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Smart Traffic Control by Vehicle Number Plate Detection

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Abstract -Traffic light administration is one of significant issues in current circumstances. The idea of task is to distinguish vehicle enrolment number plate and save this enlistment number to framework and furthermore by utilizing IR sensors recognize traffic density. Raspberry Pi based traffic framework byvehicle number plate ID and traffic observing is being created as an answer for traffic framework. Those vehicles who violets stopsignal around then sensor mounted on zebra crossing will be distinguish vehicle after that vehicle picture will be caught by utilizing Camera. After that by utilizing Raspberry Pi vehicle enlistment number is put away in data set. At the point when any vehicle breaks traffic light. In ordinary circumstances, each sign are getting 60 seconds of timing out and about at a customarystretch, in any event, when traffic on that specific street is thick. In this undertaking the timing timespan traffic light simply relies upon the Number of vehicles on that specific side of the road.

***Key Words*:** Vehicle number plate, Raspberry Pi, IR Sensor, Camera.

1. INTRODUCTION

This system is proposed to carry out vehicle number plate discovery and acknowledgment by catching picture of the people who violets vehicle rules on traffic light and furthermore by utilizing IR sensors it distinguishes traffic thickness on that specific street. As of late, this innovation of number plate acknowledgment has expanded prominence in security, traffic signal and checking applications. Actually, the innovation is sounding examination point on the grounds that tremendous disclosures of PCs and refined high goal infrared cameras. This make simpler for picture handling methods more relevant breaking down and separating significant elements for plate numbers discovery and acknowledgments. Traffic checking framework can be utilized in stopping, number plates are utilized to ascertain length of the stopping. At the point when a vehicle enters an information door, number plate is naturally perceived and put away in data set. At the point when a vehicle later leaves a leaving region through a result entryway, number plate is perceived once more and matched with the first put away in the data set. The distinction in time is utilized to ascertain the stopping expense. Traffic observing framework by enlistment number plate recognizable proof can be utilized in access control. For instance, this innovation is utilized in many organizations to concede access just to vehicles of approved individual. Overseeing traffic light timing is one if the vital thing in the metropolitan regions. Figuring out how to time out and about will diminish the holding up season of the drivers out and about, and that will assist with decreasing the fuel utilization. In rush hour gridlock thickness observing we will utilize IR Sensors. IR sensor is likewise called as an Infra-Red range. IR sensors have 2 sections in it, one is the transmitter and second is a beneficiary. The transmitter is utilized to communicate the light and recipient continues to get the light. At the point when the recipient doesn't get the light communicated by the transmitter it is said that the article is in the middle among transmitter and beneficiary.

2. Body of Paper

All urban communities are confronting gridlock issues are regular routine. Everyone is in rush. They are disregarding traffic rules. Distinguishing the traffic violators is troublesome. There is no robotization framework and framework is accessible in current circumstances. We want smart based traffic framework to screen traffic specifically street and vehicle number plate ID. We want laser sensor to recognize those vehicles who breaks traffic light. After that camera catches vehicle picture in high clearness. Picture is put away in data set through Raspberry Pi. By utilizing that picture traffic police can rebuff that vehicle proprietor. We want of smart system to use in the traffic light observing frameworks and to control it in a high level controlling framework. Any framework is intended to act keenly with higher control highlights for each of the four side way traffic frameworks. Each street towards weighty deals of vehicles in higher counts. We want to

characterize the need level of traffic in our framework on the premise on which least or most noteworthy need. Each street path needs IR sensor to screen and catch information of vehicles in that path. In this proposed framework relies upon the more no of vehicles from the street path IR information we are dispensing higher time rate for that sign. On the off chance that traffic is less in all paths, framework runs in typical circumstances. In this framework is not difficult to track down way for rescue vehicle in crisis conditions.

Block Diagram:-

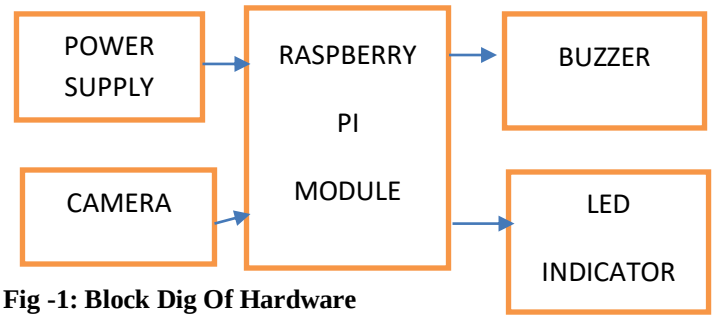


Fig -1: Block Dig Of Hardware

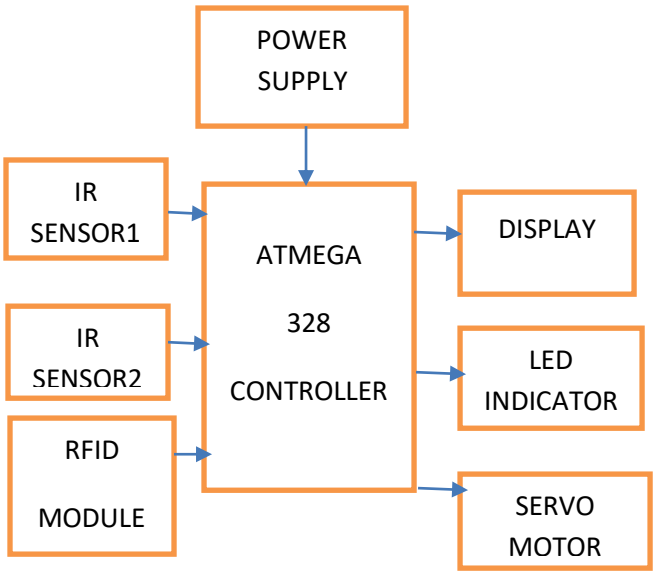
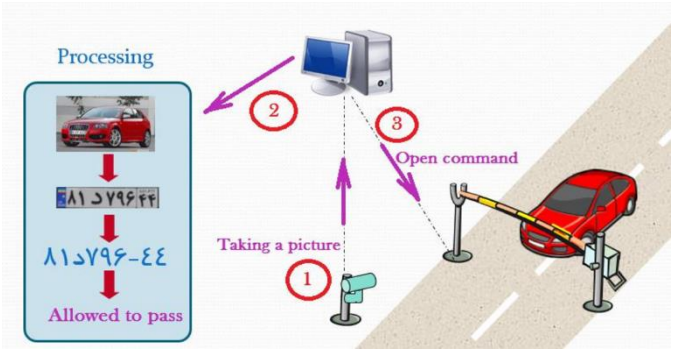


Fig -2: Block Dig of Hardware

The main working of the project is, when the signal is red then all vehicle are stop before the zebra crossing. And our project sensor system will be activated. Then the laser sensor light falls to the LDR sensor. If any vehicle are cut that the signal then that can be trigger to raspberry pi and camera will be taken image of this vehicle. Then this image is saved in SD card which is installed in raspberry pi. The authority person can access this database through dashboard. By vehicle number plate image this person can identify vehicle and then he could punish vehicle owner for violating traffic rule. Another working of the project is, traffic density monitoring. IR sensors have 2 parts in it, one is the transmitter and second is a receiver. The transmitter is used to transmit the light and receiver keeps on receiving the light. When the receiver does not receive the light transmitted by the transmitter it is said that the object is there in between transmitter and receiver. IR sensors are placed in each path of road. We defined different priority levels of traffic. Normally traffic signal time is 60 seconds. If IR sensor detects high rush of traffic then this condition goes to raspberry pi. Raspberry pi will send this signal to particular traffic signal of that path which has high rush of traffic. Then signal changes its state red light to green light and increase sometime of that signal. This system depends on the more no of vehicles from the road lane IR data we are allocating higher time rate for that signal. If traffic is less in all lanes then system runs in normal conditions. In emergency conditions if any ambulance comes and that time if traffic is more than that particular path signal turns into green signal form red signal.



3 PROBLEM STATEMENT

This project is proposed to implement automatic registration number plate detection and recognition by capturing the images of vehicles violating the traffic rules, typically vehicles halting at red signal on a cross road or jumping the signal. From captured images, registration number plate should be extracted. Further, text on the registration number plate should be recognized by character recognition techniques and registration number to be identified should be stored. Traffic density and time management for signal is challenging part.

3.1 OBJECTIVE

- The main objective of this project is smart traffic system by vehicle number plate identification and traffic management.
- The system should detect vehicle which breaks traffic signal then trigger camera to capture image.

- Captured image should store in database through Raspberry Pi.
- From variety of registration number plates the system is proposed to detect registration number plates with black lettering on white background and black lettering on yellow background.
- IR sensors should detect vehicles defined in priority levels.
- In emergency conditions signal should be changed in green light.

5 CONCLUSION

We design the traffic system with smart function. We recorded data of number plates of vehicles in form of images. We modified traffic signal for traffic density with different priorities. We gave most priority for emergency vehicles such as ambulance etc.

6 FUTURE SCOPE

Here we are presenting a demonstration of traffic monitoring system & vehicle number plate identification. In future we can make a traffic monitoring system with many more facilities. In future the modification of this project is an IR sensor technique is changed with image processing. With image processing technique we can monitor traffic density. By using these techniques, we can increase accuracy of system.

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