A Comparison of Smart Traffic Control System with Some Preceding Works

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Abstract: There are sufficient information available on different systems regarding traffic control but this smart traffic control system using weighted data is much more improved. In this system we are using weighted data and RFID data for controlling the traffic. In this paper, we are going to compare the previous works with the smart traffic control system. This is a advanced technique than previous one’s in the field of automation reducing congestion on road side.

Keywords: Arduino Uno board, Congestion, comparator, Digital object counter, GPS (Global positioning system), RFID (Radio frequency identification) reader.

I. INTRODUCTION

Traffic lights, developed since 1912, are signal devices that are planned to regulate the traffic flows at road intersections, pedestrian crossings, rail trains, and other locations. Traffic lights encompass 3 universal colored lights: the inexperienced lightweight permits traffic to proceed within the indicated direction, the stoplight warns vehicle to arrange for brief stop, and therefore the red signal prohibits any traffic from continuing.

In the current scenario, as we see there is a problem increasing rapidly day by day it is going to become a great barrier in the growth of our society. For this there are several technologies which are going to be used by the government. There are several researchers who are trying to introduce different kind of devices. Smart traffic control is also a way to minimize this problem. The traffic in a street or at the road square can be measured by identifying the variety of services of street. In the research work, parameters of the different kind of congestion possibilities are studied and compared with the previous works and by modifying the available possibilities and by implementing a new feature i.e. weight machine tried to overcome this hinderance. As the road will having more load will show it on the LED and LED turn into red and police man allow the vehicles to pass through and this process will continue by altering the signals. This technology will help in saving of time, avoidance of accident which usually take place due to hurry and will also led in saving of petrol too.

II. METHODOLOGIES OF POPULAR SYSTEMS

M. Shrivastava [2] the system is based on PIC microcontroller that controls the assorted operations, monitors the traffic volume and density flow via infrared sensors (IR), and changes the lighting transition slots accordingly. Moreover, a hand-held moveable device communicates wirelessly with the traffic master controller by means of XBee transceivers so as to run the acceptable subroutines and permit the graceful displacement of emergency vehicles through the intersection.

A. Vinidha Roc [3] Firstly the vehicles gift within the lane square measure captured by the suggests that of camera. The captured pictures square measure fed to the controller and so compared with the different lanes, then mistreatment binary mask technique the vehicles square measure measure lily – white. The lily- white vehicles square measure dropped at a similar resolution, that is compelled in each lane. Then the image is born-again to gray scale by suggests that of MATLAB code. Once this method mistreatment the sting detection and shovel edge detection technique the vehicles gift within the lane square measure simplified, and therefore the tally method takes place. Once comparison each lane, the lane with higher traffic density is freed initial. Just in case of emergency vehicles like automobile enters the lane, there is a definite methodology applied within the system. Because the automobile enters the lane, with the assistance of sound device placed within the junction sound is detected. Once the sound is detected, the intensity is being checked, if the intensity matches with the set intensity, then the impulse is distributed to the
Controller as shorty because the controller receives the impulse, the signal is about to inexperienced, obstructions or state change all the opposite lane. If no emergency vehicles seems within the lane, then the conventional functioning of the system are going to be processed.

**Rajeshwari S** [16] this paper consists of three parts. First part contains automatic signal control system. Here, each vehicle is equipped with an RFID tag. When it comes in the range of RFID reader, it will send the signal to the RFID reader. The RFID reader will track how many vehicles have passed through for a specific period and determines the congestion volume. Accordingly, it sets the green light duration for that path. Second part is for the emergency vehicle clearance. Here, each emergency vehicle contains ZigBee transmitter module and the ZigBee receiver will be implemented at the traffic junction. The buzzer will be switched ON when the vehicle is used for emergency purpose. This will send the signal through the ZigBee transmitter to the ZigBee receiver. It will make the traffic light to change to green. Once the ambulance passes through, the receiver no longer receives the ZigBee signal and the traffic light is turned to red. The third part is responsible for stolen vehicle detection. Here, when the RFID reader reads the RFID tag, it compares it to the list of stolen RFIDs. If a match is found, it sends SMS to the police control room and changes the traffic light to red, so that the vehicle is made to stop in the traffic junction and local police can take appropriate action.

**Md. Munir Hasan** [6] in his paper, he proposed a strategy for deciding movement blockage on streets utilizing picture handling procedures and a model for controlling activity signals in view of data got from pictures of streets taken by camcorder. We extricate activity thickness which relates to add up to zone possessed by vehicles out and about as far as aggregate sum of pixels in a video outline as opposed to computing number of vehicles. We set two parameters as yield, variable activity cycle and weighted time for every street in view of movement thickness and control movement lights in a successive way.

**Ms. Pallavi Choudkar** [15] in her project aims at making agriculture smart using automation technologies. The highlighting features of this project includes smart GPS based remote controlled robot to perform tasks like weeding, spraying, moisture sensing, bird and animal scaring, keeping vigilance, etc.

**Priyanka Sharma** [1], there are two methods of detecting the no. of vehicles using this system on any particular road. First one is by using weight presented on the road, this will be detected by weighing matching machine implemented in the road and second method is to use RFID to the no. of vehicles on the road. The vehicles on the road, which have higher weight at any point of time, will be allowed to pass through. Here weighting machine receives the input of weight present on road will send it to Arduino Uno board. Here the board will compare the input data received from all the weighting machine and will glow the passing light accordingly. On the RFID receiver will count the no. of vehicles and send this data to Arduino Uno board. After receiving the RFID data the Arduino Uno board will check whether no. of vehicles is higher than the threshold value or not. If it is so an interrupt will generate and will stop all the functioning of the Arduino Uno board and will allow the vehicles to pass present on the road which have higher no. of vehicles than threshold value. Hence this system will work as a single unit and will check the traffic on different measures.

### III. COMPARISON

In all of the preceding researches, there are different methods to control traffic signals. Smart traffic control system using weighted data have some of the advantages over the preceding works. These advantages makes this system more advanced. Unlike smart traffic light control system here we are using weighting machine instead of camera[1].

The use of camera makes that system costlier as well as a little slow while using weighting machine these two problems can be countered. While according to smart traffic light system RFID reader is being used to detect the no. of vehicle but this might get failed when no. of vehicles would crawl parallel but this might overcome in smart traffic control system using weighted data as the weighting of the vehicles, the position of vehicles would never matters. But we could use RFID reader to detect the emergency vehicles instead of counting the no. of vehicles, like as above paper.

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IV. DISCUSSION

As we know previous works were good at their own places. But smart traffic control using weighted data is more advance than others. This system might use to control the traffic problem in metropolitan cities as well as in remote areas. The working of the system is easier than the others and the implementation of the system is also easy.

V. CONCLUSION

In this paper we have discussed about the advanced work with all the preceding works. This will lead in automation and advancement in the field of congestion control.

REFERENCE

[1] Priyanka Sharma ,Anjana Goen “Smart traffic control system using weighted data” International conference on advanced computation and telecommunication 2018[accepted]


