

## SMART TRAFFIC CONTROL SYSTEM USING CCTV

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### ABSTRACT:

*The undertaking centers around the need of shrewd traffic frame work and an impossible miss method for execution. Here it is actualized through an item checking technique along these lines controlled the traffic signals dependent on results needed. The results found by introducing IR indicators at the edge of a path is savvy. The frame work is less proficient. We use picture analyzing technique utilizing a live or recorded video using MATLAB. This technique can improve the present crude traffic control frame work in effective way.*

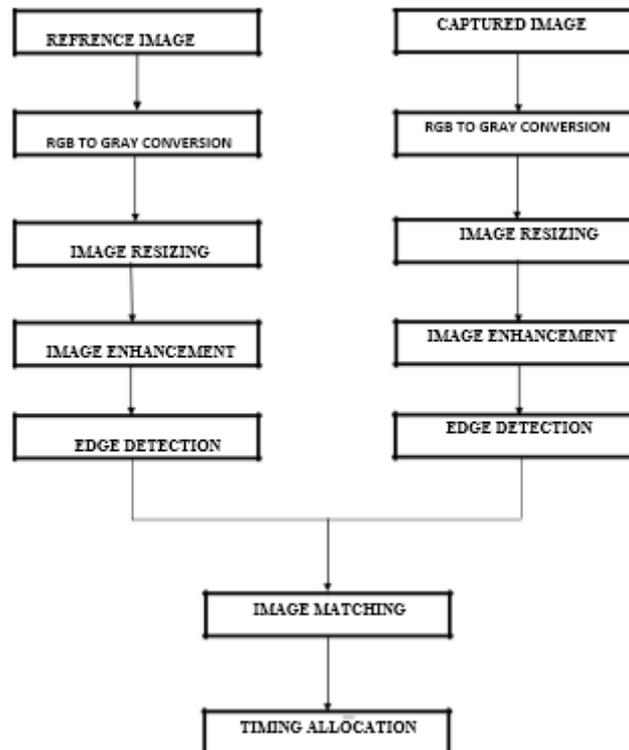
*Keywords: Edge detection, Background Subtraction, Object detection, waiting time.*

### 1. INTRODUCTION:

In present day life we need to look with numerous issues, one of which is traffic clog ending up progressively day by day which results in congested roads. The significant reason promoting road turn parking lot is the more number of vehicles caused by thickness of population being developed by the economy. To kill this issue, the administration have to urge the population to utilize open transport or sufficiently required sort of vehicles for transportation. Frequency of traffic congestion is almost high in India. The densities of vehicles on the road keep increasing to higher amount these days. In traffic, people waste much time particularly during the peak hours. Thus an idea of monitoring the traffic congestion using real time image processing techniques. The theme is to determine the traffic density on each side of the road by calculating the density of vehicles at the signal zone at a regular interval of time using image processing techniques.

### 2. PROPOSED SYSTEM:

With the expansion of urbanization, emerging urban communities around the world are attempting to handle the traffic troubles by reestablishing personnel computers and subsequently controls traffic. In this paper, we feature the technique that could be utilized to distinguish traffic thickness at a specific intersection by preparing a still Ethernet picture got from a live video feed. The system for picture preparing that are featured in the paper could be connected in the circumstances where the reconnaissance camera concern the live video inside a small amount of seconds or in situations where the server of the site that shows the live field from the observation cameras are moderate. Likewise establishment of still picture cameras instead of moving cam coders would be more helping to raising economy. Her we decide the traffic thickness on each side of the street by figuring the thickness of the vehicles at the flag zone at a standard time utilizing image processing methods.



Block Diagram of "Traffic Control Using Image Processing" (proposed algorithm)

### 3. CANNY EDGE DETECTION:

A wide range of edges are detected by using multi stage algorithm which is known as Canny edge detector. It works by detecting discontinuities in brightness. Prewitt filter which is a gradient based method has the most important of being sensitive to noise. Compared to prewitt filter canny edge detection is more expensive than other operators, but it is less sensitive to noise.

#### OBJECTIVES:

Low error rate: All the edges ought to be found, and there ought to be no bogus reactions.

The Edges are to be limited well: the edges found must be close which can be conceivable to the genuine edge.

For which the separation between a point set apart as an edge by the identifier as well as the focal point of genuine edge ought to be least. Single edge point reaction: Here the indicator will not distinguish various edge pixels where just a solitary edge point exists. The nearby maxima around the genuine edge ought to be least.

First derivative of Gaussian:

$$\frac{d}{dx} e^{-\frac{x^2}{2\sigma^2}} = -\frac{x}{\sigma^2} e^{-\frac{x^2}{2\sigma^2}}$$

#### 3.1 Algorithm steps:

**Step1:** Smooth the information picture with a Gaussian channel .

**Step2:** Complete the slope magnitude and edge pictures.

**Step3:** Apply non maxima concealment to the angle magnitude picture.

**Step4:** Use double threshold and connectivity examination to distinguish and interface edges.

Although the edges after non maxima suppression are thinner than gradient images, the former can still be thicker than one pixel. To obtain edges one pixel thick follow step4.

#### 4. IMPLEMENTATION:

The process includes the following:

1. Here we consider a reference picture and the picture looked at is constantly caught utilizing a camera that is introduced at or nearby the junction.
2. The pictures taken above are pre handled into two stages as pursues
  - a. These images are been rescaled to 300 x 300 pixels.
  - b. The rescaled pictures are changed over from RGB to Grey.
3. The edge discovery of the pre prepared pictures is done by canny edge detection technique.
4. The yield pictures of the above advance are coordinated utilizing pixel to pixel matching technique.
5. After coordinating, the time portion for the signs is given by relying upon the level of matching as:
  - a. In the event that it coordinates somewhere in between 0 to 30%, then the green light is “ON” for 90 seconds.
  - b. On the off chance that it coordinates somewhere in between 30 to half, then the green light is “ON” for about 60 seconds.
  - c. On the off chance that it coordinates somewhere in between 50 to 90%,then the green light is “ON” for about 30 seconds.
  - d. On the off chance that it coordinates somewhere in between 70 to 90 %,then the green light is “ON” for about 20 seconds.
  - e. In the event that it matches somewhere in between 90 to 100%, then red light is “ON” for about 90 seconds.

#### 5. CONCLUSION:

“Traffic control framework utilizing cctv” through picture preparing system that we propose defeats everyone of the constrains of the prior methods utilization of clock had a downside that the time is being squandered by green flag event in the vacant rush hour grid lock. The above proposed system maintains a strategic distance from the issue . Endless supply of different edge discovery calculations, it can be deduced that canny edge detection procedure known to be the most effective one. The undertaking depicts that the picture preparing is undeniably increasingly productive strategy of traffic control when contrasted with customary strategies. The use of this procedure expels the requirement of additional equipment, for example, sound sensors and so on. The expansion accordingly time for these vehicles is vital for the counteractive action of dead toll. Significant preferred stamp points is the variety in flag time which controls fitting traffic thickness through image coordinating. The precision for the figuring of time because of single moving camera relies upon the enlistment position while confronting the street without fail. Yield of GUI unmistakably shown some normal outcomes. It has appeared mostly in every interim that we chosen as limits like 10%, 35%, 68% and so on.

## 6. FUTURE WORK:

The aim is to execute the controller unit using DSP, as it can maintain strategic distance from substantial interest in modern control PC while acquiring a large computational power and streamlined frame work. Equipment usage would empower the venture to be utilized continuously for viable conditions. Moreover, we can likewise propose a frame work which can recognize the vehicles as they cross by, offering inclination to crisis vehicles and aiding reconnaissance on substantial scale.

## 7. ACKNOWLEDGMENT:

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