Accident Report System For Highway's Using GSM

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Abstract - We are sending information about vehicle accident by using RF communication with the help of microcontroller .This proto type report is developed for identifying the accident in order to have first hand information to either relatives or the police can be immediately informed incase of accident. With the help of this paper we can help a person who has undergone accident and can be helped to recover by identifying accident through this module. At the same time the information may be transmitted to get catch hold of the victim who is responsible for that accident. Thus, helping the police dept in this regard too. In this paper we are using a H-bridge circuit to drive the motor, and where has on receiver side we will get information about accident of a vehicle .Here the accident information displayed on LCD and a buzzer at this section will give a sound whenever accident occurs .In these two process we are using microcontroller which process the data and it will send to the other section at RF communication.

I. INTRODUCTION

A microcontroller is a compact integrated circuit designed to govern a specific operation in an embedded system. A typical microcontroller includes a processor, memory and input/output (I/O) peripherals on a single chip.
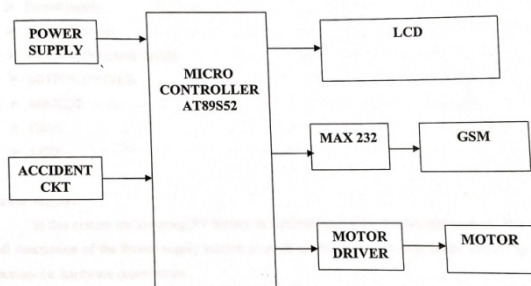

Fig.1. Block diagram of RF communication

Embedded systems are designed to do some specific task rather than be a general purpose computer for multiple tasks .communications refers to the sending, receiving and processing of information by electric means radio communication became the most widely used and refined through the invention of and use of transistor, integtated circuit, and other semiconductor devices .most recently, the use of satellites and fiber optics has made communication even more wide spread ,with an increasing emphasis on computer and other data communications .these embedded communications devices will be integrated into applications ranging from homeland security to industry automation and monitoring. they will also enable custom tailored engineering solutions ,creating a revolutionary way of disseminating and process information.

In power supply system we are using 9V battery as a power supply for Transmitter section .the full description of the power supply section is given in this documentation in the following sections i.e .hardware components. motor section is used to move the vehicle .two motors are placed in the vehicle to run the wheels on both sides and to direct the vehicle in its moment .In the power supply system we are using 5V power supply for microcontroller of Transmitter sections well as receiver section .We use rectifiers for converting the A.C. into D.C and a step down transformer to step down the voltage .the full description of the power supply section is given in this documentation in the following sections i.e. hardware components.

In this paper microcontroller plays a major role in guiding the received data that is received from RF decoder and here based on it ,direction of robot is controlled.

GSM consists in the section of modem .the modem will communicate with microcontroller using serial communication. the modem is interfaced to microcontroller using MAX 232.a serial driver.

The microcontroller can communicate with the serial devices using its single serial port. The logic levels at which this serial port operates is TTL logics. But some of the serial devices operate at RS 232 logic levels .for example PC and GSM etc .so in order to communicate the microcontroller with either GSM modem or PC, a mismatch, in other words the logic levels ,a serial driver is used .and MAX 232 is a serial line driver used to establish communication between microcontroller and pc.

II.PROPOSED METHOD

In this paper we are using voltage for microcontroller 89S52 is 5V.hence the 5V D.C. power supply is needed for the IC"s. This regulated 5V is generated by stepping down the voltage from 230V to 18V now the step downed a.c voltage is being rectified by the bridge rectifier using 1N4007 diodes. The rectified a.c voltage is now filtered

using a 'C' filter. Now the rectified filtered D.C. voltage is fed to the voltage regulator. This voltage regulator allows us to have a regulated constant voltage which is of +5.the rectified filter and regulated voltage is again filtered for ripples using an electrolytic capacitor 100F.Now the output of section is fed to 40th pin of 89S52 microcontroller to supply operating voltage .the microcontroller 89S52 with pull up resistors at port0 and crystal oscillator of 11.0592MHz crystal in conjunction with couple of 30-33pf capacitors is placed at 18th&19th pins of 89S52 to make work properly In the vehicle section an accident switch is paced ,when ever accident occurs the information is transmitted to control section .the vehicle section having RF transmitter in it ,by which information is passed wirelessly. In the monitoring section RF module is placed which receives the data from the RF transmitter .A buzzer is placed in this section and it will be on whenever accident occurs and also displayed in the LCD.

2.2 GSM

Global system for mobile communication is asset of ETSI standards specifying the infrastructure for a digital cellular service. When a mobile subscriber roams into a new location area the VLR automatically determines that must update the HLR with new location information, which is does using anSS7 location update request message. The location update message is touted to HLR through the SS7 network ,based on global title translation of the UMSI that is stored within the SCCP Called party address portion of the message .When a user dials a GSM mobile subscriber's MSISDN ,the PSTN routes the call to the home MSC based on the dialed telephone number .The MSC must then query the HLR based on the MSISDN ,to attain routing information required to route the call to the subscriber's current location .The HLR generates a response message ,which includes the MSRN ,and sends it back across the SS7network to the MSC. finally the MSC attempts to complete the call using the MSRN provided.GSM uses a variation at Time Division Multiple access and it is the most widely used of the three digital wireless telephone technologies.GSM operates in the 900MHz, or 1900 MHz frequency bands.
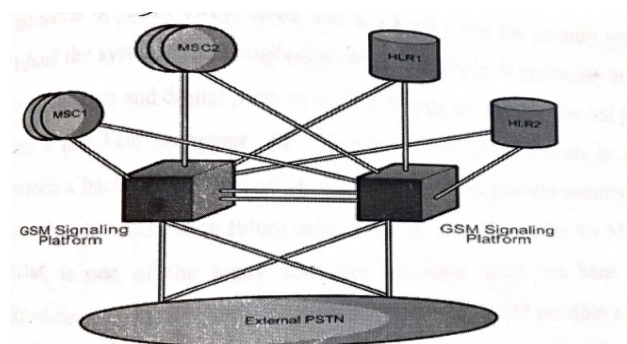

Fig. 2.1 GSM communication System

II. PREVIOUS WORK

A GSM modem can be an external modem device ,such as the wave com FASTRACK modem .Insert a GSM SIM card into this modem, and connect the modem to an available serial port on your computer. The GSM modem can be customized to various applications by using the standard AT commands. The modem is fully type-approved and can directly be integrated into your projects with any or all the features of Voice, Fax, SMS, and Internet etc.
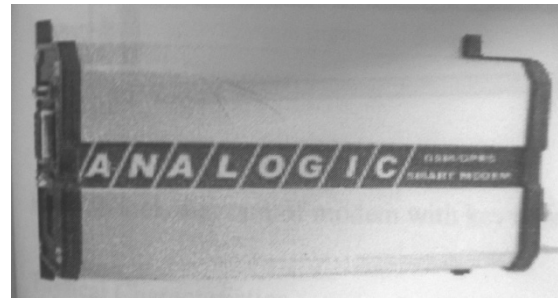

Fig .2.2.GSM smart modem

We are using the D.C supply connection. The modem will automatically turn ON when connection is given to it. The following is the power supply recruitment. Power supply using here D.C power.

TABLE 1.POWER SUPPLY CONNECTIONS

Parameters	MIN	Avg	Max
Supply Voltage	5V	9V	12V
Peak current at 5V supply	0.5V	1.5V	1.8 A (during transmission)
Average Current at 5V supply in idle mode	Constant	Constant	35mA
RS232 Power Saving activated	idle	Idle	13mA

Here we are using DC motors are configured in many types and sizes ,including brush less ,servo, and gear motor types. A motor consists of a rotor permanent magnetic field stator. The magnetic field is maintained using either permanent magnets or electromagnetic windings. DC motors are most commonly used in variable speed torque. Every DC motor has six basic parts ,they are axle ,rotor, stator, commutator ,field magnets and brushes. In the most common DC motors the external magnetic field is produced by high-strength permanent magnets. The stator is the stationary part of the motor .this includes the motor casing ,as well as two or more permanent magnet pole pieces. The rotar rotates with respect to the stator . The rotar consists of windings ,the windings being electrically connected to the   commutator. The below diagram shows a common motor layout with the rotor inside the stator magnets. The geometry of the brushes ,

commutator contacts and windings are such that when power is applied, the polarities of the energiged windings and the stator magnets are misaligned, and the rotar will rotate until it is almost aligned with the stator's field magnets. As the rotor reaches alignment, the brushes move to the next commutator contacts ,and energize the next winding, for example two-pole motor ,the rotation reverses the direction of current through thre rotor winding ,leading to a "flip" of the rotor's magnetic field ,and driving it to continue rotating. DC motors will always have more than two poles .
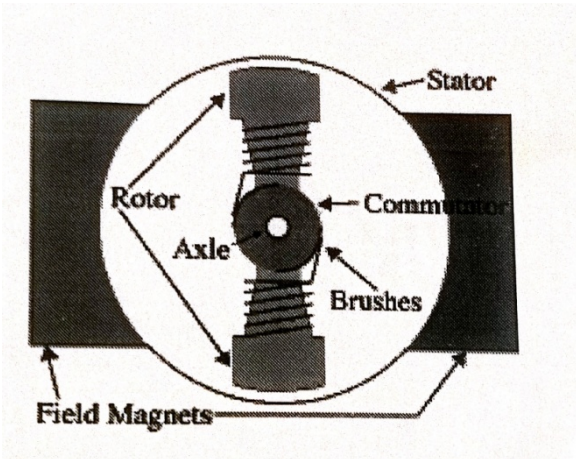

Fig.2.3 DC Motor

III. CONCLUSION

The Paper "ACCIDENT REPORT SYSTEM FOR HIGH WAYS USING GSM" has been successfully designed and tested. Integrating features of all the hardware components used have developed it. Presence of every module has been reasoned out and placed carefully thus contributing to the best working of the unit .Secondly using highly advanced IC's and with the help of growing technology the project has been successfully implemented.

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