International Journal of Research in Engineering and Science (IJRES)
ISSN (Online): 2320-9364, ISSN (Print): 2320-9356
www.ijres.org Volume 9 Issue 5 ǁ 2021 ǁ PP. 06-09

Intelligent Traffic Control Light Using Image Processing

ABSTRACT
Traffic is the major problem which every country faces because of the increase in number of vehicles throughout the world, particularly in large urban areas. As the problem of urban traffic congestion spreads & occurrence of road accidents increase, there is a pressing need for the introduction of advanced technology and equipment to improve the traffic control algorithms to better accommodate this increasing demand. The simplest way for controlling atraffic light is using timer for each phase.
In this paper we propose a system for controlling the traffic light by image processing. The system will detect and count vehicles through images processing and increase the time to high vehicles. A camera will be installed alongside the traffic light. It will capture image sequences. The image sequence will then be analyzed using digital image processing for vehicle detection, and according to traffic conditions on the road, traffic light can be controlled.

Date of Submission: 27-04-2021 Date of acceptance: 11-05-2021

I. INTRODUCTION

As the population of the modern cities is increasing day by day due to which vehicular travel is increasing which lead to congestion problem. Traffic congestion has been causing many critical problems and challenges in the major and most populated cities. Due to this traffic congestion there is more wastage of time. The most commonly used technology for traffic control in India is the traffic signal. There are not sufficient.

This Problems can be Sorted out by making some good decision on infrastructure. There are introducing new technique on traffic controlling system. In this Project waiting time for the vehicles on road with higher density is reduced . It was like that, Traffic is high will be released early and traffic is low will be released shortly period of time.

Traffic Control Systems

1.1.1 Manual Controlling

Manual controlling the name instance it require man power to control the traffic. Traffic polices are allotted for a required area or city to control the traffic. The traffic polices will have things like sign board, sign light and whistle to control the traffic. In the manual controlling system we need more man power. As we have poor strength of traffic police we cannot control traffic manually in all area of a city or town. So we need a better solution to control the traffic.

1.1.2 Automatic Controlling

Automatic traffic light is controlled by timers and image processing. In traditional traffic light system each phase has a constant numerical value loaded in the timer. The lights are automatically getting ON and OFF depending on the timer value changes.

The system will detect vehicles through images instead of using image processing. A camera will be installed alongside the traffic light. It will capture image sequences. Image processing is a better technique to control the state change of the traffic light.

II. PROBLEM DESCRIPTION

All of the traffic light system used is the traditional system. These systems encounter many limitations i.e. timing is not based on number of vehicles due to this we have the followingdraw backs:

1.2.1 Heavy traffic jams

With increasing number of vehicles on road, heavy traffic congestion occurs substantially in major cities. This happened usually at the main junctions commonly in the morning before office hour and in the evening after office hours. This causes an increased time wasting of thepeople on the road.

1.2.2 No traffic, but the pedestrians still need to wait

At certain junctions, sometimes even if there is no traffic, pedestrians have to wait. Because the traffic light remains green for the present time period, the road users should wait until thelight turn to red.

III. OBJECTIVE

1. This project proposed a system for controlling the traffic light by imageprocessing.
2. In this system the vehicles are not being detected by sensors, rather it is detectedby images.
3. In this process initially the system will have picture of the road. And the system will continuously take pictures of the road and compare those with the all trafficroad pictures.
4. By detecting the limitation of vehicles, Signal timing is increased or decreased,controlling the traffic.

IV. LITERATURE REVIEW

1. Capturing Images By Using Digital Camera :

- Digital Camera is used to capture images of vehicle present on each road of traffic .
- These Camera`s capture images and store in processing unit that is Computer.
- These camera provide high picture quality with high pixel.

2. Processing Unit :

- For store the images comes from digital cameras and control over the whole traffic lightcontrol system we use computer.

- For image processing we use scilab Software in the given Computer to run our programfor traffic light control system.

3. Image Processing:

Image processing is a method to perform some operations on an image, in order to getan enhanced image or to extract some useful information from it.

Advantages:

- Image Processing made digital image can be noise free.
- It is removing the need for extra hardware such as sound sensors.

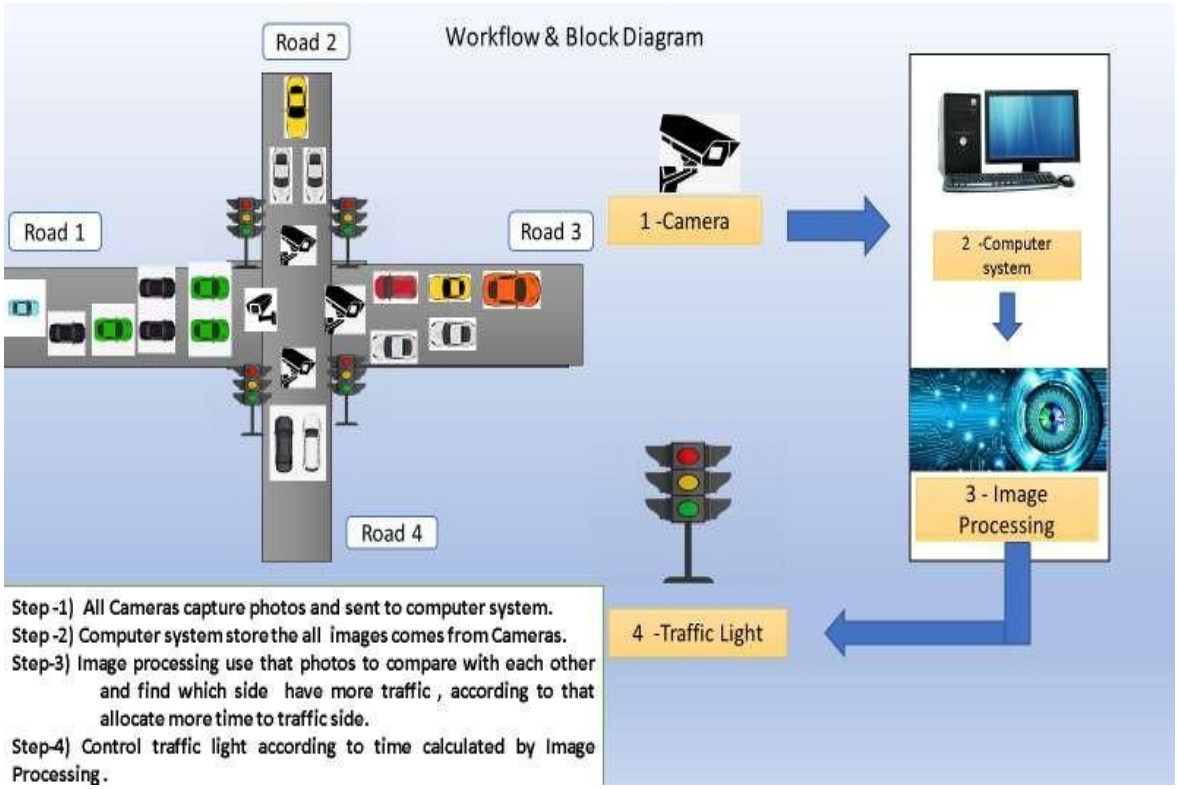
Disadvantages:

- Initial Cost is High.
- Battery Consumption.

4. Traffic Light :

- Traffic management is an issue which impacts us almost daily. Use of technology and real time analysis can actually lead to a smooth traffic management.
- By using These project we control on traffic light according to time assign by our trafficlight control System.

5. SYSTEM DESIGN & IMPLEMENTATION



We propose a technique that can be used for traffic control using image processing. No. of vehicles present on road is calculated using image processing which is done of images of vehicle that are captured by using digital camera. According to the traffic densities on all roads, our model will allocate smartly the time period of green light for each road. We have chosen image processing for calculation of how many vehicles are present on the all roads. According to the photos, threshold value are assign means that if the photos has more than 70 vehicles, it will allocate less time on that side and allocate more time on the other side for red light of traffic light.

V. CONCLUSION

This technique can be effective to the growing pressure of traffic on Indian roads. It uses image processing to estimate the density of vehicles on roads and regulates the traffic at fixed intervals of time. It is cost efficient and does not require the installation of complex machinery to monitor the traffic. Deploying this system will not only savethe time consumed in waiting at traffic junctions.

The hardware implementation would enable the project to be used in real-time practical conditions. In addition, we propose a system to identify the vehicles as they pass by, giving preference to emergency vehicles and assisting in surveillance on a large scale. The handling of emergency with the help of assigning priority has an advantage since safety human is maintained.

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