Shri Vaishnav Vidyapeeth Vishwavidyalaya

Department of Computer Science and Engineering

Major Project

CONTROL TRAFFIC LIGHTS BASED ON THE VEHICLE DENSITY

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Approve - Project Presentation 1 Inbox ×

Pranit Mandloi <pranitmandloi.ap@gmail.com>   11:02 AM (3 hours ago)
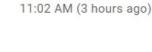to rahulpatel

Hello, Sir I am Pranit Mandloi From CSE_BDA(IBM) 7th Sem

I Hereby request you to approve our presentation on the topic.
Control Traffic Light Based on the Vehicle Density.

Thank You

Rahul Patel   11:15 AM (3 hours ago)
Ok Approved

Approved By :

Mr. Rahul Patel
Asst. Prof.

Problem Domain

Problem Domain

- The traffic lights system utilized in India are essentially preplanned wherein the season of every path to have a green signal or light is settled.
- In a four-path traffic signal, one path is given a green signal at any given moment. Along these lines, the traffic light enables the vehicles of all paths to go in a grouping.
- In this way, the activity can progress either straight way or turn by 90 degrees. So regardless of whether the activity thickness in a specific path is the minimum, it needs to sit tight superfluously for quite a while and when it gets the green flag it pointlessly makes different paths sit tight for significantly longer lengths.
- Numerous techniques had we acquainted with take care of the issue of activity utilizing sensor and fluffy rationale strategies, but the issue constant illuminating the issues is still tested. This issues can overcome by utilizing Digital Signal Processing Technique i.e. image Processing.

Proposed Application

Now let us take a look at how our system will work and overcome the drawbacks of the current system.

Introduction

There are three standard methods for traffic control that are being used currently

- Manual Controlling: As the name suggests, it requires manpower to control the traffic. The traffic police are allotted for a required area to control traffic. The traffic police carry signboard, sign light, and whistle to control the traffic.

- Conventional traffic lights with static timers: These are controlled by fixed timers. A constant numerical value is loaded in the timer. The lights are automatically switching to red and green based on the timer value.

- Electronic Sensors: Another advanced method is placing some loop detectors or proximity sensors on the road. This sensor gives data about the traffic on the road. According to the sensor data, the traffic signals are controlled.

Features

Thingspeak Application:

- Sending notification with embedded system was a problem with few solutions, widespread was SMS but other side there are some issues of extra payment, limited number of data, etc.
- Thingspeak provide push notification from cloud after getting registered on thingspeak website. In this system, the image is captured via **USB camera**, and programming is performed in the Embedded **C language** and **Arduino** Integrated Development Language.
- Whenever an **RFID sensor** detects a signal, it sends a positive signal to the Arduino.
- The RFID recognizes the signal and sends the output signal to the USB camera to capture the image.

Existing Technologies

First let us understand the current state of Control traffic lights based on the vehicle density

How they work and the need for a new system. We will se further in Literature Survey.

Literature Survey

Let us take a look at some other projects and research papers on this subject.

S.No	Title	Published By	Published On	Conclusion
1.	vehicle detection and vehicle detection	International Research Journal of Engineering and Technology (IRJET)	4th April, 2021	➢ First, a machine learning algorithm based on functions similar to those of the Haar and Ada-Boost algorithms is used, image of interest (ROI). Then additional training is carried out using the basic component analyzer to learn how to recognize the different types of vehicle samples. Density based traffic signal system.
2.	Implements an intelligent flow control system that allows you to move ambulances	International Journal of Recent Technology and Engineering (IJRTE)	3rd September, 2019	➢ Each vehicle has a special RFID tag (located in a strategic location) that prevents removal or destruction. RFID readers, NSK EDK-125-TTL and PIC16F877A systems are used to read RFID tags attached to a vehicle

S.No.	Title	Published By	Published On	Conclusion
3.	Demonstrates machine aggregation of vehicle characteristics (traffic)	Global Research and Development Journal for Engineering	4th March, 2019	➢ If the RFID reader reads the stolen vehicle, a police message is immediately sent to the control room using the mobile subscriber module 300. In addition, if the hospital car passes through indicated by the vehicle (traffic), the message will be redirected to the vehicle's resources (traffic) so that the controller turns green.
4.	Implements RFID (Radio Frequency Identification) and Record Identification (NPR) systems for vehicle identification and control.	Institute of Electrical and Electronics Engineers	13th Februrary, 2020	➢ The license plate (NPR) and control system are identified by a combination of image processing and RFID and are used to identify and authenticate the vehicle. Smart traffic system control and traffic avoidance system during emergencies using Arduino and ZigBee 802.15.4 is used.

Feasibility Study

Let us take a look at the feasibility of this project.

- **Technical feasibility :-**

It will need a USB Camera, at We can says that it is technically feasible, since there will not be much difficulty is getting required resources for the development and maintaining the system as well. Expandability will be maintained in the new system. New modules can be added later on the application, if required in the future.

- **Operational Feasibility :-**

The system will be easy to use as user interface is GUI based. The system is easy to use so no any special skills will be required to use the system. New user will find it easy to use. So the project will be operationally feasible.

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Thank You