

SMART TRAFFIC SURVEILLANCE SYSTEM

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Abstract- Traffic surveillance system is an emerging need to manage the traffic efficiently. In this paper we have proposed a Smart Traffic System which uses NFC technology to pass the emergency vehicles smoothly and to avoid corruption. This smart traffic system technique is based on the density of the vehicles in each side of the traffic signal. Radio Frequency Identification (RFID) tag is placed in each vehicle and the RFID reader is placed over the signal poles. It identifies the traffic congestion i.e. density of the vehicles is counted and accordingly the signals are displayed while taking into consideration of emergency vehicles. The stolen vehicle is detected by matching the RFID tag of the vehicle passing through traffic pole and that of the stolen vehicle, if they match a message is sent to the nearby police station using GSM module. As the vehicle passes through the traffic pole we can check whether if its insurance is updated and whether does it have any penalties to be paid off.

Keyword-RFID Reader, 16×2 LCD Display, GSM, LED'S and ARM7 Microcontroller.

I. INTRODUCTION

As now a population is increasing in huge range in metro cities. As the population increases it is mainly effecting the traffic control system. By implementing this system we intend to automatically control traffic system. Here vehicles are detected by using NFC communication. The vehicle consists of RFID tag and the traffic signal pole consists of RFID reader. The congestion control is done based on the density of vehicles in a road lane. This system is very useful for clearing the signals for ambulance so that we can life of patient. This system is useful in taking the stepstowards improving Tracking & Monitoring of vehicles travelling in establishing the routes. Here, this computerized system automatically identifies the vehicles as they pass through the signal pole and it records the Vehicle's details and checks if it insurance is updated, any penalties to be paid off and it also detects whether it is a theft vehicle.

II. LITERATURE SURVEY

A. IOT using wireless sensor networks.

Traffic Control by Bluetooth Enabled Mobile Phone [1] is aimed at conferring an application which makes use of Bluetooth enabled mobile phone to remote control traffic signals connected to the personal computer. It is used to control other computer applications such as Emergency and road maps. It is a client-server based application which makes use of java.

Urban Traffic Management using wireless sensor networks [2], it used technique which was based on priority for emergency vehicles and cut the average waiting time of vehicles at intersection. The monitoring of real time traffic was done using WSNs, RFIDs, Zig Bee, Bluetooth devices, cameras and infrared signals. This paper presents survey of current urban traffic management schemes for priority based signalling and reducing the congestion and AWT of vehicles.

Intelligent Traffic Signal and Vehicle Tracking System with Short-range Field Communication (SRFC) [3] this system Implemented an Intelligent Traffic Control for Congestion, Ambulance clearance, and Stolen Vehicle Detection. The system also updates the traffic information on internet which is helpful to the travellers and traffic control department and technologies like zigbee, RFID, GSM can used in this system.

B. Congestion control and Auto clearance.

Advanced Traffic Signal Control System for Congestion Control [4] used a technique which is based on the queue length of the vehicles in the road lane. RFID tag was placed inside of each vehicle, RFID reader, NSK-EDK-125-TTL and PIC16F8 are the other equipment that were used for congestion control. The vehicles were counted and accordingly the traffic signal light was displayed based on the density of vehicles at the intersection.

A Smart Traffic management System for Congestion Control and Warnings Using Internet of Things [5], it used an internet of things for traffic controlling system which also gives priority to emergency vehicles. it used cloud computing technology to store data on the internet which give continuous update so that it can handle traffic smoothly.

Density based Signal Management in Traffic System [6] this system deals with traffic load in each side of lane during high density traffic on road at specific time. If the traffic gets an increasing on other side of lane then, the vehicles on other side those arrived first as compared to others have to wait. In this system use different sensor like WSN, zig bee ext.

RFID and GPS based automatic lane clearance system [7], In this system reducing the delay in arrival of ambulance was achieved by turning the traffic signal, in the path of the ambulance, to green when the ambulance is at a certain distance from the traffic junction. The use of RFID distinguished between the emergency and non-emergency cases. The communication between the ambulance and the traffic signal post is success through transceivers and GPS.

C. Stolen vehicle detection

Automated Toll collection System using NFC and Theft vehicle Detection [8], In this, NFC tag will be placed by toll authority having unique identification number and user details. Active NFC tag will be attached to registration book. When vehicle passes through the tollbooth system, data on the NFC tag will be read by the NFC reader and also this information is sent to the server for verification. Server will check details and toll amount will be deducted from the user account.

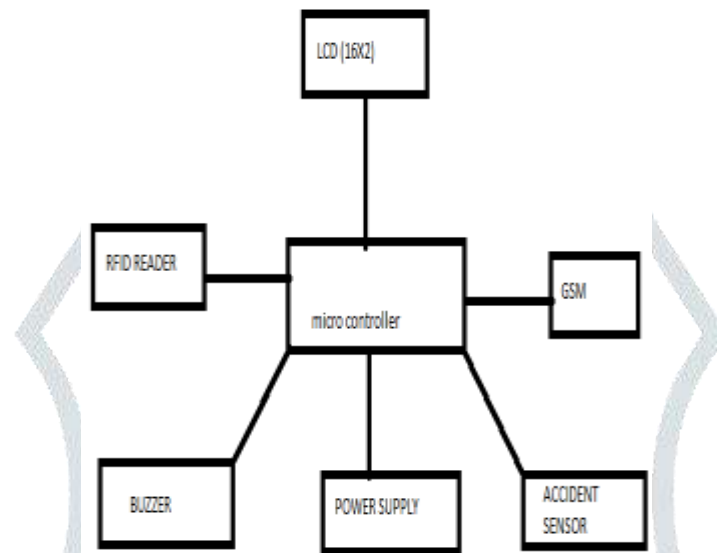
Bangalore Traffic Police-Preparing for the Future (Online) [9], The RFID tags were scanned by using the RFID scanner, NSK EDK-125-TTL and ARM7 LPC2148 microcontroller. If the RFID tag belonging to any stolen vehicle is identified by the RFID scanner at traffic signal junction, then the respective way will be blocked and also a SMS was sent to theowner as well as the police control room by using the GSM SIM900 regarding the location of identified stolen vehicle.

D. Emergency vehicle clearance.

Automatic Ambulance ecosystem” [10], in this system each vehicle was equipped with the RFID tag which cannot be removed or destroyed. When the emergency vehicle reached the junction point the RFID reader read the signals and shows a green wave so that it can move smoothly without any jam. Automatically when the emergency crosses the signal point the signal got changed. This was done by considering the multi road junction point. Components that were used in this system are - RFID Reader, 16×2 LCDDisplay, SIM300,LED’S,ATMEGA328Microcontroller, RF Receiver, transmitter Module.

IV. PROPOSED SYSTEM

The aim of our project is to a make a smart traffic system which automatically performs congestion control, ambulance clearance, and theft vehicle detection and Corruption avoidance. The RFID tag is placed inside of each vehicle and the RFID reader on the traffic pole. Using UART protocol we make communication between the hardware devices. We use GSM to intimate the owner of the stolen vehicle that their vehicle is detected at particular location. We have implemented an attractive feature that is if the vehicle meets with any accident in city limits or in highways then, at that moment it gets hit from any object the information of it will be sent to the nearby police station.



V. CONCLUSION

The proposed smart traffic system consists of a traffic light controller that manages the traffic light of a plus junction. The system is capable of detecting the traffic density using RFID technology. Based on this information, the congestion is controlled. The designed system is implemented, realized electronically, and tested to ensure complete validation of its operations and functions. In future the current design can be promoted by monitoring and controlling an intersection with double roads.

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