



A TRAFFIC INDICATION AND ALARMING SYSTEM FOR TRACKING AUTOMOBILES

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ABSTRACT:

Everyone vehicle is outfitted with special RF identification (RFID) tag (put in a highly effective location), that makes it impossible to get rid of or destroy. We use RFID readers, NSK EDK-125-TTL, and PIC16F877A system-on-chip to look for the RFID tags connected to the vehicle. This paper presents a great traffic control system to give emergency automobiles easily. It counts amount of automobiles that passes round the particular path inside a specified duration. In addition, it determines the network congestion, and so the eco-friendly light duration for that path. The prototype was examined under different mixtures of inputs within our wireless communication laboratory and experimental effects put together unsurprisingly. When the RFID-tag-read applies to the stolen vehicle, an email is distributed using GSM SIM300 for that police control room. In addition, when an ambulance is approaching the junction, it'll communicate for that traffic controller within the junction to demonstrate across the eco-friendly light. This module uses ZigBee modules on CC2500 and PIC16F877A system-on-chip for wireless communications relating to the ambulance and traffic controller.

Keywords: *ZigBee, GSM, ambulance vehicle, stolen vehicle, congestion control, traffic junction.*

1. INTRODUCTION:

Also, Indian visitors are non-lane based and chaotic. It requires a traffic control solutions, which aren't the same as the developed Nations. Intelligent control over traffic flows can help to eliminate the negative impact of congestion. Recently, wireless systems are broadly utilized in the street transport because they provide less expensive options. India may be the second most populous Country on the planet and it is a quick growing economy. It's seeing terrible road congestion problems in the metropolitan areas. Infrastructure growth is slow as in comparison towards the development in quantity of automobiles, because of space and price constraints. Technologies like ZigBee, RFID and GSM may be used in traffic control to supply economical solutions. RFID is really a wireless technology that utilizes RF electromagnetic energy to hold information between your RFID tag and RFID readers [1]. Some RFID systems are only going to work inside the range inches or centimeters. A GSM modem is really a specialized kind of modem, which accepts a Sim and works on the subscription to some mobile operator, as being a cell phone. AT instructions are utilized to control modems. These

instructions originate from Hayes instructions which were utilized by the Hayes wise modems.

II. LITERATURE SURVEY

Traffic jam is an issue in metropolitan areas of developing Nations like India. Development in urban population and also the middle-class segment lead considerably towards the rising quantity of automobiles within the metropolitan areas. Congestion on streets eventually leads to slow moving traffic, which boosts the duration of travel, thus stands-out among the major issues in metropolitan areas. A 'green wave' may be the synchronization from the eco-friendly phase of traffic signals. Having a 'green wave' setup, an automobile passing via an eco-friendly signal is constantly receiving eco-friendly signals because it travels lower the street. Additionally towards the eco-friendly wave path, the machine will track a stolen vehicle if this goes through a traffic light. Benefit of the machine is the fact that Gps navigation within the vehicle doesn't need additional power. The greatest drawback to eco-friendly waves is the fact that, once the wave is disturbed, the disturbance may cause traffic problems that may be exacerbated through the

synchronization. In such instances, the queue of automobiles inside an eco-friendly wave develops in dimensions until it might be too big and a few of the automobiles cannot achieve the eco-friendly lights over time and should stop. The actual-time operation from the system emulates the judgment of the traffic policeman working. The amount of automobiles in every column and also the routing are proprieties, where the computations and also the choice are carried out. The drawback to the work is it doesn't discuss what techniques can be used for communication between your emergency vehicle and also the traffic signal controller. The main focus of the jobs are to lessen the delay in arrival from the ambulance towards the hospital by instantly clearing the lane, by which, ambulance is travelling, before it reaches the traffic signal. This is often accomplished by turning the traffic signal, within the road to the ambulance, to eco-friendly once the ambulance reaches a particular distance in the traffic junction. Using RFID differentiates between your emergency and non-emergency cases, thus stopping unnecessary traffic jam [2]. The communication between your ambulance and traffic signal publish is completed with the transceivers and Gps navigation. The

machine is fully automated and needs no human intervention in the traffic junctions. The drawback to this technique could it be needs all the details concerning the beginning point, finish reason for the travel. It might not work, when the ambulance must take another route for many reasons or maybe the beginning point isn't known ahead of time. Visitors are a vital issues of transportation system in first and foremost the metropolitan areas of Nations.

III. METHODOLOGY

In the current problem section, it may be observed that, existing technology is inadequate to handle problems of congestion control, emergency vehicle clearance, stolen vehicle recognition, etc. To resolve these complaints, we advise to apply our Intelligent Traffic Control System. It mainly includes three parts. First part consists of automatic signal control system. Here, each vehicle is outfitted by having an RFID tag. As it pertains in the plethora of RFID readers, it'll send the signal towards the RFID readers. The RFID readers will track the number of automobiles have undergone for any specific period and determines the congestion volume. Accordingly, it sets the eco-friendly light duration for your path.

Second part is perfect for the emergency vehicle clearance. Here, each emergency vehicle consists of ZigBee transmitter module and also the ZigBee receiver is going to be implemented in the traffic junction. The buzzer is going to be started up once the vehicle can be used for emergency purpose. This can send the signal with the ZigBee transmitter towards the ZigBee receiver. It'll make the traffic light to alter to eco-friendly. When the ambulance goes through, the receiver no more has got the ZigBee signal and also the traffic light is switched to red. The 3rd part accounts for stolen vehicle recognition. Here, once the RFID readers read the RFID tag, it compares it towards the listing of stolen RFIDs. If your match is located, it transmits SMS towards the police control room and changes the traffic light to red, so the vehicle is built to stay in the traffic junction and native police may take appropriate action. The CC2500 is really a RF module and it has Tran's receiver, which supplies a good way to make use of RF communication at 2.4 GHz. Every CC2500 is outfitted using the microcontroller, which consists of Unique Identification Number. This UIN is dependent on the number plate from the vehicle. Probably the most important

features are serial communication with no extra hardware with no extra coding. Hence, it's a Tran's receiver because it provides communication both in directions, only one direction. Other two pins are utilized to energize Tran's receiver. You can easily store and send UINs. In the junction, you can easily store many emergency automobiles. Before switching to eco-friendly, it ought to satisfy all of the conditions. Simple interrupt option provides the advantage like jump in one loop to a different loop. You can easily switch whenever. It consumes less power and works by vehicle battery itself with no extra hardware. Here, a GSM modem is associated with the microcontroller. This enables the pc to make use of the GSM modem to speak within the mobile network. These GSM modems are commonly accustomed to provide mobile Internet connectivity, most of them may also be used for delivering and receiving SMS and MMS messages. GSM modem must support an "extended AT command set" for delivering/receiving SMS messages. GSM modems are an inexpensive solution for receiving SMS messages, since the sender has to pay for that message delivery. Rf Identification (RFID) is definitely an IT

system that transmits signals without worrying about physical devices in wireless communication. It's categorized under automatic identification technology that is well-established protocol [3]. The significant of the RFID system really is easy. The machine utilizes tags that are affixed to various components to become monitored. The tags store information and data in regards to the particulars from the product of products to become tracked. The reader's reads radio stations frequency and identifies the tags. The antenna offers the method for the integrated circuit to deliver its information towards the readers. There are two kinds of RFID groups, passive and active tags. The tags that don't utilize power are known to as passive and they're driven by an antenna that allows the tag to get electromagnetic waves from the readers. On the other hand, active tags depend on power and they've built-in power sources which allow it to transmit and receive signals from RFID readers. RFID range is dependent on transmit power; receive sensitivity and efficiency, antenna, frequency, tag orientations, surroundings.

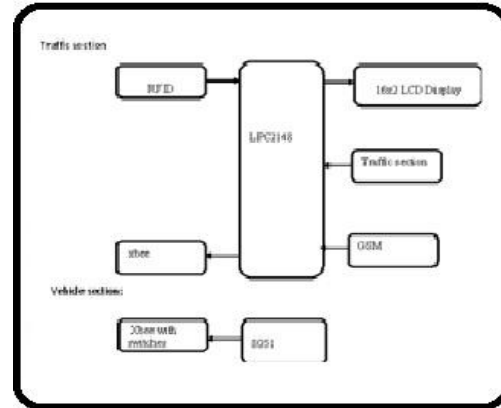


Fig.1. Block Diagram of Traffic system

III. IMPLEMENTATION

During this module, for experiment purpose, we've used passive RFID tags and RFID readers with frequency 125 KHz. RFID tag. For testing purpose, we compare the very first RFID tag feel the RFID readers for that stolen RFIDs stored inside the machine [4]. In situation your match can be found, your traffic signals immediately switched to red for almost any period of a couple of seconds. The Live view display screen will indicate that stolen vehicle exists. During this module, there's two parts, first part that's ZigBee transmitter lies within the emergency vehicle. Once the switch is pressed, it'll transmit the signal. The signal includes unique id as well as the three. The transmitter includes PIC16F877A microcontroller and ZigBee module. The microcontroller transmits the instructions

and understanding for that ZigBee via serial communication. Second part may be the receiver that's placed at traffic pole. The receiver blogs in regards to the three received for that three present in its database. Whether it matches, it'll turn the eco-friendly light on. For testing purpose, we used short range RFID readers within our prototype. First, the receiver part is began up. The red and eco-friendly signal will most likely perform for 10-seconds duration and orange light will most likely perform for 2 primary seconds duration individually. Next, we bring the RFID of stolen vehicle into all of the different RFID readers. Your signal uses red for period of a couple of seconds along with a SMS is received. Thirdly, we bring 12 RFIDs into all of the different RFID readers, therefore the eco-friendly light duration can transform to some couple of seconds.

IV. CONCLUSION

Because the entire technique is automated, it takes very less human intervention. With stolen vehicle recognition, the signal instantly turns to red, and so the officer usually takes appropriate action, if he/she's within the junction. With automatic traffic signal control while using traffic density

within the route, the manual effort for your traffic policeman is saved. Also SMS will most likely be sent to be able to prepare capture the stolen vehicle over the following possible junctions. Emergency automobiles like ambulance, fire trucks, have to achieve their locations as rapidly as you possibly can. After they spend time and effort in traffic problems, precious lives of countless people might have been at risk. With emergency vehicle clearance, the traffic signal turns to eco-friendly as extended because the emergency vehicle delays within the traffic junction. Also Gps navigation might be offer the stolen vehicle recognition module, and so the exact site of stolen vehicle is famous. Presently, we've implemented system by thinking about one road within the traffic junction. It may be enhanced by stretching to everyone the roads within the multi-road junction. The signal turns to red, following a emergency vehicle encounters. Further enhancements can be done for that prototype by testing it with longer range RFID visitors.

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