

AUTOMATIC GEO-POSITIONING AND SMS ALERTS ON ROAD TRAFFIC DENSITY

The project aims in designing an embedded system which automatically indicates the traffic density to the vehicles using GSM technology. This system uses sensors that sense the traffic density and sends the information to the vehicles that are within few kilometers using GSM modem. The density is displayed on LCD which is present in the vehicle and intimates to take the diversion.

GPS is the acronym for Global Positioning System. It is employed to find the position, velocity, time of anything on the earth. This information is provided by the GPS receiver with the help of the data it receives from the satellites.

The GSM modem provides the communication mechanism between the user and the microcontroller system by means of SMS messages.

The controlling module of the whole system is a Microcontroller. This system makes of two Microcontrollers one at signal point and other in the vehicle of the user. Vehicle density sensor and GSM modem are interfaced to the Microcontroller. The Microcontroller gets input from Vehicle density sensor and this data is processed and sends vehicle density to user system in the vehicle upon a request. The position of the vehicle is given through GPS receiver which is interfaced to the controller present in the vehicle. The Microcontroller in the vehicle checks the location and sends an SMS through a GSM modem interfaced to signal point number of that location where by it gets the vehicle density through back SMS, which is displayed on the LCD present in the vehicle. Also, if density is high it indicates to take a diversion. The Microcontrollers are programmed using Embedded C programming.

The major features of this project are:

1. GSM data transmission.
2. Alerting the people inside the vehicle about the traffic condition.
3. Automatic message alerts to the remotely present vehicles.
4. Location based instantaneous traffic density alerts.
5. Ultrasonic traffic density sensing system.

This project provides us learning's on the following advancements:

1. RS232 protocol interfacing.
2. Interfacing of GSM modem with microcontroller.
3. Interfacing of GPS receiver with microcontroller.
4. Ultrasonic sensor interfacing.
5. LCD display interfacing.
6. Embedded C programming.
7. PCB design.

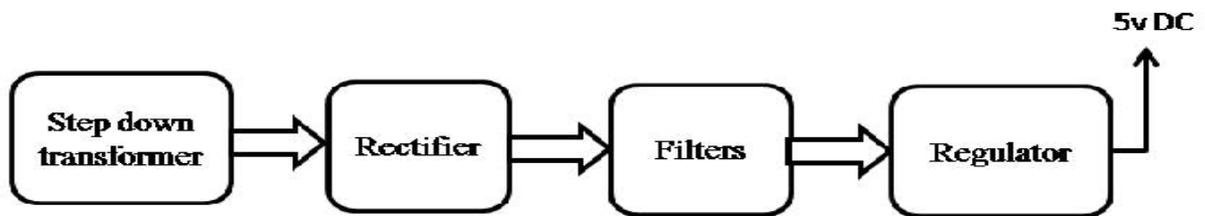
The major building blocks of this project are:

1. Regulated Power Supply.
2. Global Positioning System (GPS Receiver).
3. 2 GSM modems.
4. Vehicle density sensor..
5. Micro controller.
6. Vehicle density sensor
7. LCD display with driver.
8. Crystal oscillator.
9. LED indicators.
10. Reset

Software's used:

1. PIC-C compiler for Embedded C programming.
2. PIC kit 2 programmer for dumping code into Micro controller.
3. Express SCH for Circuit design.
4. Proteus for hardware simulation.

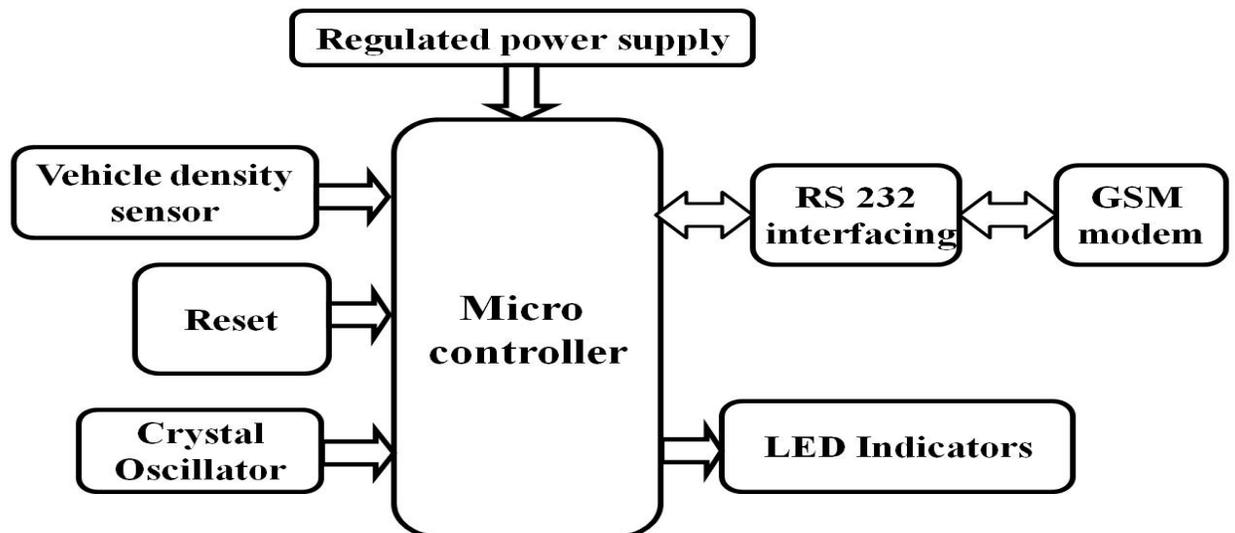
Regulated Power Supply:



Block diagram:

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1. At Signal



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2. In Vehicle

