

# AUTOMATED TRANSPORT CONTROL SYSTEM

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- Problem Statement: **Traffic Control System**

The proposed system adapts the traffic signal timer according to the random traffic density using IMAGE PROCESSING techniques. This model uses high resolution cameras to sense the CHANGING traffic PATTERNS around the traffic signal and manipulates the signal TIMER accordingly by triggering the signals to the timer control system.

# DO YOU KNOW?

- Every year due to peak hour traffic congestion majorly in the metropolitan cities of India, our economy is affected by a loss of 1.5 lakh crores.
- The average time wasted in the traffic congestion of an average Indian counts to around 1 hour daily.
- Wasted fuel at traffic lights increases air pollution and carbon dioxide emissions.





# PROPOSED IDEA

## Main Idea

- Dynamic Traffic Control

## Add-Ons

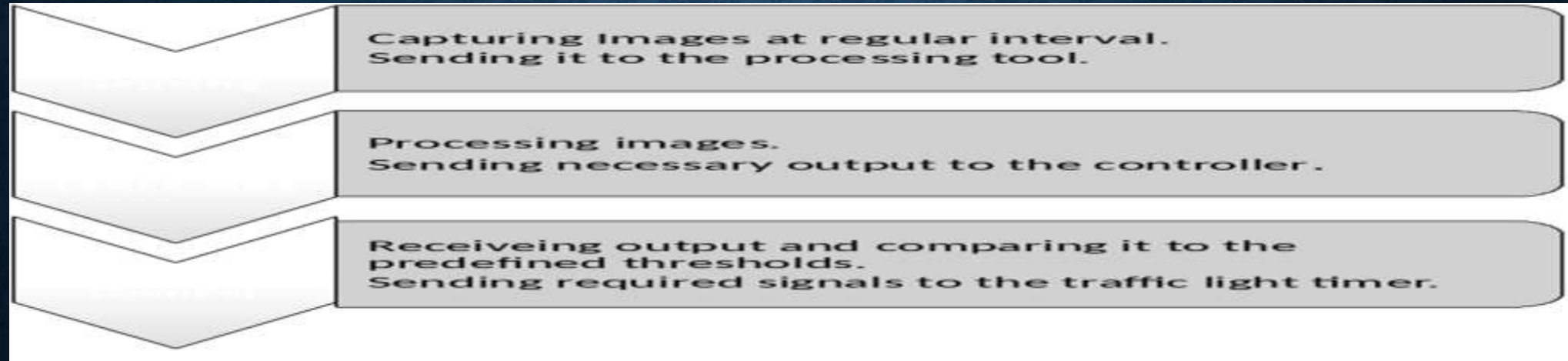
- Automated Traffic Rule Violation Detection
- Automated Issue of E-challan
- Real Time Route Redirection



# PROJECT BREAKDOWN

This autonomous control system consists of four major entities,

1. High resolution imaging device.
2. Image processing at the backend using jimp and pixel-match.
3. Microcontroller based traffic light timer control.



The Image Processing Algorithm proceeds in the following way. Assuming day time analysis, four snapshots of each of the four directions is captured, with the help of high resolution cameras, when there is negligible density of vehicles on the road. These four images act as a reference. For the remaining part of the day the images are captured at regular interval of 5 seconds and then compared with the reference images using image processing techniques described through images below.





# TECHNOLOGY STACK

- A high resolution image capturing device with high frame rate(fps) and wide viewing angle.
- Node.js along with express, jimp and pixel-match packages for image processing.
- Image processing and background subtraction to find out the best traffic control dynamically.

# USE CASES



Optimized  
traffic control  
system



Reduced  
number of  
traffic rule  
violators



Faster  
response time  
in various  
circumstances



Increased fine  
generation



Reduction in  
the number of  
bribes