Helmet as A Key For Bike Using RFID

Sayali Tambe[1] , Mayur Patil[2], R.N. Jadhav (Guide)[3]
[1, 2, 3] Dept of Electronics and Telecommunication
[1, 2, 3] Savitribai Phule Pune University AISSMS IOIT Kennedy Road Pune, India

Abstract- *With rapid progress taking place in automotive industries, large numbers of vehicles are being produced to facilitate demands of increasing population day by day. With so many vehicles on road and large number of reckless drivers, monitoring the traffic offence is not an easy task. An automated system is necessary to keep a helmet of such violations. A system based on RF communication has been designed for this purpose. It uses various modules like transceivers, RFID, GSM etc interfaced according to system requirements. RFID modules are to be fitted on bike key section and RFID Tag inside helmet for communication. FSR is used as a force sensor to detect the helmet is in proper e position or not i.e. to know the helmet is properly w according to safety conditions. If there is any problem by vehicle, the information about the vehicle and its owner is sent to central database through GPRS communication (using GSM module). A website has been designed from where people can view the records. Also the provision for manual entry in database is provided if in case any technical issues occur.*

Keywords-Wireless monitoring system, RFID communication.

I. INTRODUCTION

The aim of this project is to build the system which will provide the security on street and protect human. The system will be combination of RFID module operated with tag and GSM. In this project we will build helmet as a key which take Decision as per defined by the programmer.

Major limitation with only GSM operated SIM is network some time not good so by providing RFID network capability system will be more powerful and it gives more controlling and operational flexibility to the user. Some features we are trying to add in our project like security buzzer and SMS receiving. System will be controlled using wireless signal. We need to build a circuitry of transmitter and receiver platform .This signal transfer platform will be used for wireless network with sensor. The wireless and embedded technology will be used for the design and development of this project. This system can be very useful in ground level human life. So the proposed system is the idea to build keyless helmet operating bike which operate as per program designed by the programmer.

Proposed system will be a combination of the helmet controlled bike and sensor operated module. Major limitation with SIM operated GSM is sometime gives network problem so by providing transportation capability system will be more powerful and it gives more controlling and operational flexibility to the user.

II. LITERATURE REVIEW

A smart helmet is a special idea which makes biker safer. The proposed system describes the interaction between modules mounted on the vehicle and helmet to ensure the vehicle can be started only when the user is wearing a helmet.[1]

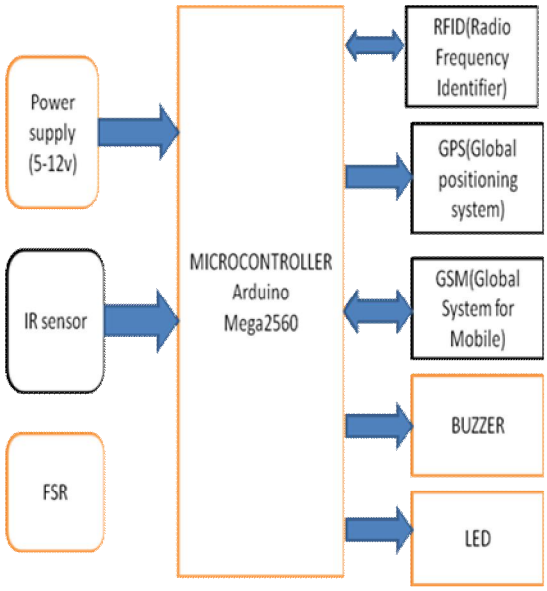
The module consists of a LCD, GSM module, RF receiver, MCU, ignition switch and GPS module. The RF receiver receives the data and sends it to the microcontroller for further processing. In the advent of an accident, the GPS module will acquire the co-ordinates of the accident site. These co-ordinates are sent via the GSM module to a pre saved number.[2]

The vehicle module, on receiving a correct combination of signals from the helmet module, proceeds to activating the electrical system of the vehicle accordingly. Simultaneously, the GPS module, that is a part of the vehicle module, acquires the geographical coordinates of the site of accident and sends these coordinates to predefined phone numbers via the GSM module, which is also a part of the vehicle module. [3]

Pressure sensors are not used in helmet to access the bike.GSM is used for tracking the location of bike. [4]

In case of road accident GSM sends message to emergency services like ambulance and also location of vehicle is tracked. Smart Helmet Using GSM &GPS Technology for Accident Detection and Reporting System.[5] The functionality of preventing vehicle theft is achieved by detecting vehicle status in theft mode and sending and SMS which is generated automatically. This is then sent to the owner of vehicle.[6]

III. BLOCK DIAGRAM

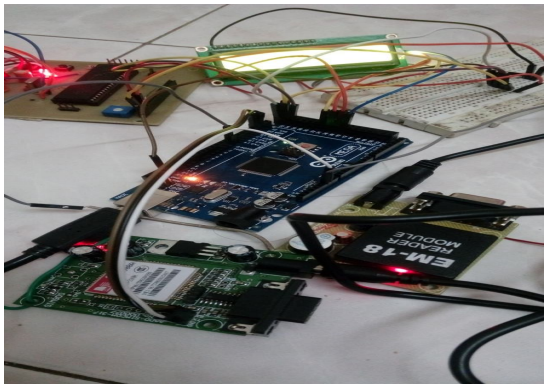


Arduino Mega 2560 is Microcontroller-ATmega2560. its Operating Voltage 5V and Input Voltage (recommended): 7-12V . it has Digital I/O Pins 54 (of which 14 provide PWM output) & Analog Input Pins 16 DC Current per I/O Pin 40 mA. Its DC Current for 3.3V Pin 50 mA .it has Flash Memory 256 KB of which 8 KB used by bootloader, SRAM 8 KB & EEPROM 4 KB.Clock Speed 16 MHz

RFID Module has Operating Voltage -5v & Current- <50mA with Read distance - 70cm. which has Operating frequency-125khz.

FSR402(Force Sensing Resistor) is in Range – up to 150kg(depends on the type) and its Response Time is less than 1.2ms .Power consumption is 0.4mA .it has High Signal-to-Noiseratio. Its Size(in cm) is 0.95*1.40*11 & Thickness is 0.02cm.

IV. WORKING



V. CONCLUSION

In this paper we have proposed concept design of wireless monitoring system. The motivation behind this research is to propose a relatively low cost solution to rider safety in helmet as a key for bike using RFID monitoring system. This system on successful deployment in the real world will help reduce the major accident to a greater extent. As this systems capable of security offence in real time will reduce the number of accidents and can easily track the culprit.

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