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Route Clearance for Ambulance and Stolen Vehicle Detection

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Abstract: This paper presents an intelligent traffic control system to pass emergency vehicle smoothly .For implementing this we are using RFID tags and reader. By using this method the main advantage is that when the vehicle is stolen by someone then the buzzer will alerts us we are in a short distance then we can easily identifies the person who was stolen the vehicle. We are present in long distance from the vehicle then the person who was stolen our vehicle then after he starts to run the vehicle then the motor will starts then it sends the message to our mobile phones and it also sends the location of vehicle to us. Then we can alerts to see that message and we can send the message to stop our vehicle. It counts the vehicles travelling through a path regularly within a specified time based on this we can determine the congestion. If the congestion happens then it automatically gives green light for the clearance of the path. If RFID tag belongs to the stolen vehicle then a message was send to the mobile phone using the GSM SIM300.In addition to this an ambulance approaching the junction then information was sent to the traffic controller in the junction. This is done by the observing the vehicles in the path if ambulance is detected then the information is sent to traffic controller an immediately green light is given for that path.
Keywords : Ardunio Uno,RFID Reader, RFID tags, GSM Module, GPRS Module, Touch Sensor, Buzzer

I.   INTRODUCTION

The main aim of the project is to reduce the traffic control. Intelligent traffic control can reduce the negative impact of congestion. Ambulance encounters the traffic jam in the route, the driver is provided with the remote to control the traffic signals. The particular signal is made GREEN from sometime and after the ambulance passes by, it again regains its original flow of sequence of signaling. Technologies like Buzzer, RFID READER, GSM, RFID TAG, GPRS, be used in traffic control to provide cost effective solutions. RFID is a wireless technology that uses the radio frequency electromagnetic energy to carry the information between the RFID tags and RFID reader. In view of automobile anti-theft systems mostly used static real time detection and buzzer at present, in the paper we design an automobile anti-theft system based on GSM and GPS module. Automobile location the module integrated in anti-theft system. The system can keep in touch with automobile owner through the GSM module, to monitor safety and reliability of automobile.

II.   LITERATURE SURVEY

In the present society the traffic congestion is the major problem in the most developing cities. Growth in the population leads to the more traffic on the roads. For over coming this issue the green wave technique was implemented which is used to provide traffic clearance for the emergency vehicles like Ambulance. The green wave passes through the traffic lights then it provides the clearance for the vehicle through the road down .If the green wave gets disturbed it results for the traffic issues. The RFID technique is used for the multipaths, multi road junctions. It is very effective time management system which will help for the clearance of the traffic .the clearance is based on some calculations and some judgements but the results are not up to the mark. for implementing the correct methods and to acquire good results we should have a great distinguish between the emergency and non emergency cases which helps to prevent the unnecessary traffic congestion. The major disadvantage of this system is that it require the starting and ending point of the emergency vehicle. if the vehicle changes its path for any reason it may not work properly.

III.   PROPOSED STRATEGY

For solving the problem of the traffic the existing methods are insufficient for handling the problems related to the traffic congestion ,clearance for the emergency vehicles and for the stolen vehicle detection . For this we are proposing a model. It mainly comprises of three applications. The first application is to grant the automatic lights. For this each vehicle is embedded with a RFID tag .When a Vehicle is reached the RFID reader .The RFID reader track the vehicle count through the specified path in specified time with this the congestion gets determined. With respect to this it switch on the green light for the path up to a time which can be calculated based on the congestion. The second application deals with the clearance of the traffic for the emergency vehicles like Ambulance .To perform

this activity we use the technique which is stated above as we said that each vehicle is equipped with a RFID tags for the emergency vehicle we should provide special tags to distinguish them from the normal vehicles.As same process if that vehicle reaches the range of the reader it provides the green light for the path clearance for that vehicle(Ambulance).In the last application it is to handle the cases of the stolen vehicles it can done by the technique that we fix a touch sensor for vehicle if anybody touches the vehicle it gives buzzer for a while after that anybody tries to stole our vehicle . A message is immediately sent to the number specified in the GSM module which is placed in our model along with that the GPRS module will sent the location to the same number to which the message was sent already.We can stop the vehicle by sending a reply for the message which we received previously. Once the message is delivered then the vehicle gets stopped.

A.   Arduino Uno Board

The ARDUINO UNO is a widely used open source microcontroller board based on the ATmega 328 Microcontroller and developed by Arduino.The boards are equipped with sets of digital and analog I/O pins that may be interfaced to various expansion boards and other circuits. It has 14 digital input/output pins, 6 analog inputs, a 16 MHZ crystal oscillator. Features of ARDUINO UNO is

1)   Microcontroller: ATmega328
2)   Operating voltage: 5v
3)   Input voltage (limits):6-20v
4)   Input voltage (recommended):7-12v
5)   Digital I/O Pins: 14
6)   Analog Input Pins: 6
7)   DC Current per I/O Pin: 40mA
8)   DC Current for 3.3V Pin: 50Ma

B.   Rfid Reader

An RFID Reader also called an interrogator is device that can wirelessly communicate with RFID tags. It can detect the presence of RFID tags as well as send and receive data and commands from the RFID tags. A radio frequency identification system tags or labels attached to the objects to be identified. Two way radio transmitter receivers called interrogators or readers send a signal to the tag and read its response.

C.   Rfid Tags

RFID tag is an ID system that uses small radio frequency identification devices for identification and tracking purposes. RFID tag system includes the tag itself, a read/write device, and a host system application for data collection, processing, and transmission. RFID tag contains their own power source are known as active tags. Those without a power source are known as passive tags. RFID tag is used in supply chain management as an alternative to bar code technology. Althotugh more expensive to use than the bar code stickers.

D. Gps Module

A Global Positioning System, also known as GSP, in a system designed to help navigate on a Earth, in the air and on water. A GPS receiver shows how fast it is moving, which direction it is going, how high it is, and maybe how fast it is going up or down. Many GPS receivers have information about places. GPS for automobiles have travel data like roadmaps, hotels and service stations. Many GPS receivers can record where they been and help to plan a journey.

E. Gsm Module

Global System for Mobile Communication an open and digital cellular technology used for transmitting mobile voice and data service operates at the 850MHz,900MHz,1800MHz and 1900MHz frequency bands. GSM system was developed as a digital system using time division multiple access technique for communication purpose. The GSM specifications define the functions and interface requirements in detail but do not address the hardware. The GSM network is divided into three major systems; the switching system, the base station system, and operating and support system.

F. LED

A Light Emitting Diode (LED) is a two lead semiconductor light source. It is a p-n junction diode that emits light when activated. When a suitable current is applied to the leads, electrons are able to recombine with electron holes within the device, releasing energy in the form of photons. This effect is called electroluminescence, and the color of the light is determined by the energy band gap of the semiconductor .Infrared LEDs are still frequently used as transmitting elements in remort controls for a wide variety of consumer electronics.

G. Liquid Crystal Display (Lcd)

LCD (Liquid Crystal Display) screen is a electronic display and find a liberal range of applications. A 16x2 LCD display is very principal module and is most frequently used in various devices and circuits. These modules are popular over seven segments and other multi segment LEDs. The LCD's are more cost effective, quickly programmable and very much usable to clearly display the special characters (unlike in seven segment, animations and so on). A 16x2 LCD means it can display 16 characters per line and there are two such lines.

FIG: Liquid Crystal Display (LCD)

IV. CONCLUSION

In this paper we are proposing 3 applications that are as follows

A. Checking the Density and clearing the Traffic Congestio
B. Providing the clear way for the emergency vehicles for their smooth flow like ambulance, police vehicle, VIP vehicles e.t.
C. Method for tracking the stolen vehicle using GSM and GPRS modules

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