Centralized Smart Road Transport Automation Using Radio Communication and Identification

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ABSTRACT:

In the era of fast development and knowledge where the whole thing wants to be automatically controlled and activated, there are even now some of the places where automation has not enter in a foremost method. Generally our method is to stop a vehicle and to collect the price at toll gate at highway. This involves lot human being strength and in addition to that there will be a lot misuse of time. We are going to offer an answer for this trouble using RF skill.

We are using RFID cards to keep the information of vehicles and in addition to that regarding the prepaid money which will be deduct at toll gate. An IR sensor which should be located to recognize the coming of the vehicles and whenever card is given to reader then it deduct the money in addition to that a SMS will be send using GSM modem interface to controller.

At the further End it receives the message and display information on 16X2 LCD. We are using LPC2148 as controller and also it acts as master to all modules linked. A keypad is interface to the regulator to enter the quantity of the fuel, then fuel is given through the relay.

This plan uses synchronized 3.3V, 750mA power supply. 7805 3 terminal voltage controller is used to voltage regulation. Link kind complete wave rectifier is used to correct the ac output of the secondary of 230/12V step down transformer.
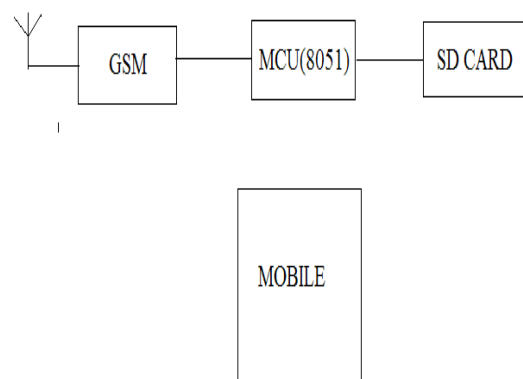
We are with this plan for multi-use such as sense of vehicles through IR sensors, prepaid toll due amount through RFID, sends SMS aware through GSM modem in addition with getting the fuel.

I.Block diagram:

Transmitter:
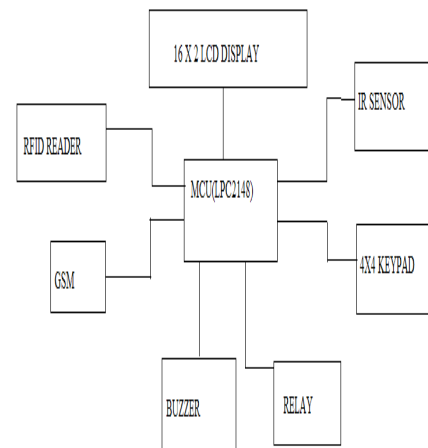
Receiver:

II.Hardware requirements:
AT89S52 MICROCONTROLLER:

The AT89S52 is a low-power, high-performance CMOS 8-bit microcontroller by means of 8K bytes of in-system programmable Flash recollection.

The device is manufactured using Atmel's high-density nonvolatile recollection skill and is well-matched with the manufacturing-standard 80C51 instruction set and pin out.

A.LPC2148:

Key features:

» 16-bit/32-bit ARM7TDMI-S microcontroller in a small LQFP64 package.
» 8 kB to 40 kB of on-chip static RAM and 32 kB to 512 kB of on-chip flash recollection.
» 128-bit wide interface enable high-speed 60 MHz process.

In System Programming by on-chip boot loader:

» Software. 1 flash division or full chip remove in 400 ms and programming of 256 bytes in 1 ms.
» Embedded ICE RT in addition with embedded copy interface present real-time debugging with the On-chip Real Monitor software and high-speed trace of instruction implementation.
» USB 2.0 Full-speed obedient device regulator with 2 kB of endpoint RAM.
» The LPC2146/48 supplies 8 kB of on-chip RAM easy to get to USB by DMA.
» 1 or 2 (LPC2141/42 vs. LPC2144/46/48) 10-bit ADCs supply a sum of 6/14 analog inputs, among exchange period as low as 2.44 µs per channel.
» One 10-bit DAC supplies variable analog output.
» Two 32-bit timers' event counters.
» Processor wake-up from Power-down mode by means of outside interrupt.
» Single power supplies chip by means of POR and BOD circuits.
» CPU process voltage variety of 3.0 V to 3.6 V (3.3 V ± 10 %) by means of 5 V liberal.

.RFID:

Radio-frequency identification (RFID) is utilize a wireless non-contact system which use radio-frequency electromagnetic fields to transmit data from a tag attach to thing, for the purpose of automatic recognition and tracking. A few tags needs no battery and are powered by electromagnetic fields used to study them. Others use a limited power basis and produce radio waves.

MODEM SPECIFICATIONS:

The SIM300 is whole Tri-band GSM answer in dense plug-in component. Featuring a industry-standard interface, the SIM300 carries GSM/GPRS900/1800/1900Mhz performance meant for voice, SMS, data and Fax in little type thing and with small control use.

The most important features of SIM300 build it deal fir almost infinite function, such as WLL applications, M2M application, handheld plans and a lot more.

1.Three-band GSM/GPRS unit by means of a size of 40x33x2.85.

2.Modified MMI and also keypad/LCD support.

3.An embedded controlling TCP/IP set of rules load.

4.Based upon grown-up and ground established stand, backed up by our maintain repair, from explanation to plan and making.

B.IR sensor:

IR reflects sensors include a corresponding infrared transmitter and receiver pair. These plans works by measuring the quantity of brightness that is reflected into receiver. Since receiver too respond to ambient light, the device works finest when fine shield from ambient light, and when the space among the sensor and reflective plane is little.

IR reflects sensors frequently used to identify white and black planes. White planes usually reveal fine, at the same time as black planes reflects badly. Individual of such applications is line up follower of automaton.

Advantages:

• Human being effort is minimized.

• Corruption can be avoided.

• Attentive messages to mobile phone for remote information.

Applications:

• Toll gates.

• No Parking

• Signal Jump.

• Petrol bunks.

• Drink and Drive.

Conclusion:

This scheme presents implementation of "Centralized smart road transport automation using radio communication and identification". Investigational effort has been carried out carefully using LPC2148 microcontroller.

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