

Traffic Signal Controlling System

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Abstract - In traffic control system it is very important that every rule is followed by People but this is not done for many times. Many times traffic police are Present at crossing but still traffic is uncontrolled. By using this project there is no need of traffic police to be present on crossings field. Now days, with the social progress and economic development, the transport is Playing pivotal role in cities. However, the main bottleneck problem is That the vehicle congestion phenomenon often occurs in urban intersection To cause traffic jams. And the smooth passage of traffic is suffer from high pressure causing people to pay more attention to traffic safety.

Keywords —RFID Module , Ethernet, Microcontroller.

I. INTRODUCTION

The traffic signal rules are not followed by some people which is the biggest problem in many countries. So to overcome this problem we are providing a solution in which for the people those who are not following the traffic rules the strict action will be taken against them. Here we are using RFID reader and card which is placed on the horizontal line of zebra crossing and vehicles respectively. The RFID card reader remains active when the signal is red and it is deactivated other time. In which if any vehicle crosses that horizontal lines when the signal is red then RFID reader identifies that vehicle and sends message to the RTO or creates a database for the same.

Preemption system is widely used to provide transit and lifesaving vehicle with the capability of the disrupting regular sequence of traffic signal in order to provide right way through an intersection. The purpose of the present invention is to provide an improved traffic signal system. The system is fully autonomous and is not affected by range, weather, or line of sight. It provides real time monitoring of the intersection phase to provide the visual display to alert motorist of the oncoming emergency vehicle and the direction it is coming from. The RF Transceiver is mounted 80-100m before the signal. The emergency vehicle continuously sends a predefine code along its route with the help of RF Transmitter mounted on vehicle. Before vehicle reach at the signal, received RF stations received the code and forward it to MCU at the signal. This code is received by received RF

module that gives it to the MCU then matches the received code with the pre programmed code. If the code matches then MCU pre-empt normal sequence. Simultaneously, pedestrian audio alerts that activated when the emergency vehicles are approaching an intersection.

II. OBJECTIVE

- 1] Controlling the traffic rules related to zebra crossing.
- 2] To build a dynamic signaling algorithm to change signal's timing considering pick hour traffic on given road lane.
- 3] To ensure the minimum time wastage for emergency vehicles such as ambulance, fire engines, police vans, etc.

III. LITERATURE SURVEY

Author[1] W.WEN proposed the system of smart Approach to Traffic Management using Lab VIEW. W. WEN presents an intelligent traffic model which remedies some of the prevailing issues of traffic like high-speeding, casualties, fuel prices and crisis, traffic management. The current road scenario is displayed on the screen inside the vehicle with the help of various controllers along the roadside which are in continuous synchronization with on-road vehicles,. The system raises the alerts in case of pedestrian crossing and over speeding along with the details of the fine imposed till date. W. WEN proposed model is a vital attempt to manage the traffic flow and hence save the precious lives which are precious lives which are crucial for the development of the nation with future scope given:

The accessibility of databases of the fine imposed on the individual for transparency of the system. Introduction of

online/prepaid/postpaid payments of the fine levied on the speed offenders. Alternatives of pedestrian alert by replacing the switch with microwave detectors or sensors at poles for automatic detection.

Author[2] Nikol Krausz proposed the project on Applying RFID in traffic junction monitoring system.] KRAUSZ presents traffic monitoring and classification technique in junctions. This is a human error and intervention free system, which is able to provide different types of traffic data. The same system is detect the vehicles which are traveling against traffic direction.

IV. NECESSITY

7:00 PM, 20 July 2016, Pune On 20th July, we the student of BE ENTC went for industrial visit to Pune. There on one fine day when we were on the way to our destination, we came across the problem of many people are not following the traffic rules which is related to zebra crossing and traffic jam along the road. As many people are not following the traffic rules so pedestrians have to face many difficulties while they are crossing the road. In this situation we also observed the ambulance with an emergency patient needs to reach nearest hospital as early as possible. Then we realize that solution for this problem can be the traffic control system. Presently sometimes, traffic police at the junctions try to preempt traffic on the way of an emergency vehicle but this is not effective way of management.

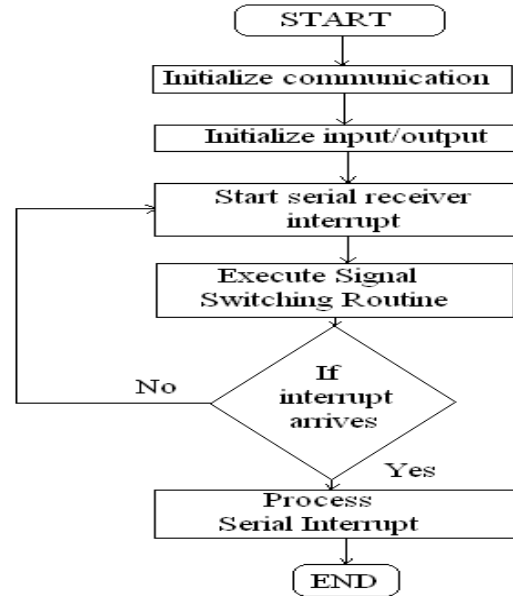
Primarily because emergency vehicles still waits traffic jams at the signal where there are no traffic police. Also traffic police are not clear about the priority of emergency.

V. METHODOLOGY OF USE

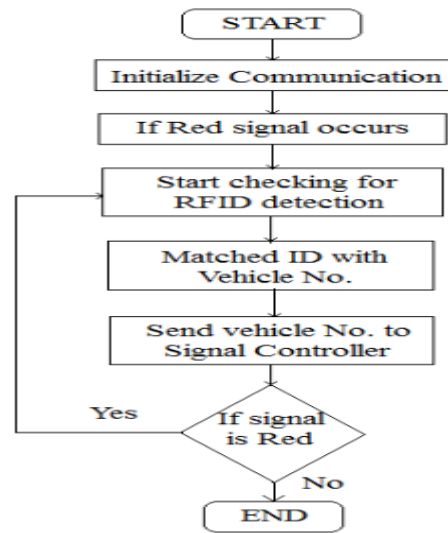
The main controllers controls the traffic signal according to density also it communicates over TCP server using serial to ethernet converter, when ambulance cross the RFID at fixed distance from signal controller the RFID controller sends the direction of heading ambulance by detecting it the signal controller clears the traffic by giving green to the direction from which ambulance coming. And waits till ambulance cross the area of traffic, the signal jumping controller has half duplex communication with signal controller the main controller tells the signal jumping detection when its side is red so it start monitoring, if signal jumping detected the controller sends vehicle no to the signal controller which then forward that no to the TCP server.

VI. FLOWCHART

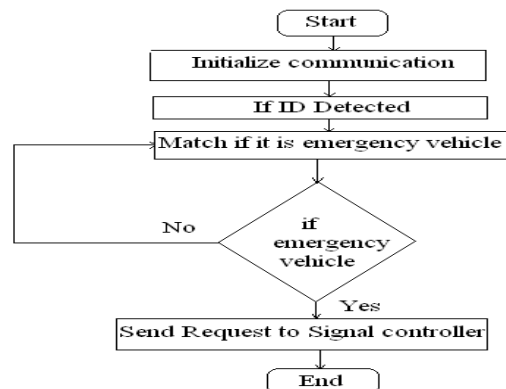
1] Signal Controller flowchart



2] Signal Jumping Controller flowchart



3] Emergency Vehicle Detection



VII. BLOCK DIAGRAM

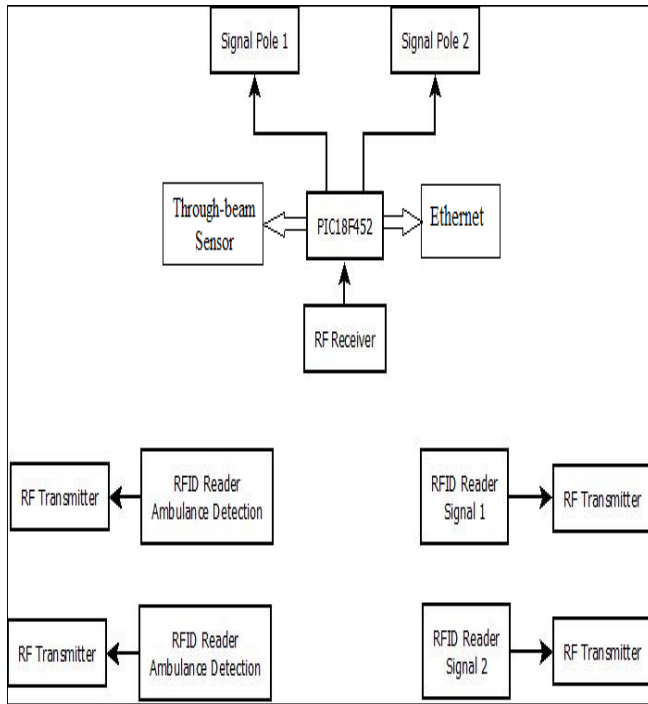


Fig. 1 System Block Diagram

VIII. RFID MODULE

RFID reader module, are also called as interrogators. They convert radio waves returned from the RFID tag into a form that can be passed on to controllers, which can make use of it. RFID tags and readers have to be tuned to the same frequency in order to communicate. RFID systems use many different frequencies, but most common and widely used & supported by our reader is 125 khz.

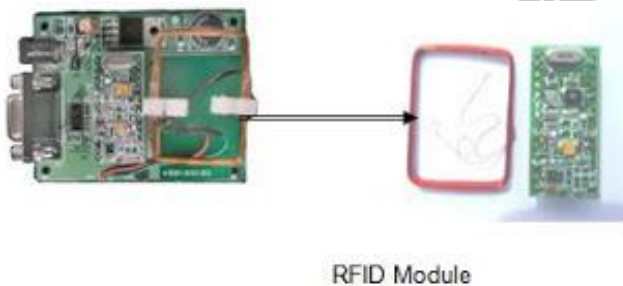


Fig. 2 RFID Module

An RFID system consists of two separate components a tag and a reader. Tags are analogous to barcode labels, and come in different shapes and sizes. The tag contains an antenna connected to a small microchip containing up to two kilobytes of data. The reader, or scanner, functions similarly to barcode scanner; however, while a barcode scanner uses a laser beam to scan the barcode, an RFID. Scanner uses electromagnetic waves. To transmit these waves, the scanner use an antenna that transmits a signal, communicating with

the tags antenna. The tags antenna receives data from the scanner and transmits its particular chip information to scanner.

In a basic RFID system, tags are attached to all items that are to be tracked. These tags are made from a tiny tag-chip, sometimes called an integrated circuit (IC), that connected to an antenna that can be built into many different kinds of tags including apparel hang tags, labels, and security tags, as well as a wide variety of industrial asset tags. The tag chip contains memory which stores the product's electronic product code (EPC) and other variable information so that can be read and tracked by RFID readers anywhere. An RFID reader is a network connected device (fixed or mobile) with an antenna that sends power as well as data and commands to the tags. The RFID reader acts like an access point for RFID tagged items that the tags' data can be made available to business applications

IX. CONCLUSION

In traffic control system the zebra crossing rules are very important and must be followed by everyone but this is not happening. So by using this technique we can stop people from breaking the rules. And with this project we are taking one step ahead towards digital India.

Human safety lies at the top of priorities that countries commit to their people. Therefore, rescue teams do their best to save human lives and keep people proprietary. Congestion along emergency vehicles' paths however, plays a significant role in delaying the reach of emergency vehicles to the accident scene and then to the hospital. Waiting of emergency vehicles at traffic signals constitutes the greatest share of this delay. In this paper we propose a new for traffic light preemption using RFID modules which gives proper solution for this problem . Preemption system widely used to provide transit and life saving vehicle with capability of the disrupting regular sequence of traffic signal in order to provide right path through an intersection .The purpose of the present invention to provide an improved traffic signal system. The system is fully autonomous and not affected by weather ,range ,line of sight.

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