Advanced Centralised Rto

Arati Singh, Sachin Pandey

Abstract: Advanced Centralized RTO is a project in which the traffic is regulated depending on the vehicle density .It also consists of detecting those vehicles which break the signal and the message will go to owner that he has break signal and suppose to pay fine within limited interval of time. In case if fine is not paid then petrol tank will automatically get locked. For tracking vehicle density there will be 16 sensors on 4 way road such that 4 sensors on each road. If sensor one detects the vehicle then the signal will be on for minimum time and if all 4 sensors detects vehicles then signal will be on for already set maximum time. It can be further used to collect toll tax automatically, Reduce bribery among traffic personnel, To keep track of vehicles violating speed limits, Car theft can be easily found out, Exact location of car can be detected if GPS is installed.

Index Terms: Congestion, Dedicated short range, Solenoide, RYG, FUZZY Mode, Normal Mode

I. INTRODUCTION

Nowadays there are various technique available which helps to monitor and control the traffic. In most of the countries there are no provisions for controlling the Traffic signal in a smart way. There are many countries which have a technique which employs some system to control this traffic. There are many different techniques which uses Image Processing technique to obtain the information about the density of the Car for the area under surveillance and then using some special algorithm to handle the traffic signal. In this the paper the Advanced Centralization RTO technique is discussed and a working model for the provided idea is presented. The term Advanced Centralized RTO refers to information and communication technology (applied to transport infrastructure and vehicles) that improve transport outcomes such as transport safety, transport productivity, travel reliability, informed travel choices, social equity, environmental performance and network operation resilience.

II. NEED OF ADVACED CENTRALIZED RTO SYSTEM

Interest in ITS co Advanced Centralized RTO comes from the problems caused by traffic congestion and a synergy of new information technology for simulation, real-time control, and communications networks. Traffic congestion has been increasing worldwide as a result of increased motorization, urbanization, population growth, and changes in population density. Congestion reduces efficiency of transportation infrastructure and increases travel time, air pollution, and fuel consumption In the developing world, the migration of people from rural to urbanized habitats has progressed differently. Many areas of the developing world have urbanized without significant motorization and the formation of suburbs. In areas like Santiago, Chile, a high population density is supported by a multimodal system of walking, bicycle transportation, motorcycles, buses, and trains. A small portion of the population can afford automobiles, but the automobiles greatly increase the congestion in these multimodal transportation systems.

- *Arati Singh, Sachin Pandey,*
- *Dept. Of Electronics and Telecommunication, Mumbai University*
- *Dept. Of Electronics and Telecommunication, Mumbai University*

They also produce a considerable amount of air pollution, pose a significant safety risk, and exacerbate feelings of inequities in the society. Other parts of the developing world, such as China, remain largely rural but are rapidly urbanizing and industrializing. In these areas a motorized infrastructure is being developed alongside motorization of the population. Great disparity of wealth means that only a fraction of the population can motorize, and therefore the highly dense multimodal transportation system for the poor is cross-cut by the highly motorized transportation system for the rich. The urban infrastructure is being rapidly developed, providing an opportunity to build new systems that incorporate this at early stages.

III. SCOPE

Advanced Centralized RTO vary in technologies applied, from basic management systems such as car navigation; traffic signal control systems; container management systems; variable message signs; automatic number plate recognition or speed cameras to monitor applications, such as security CCTV systems and to more advanced applications that integrate live data and feedback from a number of other sources, such as parking guidance and information systems; weather information; bridge deicing systems; and the like. Additionally, predictive techniques are being developed to allow advanced modeling and comparison with historical baseline data. One of the constituent technologies typically implemented in ITS are described in the following sections.

Wireless communications

Various forms of wireless communications technologies have been proposed for intelligent transportation systems. Radio modem communication on UHF and VHF frequencies are widely used for short and long range communication within ITS. Short-range communications (less than 500 yards) can be accomplished using IEEE 802.11 protocols, specifically WAVE or the Dedicated Short Range Communications standard being promoted by the Intelligent Transportation Society of America and the United States Department of Transportation. Theoretically, the range of these protocols can be extended using Mobile ad-hoc networks or Mesh networking. Longer range communications have been proposed using infrastructure networks such as WiMAX (IEEE 802.16), Global System for Mobile Communications (GSM), or 3G. Long-range communications using these methods are well established, but, unlike the short-range protocols, these methods require extensive and very expensive infrastructure deployment.

There is lack of consensus as to what business model should support this infrastructure.

IV. PROBLEM DEFINITION STAGE

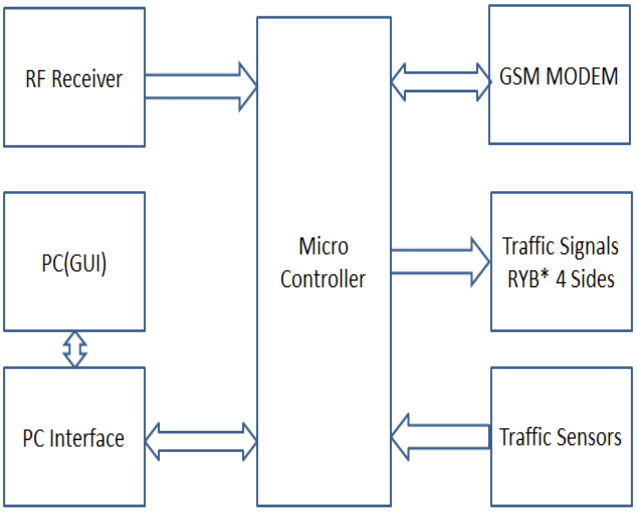
This is the very first stage to develop any project. It actually defines the aim and the concept of the project. The aim of 'ADVANCED CENTRALISED RTO' is to design a system through which sensors detecting vehicles will act as input to 8051 and accordingly the traffic signal will remain on. Further the system should detect vehicles breaking signal and the petrol tank be locked automatically if owner doesn't pay fine even after informing.

V. METHODOLOGY

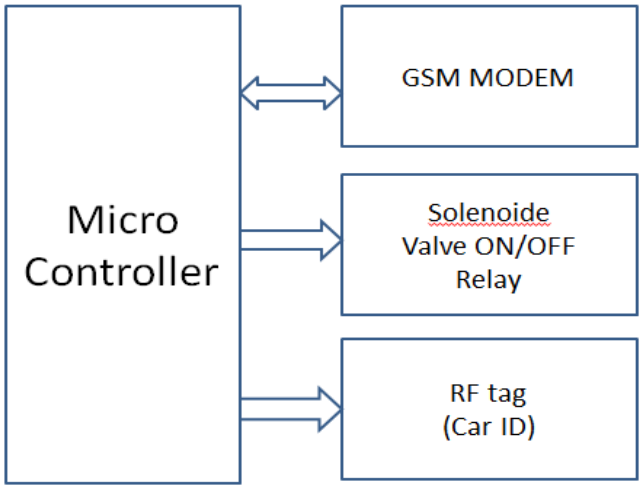
At road side there are 16 sensors (4 sensors * 4 sides) .For more traffic more time GREEN signal and vice versa. It is assumed that at the time of vehicle registration It is assumed that at the time of vehicle registration, as per govt. compulsion RF TAG (to radiate vehicle identification continuously), microcontroller, GSM modem and SOLENOIDE valve(to lock petrol tank by SMS from RTO office) is fit already in car. As soon as car breaks RED signal, RF RECEIVER at traffic signal capture vehicle identification radiated by car and report to RTO office. AT RTO office it will check details of car and send SMS to car owner to intimate payment of fine. If fine is not paid in allowed duration car gets lock by SMS from RTO with prior warning. This will save huge revenue of the country which was previously utilized in salary of traffic police or wasted in forms of bribe to traffic officers

VI. BLOCK DIAGRAM

Road and RTO Office Side



System inside Car



VII. Working Principle

At road side there are 16 sensor (4 sensors * 4side E, W, N , S) to sense traffic density. In GUI traffic signal can be set in to NORMAL MODE and FUZZY MODE. In normal mode just like fixed timer mode and fuzzy mode change timing equations as per traffic density. According to traffic density it will change RYG traffic signal timer duration .For more traffic more time GREEN signal and vice versa. It is assumed that at the time of vehicle registration, as per govt. compulsion RF TAG (to radiate vehicle identification continuously), microcontroller ,GSM modem and SOLENOIDE valve (to lock petrol tank by SMS from RTO office) is fit already in car. As soon as car breaks RED signal, RF RECEIVER at traffic signal capture vehicle identification radiated by car and report to RTO office. AT RTO office it will check details of car and send SMS to car owner to intimate payment of fine. If fine is not paid in allowed duration car gets lock by SMS from RTO with prior warning. This will save huge revenue of the country which was previously utilized in salary of traffic police or wasted in forms of bribe to traffic officers.

Components Required

Serial port Driving IC MAX232, Microcontroller P89C51RD2BN, Current Driver ULN2803, ADCPCF8591, Voltage Regulator LM7805/TO, Crystal 11.0592MHz, GSM MODEM, RF TX RX 315/433 MHz, Obstacle sensors

VII. CONCLUSION

In this paper, a solution for better traffic flow and congestion avoidance by making use the centralized traffic system. For which we have used the Microcontroller, Traffic signal (RYG), RF Receiver, Traffic Sensors, and GSM Modem.Thus the network has better traffic flow and security measures.

VIII. REFERENCES

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