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Smart City Traffic Congestion Control System

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Abstract*: *In this century, there occurred excess of population across the globe. As of July 1, 2015 the population division of the world was approximately 7.3 billion as per the United Nations Department of Economic and Social Affairs. This directly affected to more number of peoples living in cities. In this 21st century day by day there is an increase in number of people in cities and towns. Thus there is an increase of traffic in cities. However, the issue related to reduction of traffic congestion has been ignored. Hence we came up with a proposed model which can reduce the traffic congestion issue and result to a normal traffic flow. Keeping in mind the modern Indian road, we came up with a model which would help to solve the problem of traffic congestion on the junction much more efficiently than our regular traffic system. The proposed model is efficient and also cost effective, and can easily be implemented on Indian roadways. The logic is quite simple; it senses the traffic on the road for certain minute at predefined distance and takes the best decision depending on priority basis, where the priority is defined by the traffic on the road. The prototype has been demonstrated by Hardware which has ARDUNIO microcontroller, IR Sensor, RFID chip, and LED's (Light Emitting Diode).

I. INTRODUCTION

As the use of vehicles is increasing day by day so the problem of traffic is arising. The problem that is faced due to more traffic is called as traffic congestion. The objective of this problem is to overcome the problem of traffic congestion so that its negative effects like delays, fuel wastage, wear and tear of vehicles, collisions, traffic jams, frustration of passengers and drivers can be avoided. An IR sensor is placed at some distance from the traffic lights. This IR sensor will detect the traffic on the road and will then label that traffic as light, normal or heavy traffic. The assumption of the traffic by the IR sensor will be taken by the microcontroller.

If there is ambulance some distance which will detected by RFID away from traffic signal than we make that lane traffic HIGH once it crosses the signal we will again make it to normal lane.

II. MODULE IDENTIFICATION

A. ARDUINO Module
B. RFID Module

III. MODULE DESCRIPTION

This proposed model consists of 3 modules Main categories

A. ARDUINO Module

In this module we are connecting the hardware used in our project. Arduino microcontroller is connected to Infrared sensor. We have used three infrared sensor which are used to detect the traffic on the road. if first sensor is on than we increase delay between red and green LED, if medium traffic than we reduce the delay between red and green LED, if traffic is high than we minimize the delay to very low.

B.RFID Module

Whenever RFID detect the ambulance we have to stop all the signal to red signal. Signal will be green of Ambulance lane till Ambulance didnt pass from the path.Once ambulance is passed than signal will process as per first module.

IV. LITERATURE SURVEY

Collision occurring at traffic signal or on crossing is important road issue .There are millions of traffic light signals in India to control traffic in India. But still it is not able to handle the congestion fully. The international road federation (IRF) estimated that

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traffic collision request in annual monetary loss of $20 billon (INR / trillion) in India the traffic light control system install at London in 1868.

The traffic experts at INRIX report that British drivers spend 30 hours per year in traffic jams. For German drivers it's 35 hours. In the USA, the San Francisco Municipal Transportation Agency says that 30 percent of the city's traffic congestion is caused by drivers looking for a place to park. And the Texas Transportation Institute estimates the annual cost of traffic congestion in the United States alone adds up to $87.2 billion in wasted fuel and lost productivity. Much of this congestion could be addressed with smart Internet of Things technologies.

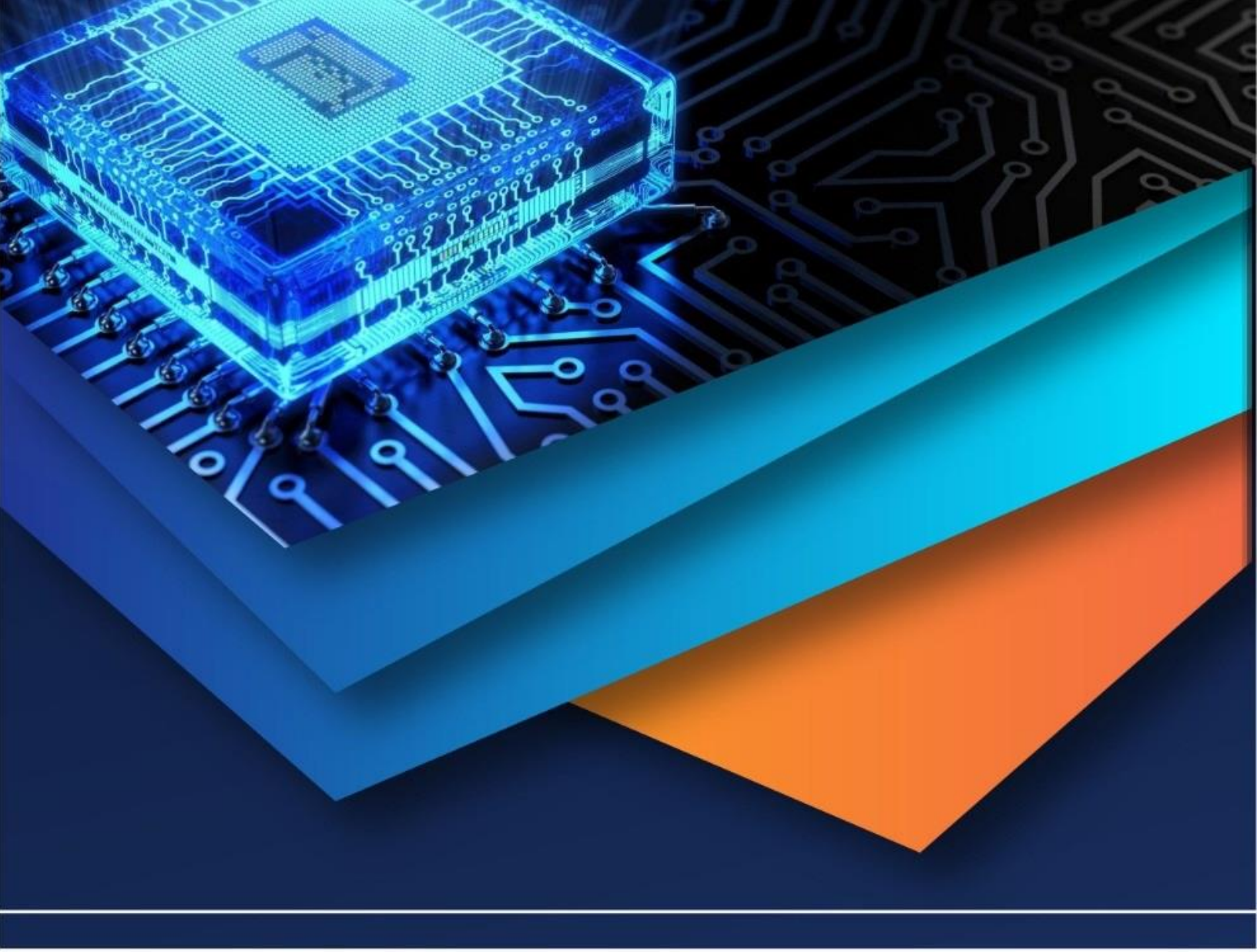
V. CONCLUSION

After considering facts presented in introduction section, there is a vital need of research in ITS. We have presented vehicle traffic congestion control and monitoring system in IoT to develop an real-time software for tracking, broadcasting, managing traffic and weather conditions.

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