"Authority And Density Based Square Signal Controlling System"

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ABSTRACT:- *Vehicular traffic is increasing very rapidly around the world mainly in urban areas. The resulting congestion has become a major problem in terms of cost, maintenance and support.Now a day's many of the things get controlled automatically. Everything is getting controlled using the mechanical or the automated systems. In every field machines are doing the human works. But still some area is controlled manually. For example traffic controls, road control, parking controlling. Keeping these things in mind we are trying to develop the project to automate the traffic tracking for the square. To make any project more useful and acceptable by any organization we need to provide multiple features in a single project. Keeping these things in consideration proposed system is less with multiple methodologies which can be used in traffic control system.*

KEYWORDS:- *Intelligent priority based traffic light control, Traffic congestion*

I. INTRODUCTION

Over the following years Traffic control system has becpme a popular mode of traffic controlling in all the developed countries all over the world. Various technologies are used in maintaing and controlling the traffic systems.This project helps to develop a system which will help in controlling the traffic very effectively. The proposed system will be able to detect priority vehicles, clearing route for emergency ambulance along with traffic congestion control. The methods for traffic management, surveillance and control are not efficient in terms of the cost,efficiency and the effort needed for its maintenance and support. Therefore it is important to develop the simple yet powerful system that will help in designing the safety of transportation. With the help of proposed system emergency vehicles can pass early and at the same time accidents can be avoided too. Computer-based traffic light control systemsare based on centralized control therefore they have their disadvantages. Therefore, in this system we stress on improving such traffic light control systems. The basic steps in the traffic light control design process is implementing intelligent priority based traffic light control at priority vehicle section and second implementing intelligent priority based traffic light control at traffic lights section. Traffic congestion mainly begins at intersections. Traffic flow fluctuates dynamically during morning and evening rush Moreover, unexpected events such as road accidents and many other events cause traffic congestion. Therefore, it is important to be develpoe a system which can reduce all these parameters. We propose a traffic light control framework where it can be used to the priority vehicles and also will be used to detect the volume of vehicles on the road.in this ststem we have used RFID.Radio frequency identification is a technique which uses the radio waves to identify the object uniquely. RFID is a technique that is widely used in the many application areas like medical science, commerce, security, Electronic toll collection system, access control etc. The basic idea about RFID is that there are three main components of RFID: RFID tag, RF Reader and Database. It is further divided two categories:passive tags and active tags. The passive tags don't contain any internal power source. The life of the passive tag is very long. The reader sends electromagnetic waves that produce current in the tag's antenna. In response antenna reflects the information stored in it. The active tags contain a battery as an internal power source used to operate microchip's circuitry and to broadcast the information to the reader.
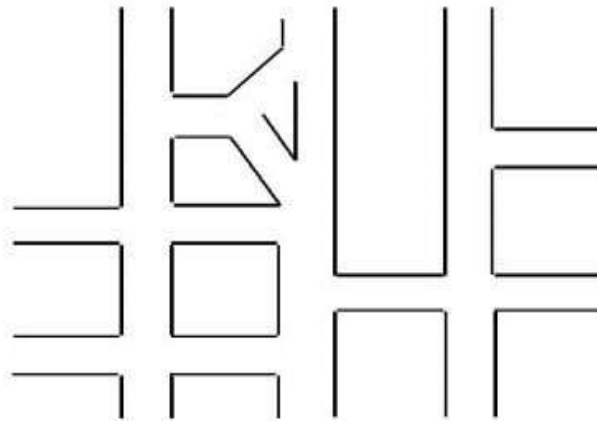
Figure 1: Typical Road Intersections - '+', 'T', and 'K' Intersections

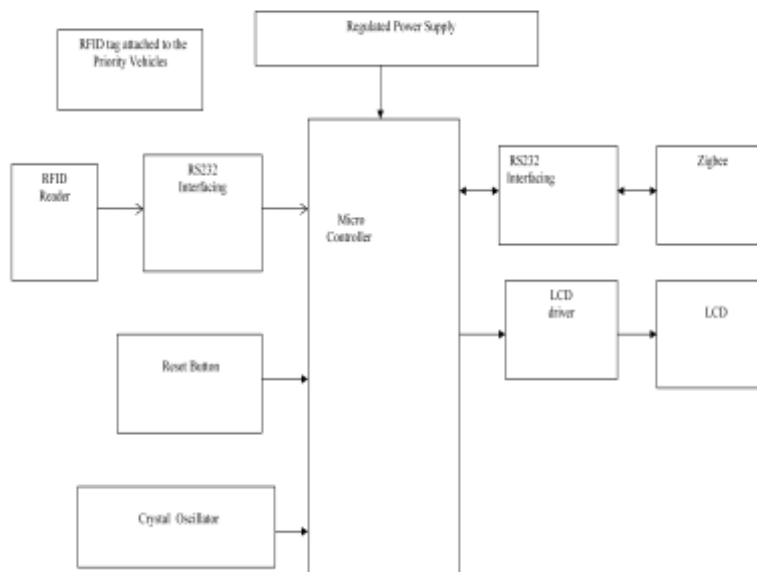## II. PROPOSED SYSTEM

2.1 Priority vehicle section

Figure 2: At the priority section

RFID (Radio frequency identification) is a technology which is used to detect the presence of an object with the help of radio signals. Here it is used to detect the presence of the priority vehicles.RFID tag will be attached to the priority vehicles. RFID reader will receive and accept the signal passed by the vehicles.This will further pass the information to the microcontroller which has to be given serially. Each individual vehicle is equipped with special radio frequency identification (RFID) tag (placed at a strategic location), which makes it impossible to remove or destroy. We use RFID reader and PIC microcontroller system-on-chip to read the RFID tags attached to the vehicle. It counts number of vehicles that passes on a particular path for a specified duration. It also determines the network congestion, and thus the green light duration for that path. If the RFID-tag-read belongs to the priority vehicle, when priority vehicle is approaching the junction, it will communicate with the traffic controller in the junction to turn the green light ON. ZigBee is an established set of specifications for wireless personal area networking (WPAN), i.e. digital radio connections between computers and related devices. WPAN Low Rate or ZigBee provides specifications for devices that have low data rates, consume very low power. This module uses ZigBee modules and PIC microcontroller system-on-chip for wireless communications between the priority vehicles and traffic controller.
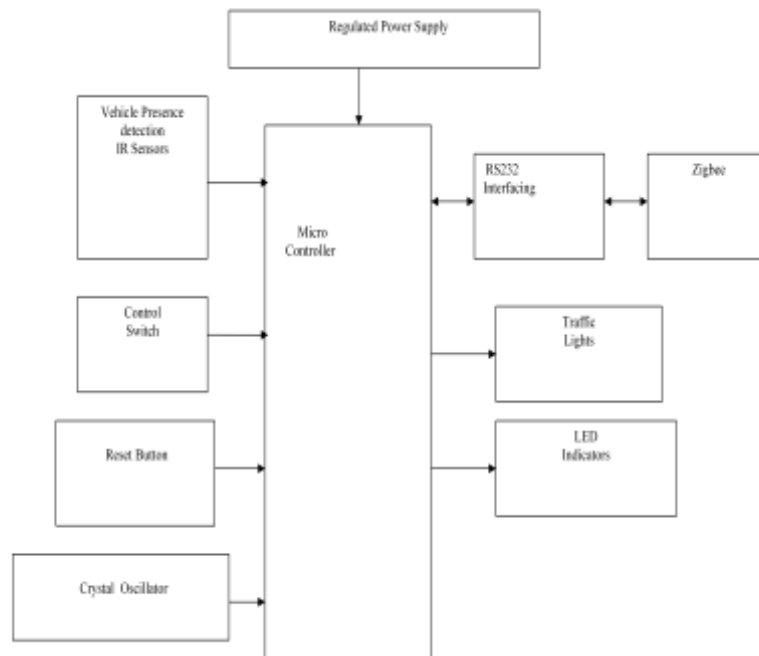
2.2At the traffic light section

Figure 3: At the traffic light section

This section will be installed at the traffic light section.Here IR sensors will be used to detect the number of vehicles present on the path and accordingly the time will be decided depending upon the number of vehicles.This information will be given to the system installed at the certain distance which is explained above. This system will help to design and develop a sensor based traffic density calculation which will help to control the green timing.Depending upon the number of IR count this system will calculate the traffic density.The volume of traffic is low at afternoon time and most in late night and High traffic volume at office timing preferably at morning and evening.Vehicle jumps the traffic signals due to over time wait and this may cause an accident as well. So with the help of this system time can be minimized which result in reduced time consumtion and ultimately less accidents and cross over.The main objectives of the project are determination of priority vehicle using RFID, way clearance for emergency ambulance, automatic traffic congestion control and automatic time management depending upon the volume of traffic using IR sensors.

III.   CONCLUSION

The proposed system is a self-organized traffic control scheme that helps facilitate emergency response operations (i.e.,facilitate and expedite the movement of emergency vehicles through traffic). In the proposed system the priority vehicles will be given preference without wasting time and can be used to remove the conflicts at intersections by estimating the required time. Our approach is based on a RFID tagging of traffic signals to convey the information The proposed on-board architecture is portable and easily adaptable to priority vehicles Along with this the system also proposes the system which will calculate the time depending upon the number of vehicles present on the roads using IR sensors. This will reduce the waiting time for the vehicles when less vehicles are present and thus will help to estimate the time properly.

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