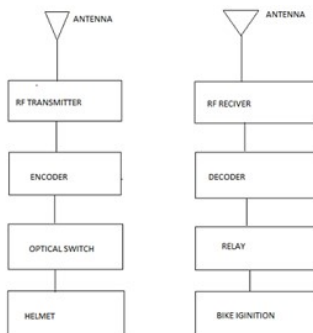


Fig. 2.1: Block Diagram

2.2 Technical Description

This radio frequency(RF) transmission system employs amplitude shift keying with transmitter /receiver pair operating at 434 Mhz the transmitter module takes serial input and transmits these signals through RF. The RF module has been used in conjunction with a set of four channel encoder/ decoder ICs. Here HT12E&HT12D have been used as encoder and decoder respectively.

2.3 RF transmitter

This is 2-channel Radio frequency transmitter specially tuned with its RF receiver part in carrier frequency. Each zone is set with one channel and transmits their presence to moving vehicles RF receiver unit.

2.4 RF receiver

This is also a 2- channel RF receiver specially tuned with its counterpart RF transmitter in carrier frequency. When vehicle enters into any zone that zones RF signals are received by this unit.

2.5 LCD Display

LCD screen is an electronic display module and find a wide range of applications. A 16x2 display is very basic module and very commonly used in various devices and circuits. The reasons being LCD are economical easily programmable have no limitation of display and it can be display in 16 characters per line.



FIG.2.5 LCD Display

2.6 Software Details

The proposed system is integrated using keil compiler- uvision3 which uses embedded C or assembly language for coding. This also uses WLPRO programmer.

3. APPLICATIONS AND FUTURE ENHANCEMENT

3.1 Applications

This project can be used for all kinds two-wheeler. Further this project can be to eliminate key lock arrangement altogether. This project can also be implemented in a confined area, so as to restrict the movement of vehicle including two-wheelers. Near the petrol pumps, LPG storages & explosive places to prevent any possible damage due to the cell phone / GSM frequency, which may trigger explosion.

3.2 Future Enhancement

In future we have tendency to planned to construct our intelligent system during a compact size and additionally as globally acceptable to notify the NO entry and NO parking areas. Government should enforce laws to install such system in two-wheeler. By implementing such mechanism in two-wheeler, and also indicate no parking area which would reduce crowd of the vehicle in those areas. No entry area and vehicle can stop automatically. In case of any accident it might send messages to the friends continuously about the location of the accident happened until the first aid reaches the rider.

4. CONCLUSION

This system is very effective for the safety purpose of the riders. Riders have to wear helmet while riding the two-wheeler vehicle and have to follow the traffic rules. This system is under pocket control, easy functioning to operate this system. It provides a better security to the riders. In future we would try to apply compulsion of seat belt wearing to the four vehicle drivers, so that their lives also would be saved in accidental situation.

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