AUTOMATED TRAFFIC CONTROL SYSTEM

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Introduction

Currently, the traffic junctions have a predetermined, fixed time allocation. Each lane is assigned a same and fixed amount of time, without any regard to their individual traffic density. Time is wasted if some lane has very little or no traffic as it could have been utilized on busier lanes.

Objective

The automated traffic control system aims to provide a more efficient traffic management system to improve mobility, safety, and traffic flows. And to dynamically allocate time according to traffic on lane.

Material and Methods

- Our approach:

Retrieving footages from a cctv camera of the current traffic, detecting and counting the traffic density in each lane and then using our synchronization algorithm to decide the time allocation for each lane.

- Model Used:

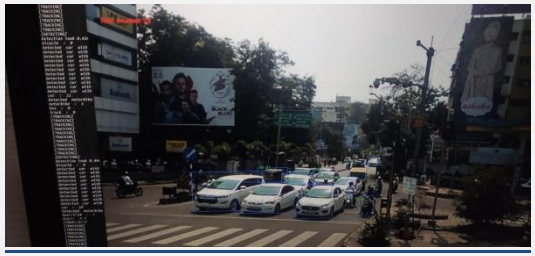
  YOLO

- Implementation:

1. Camera sends images after regular short intervals to our system.
2. The system computes its relative density with respect to other lanes.
3. Time allotment module takes input (as traffic density) from this system and determines an optimized and efficient time slot.
4. This value is then triggered by the microprocessor to the respective Traffic Lights.

Results

In fact, we use computer vision and machine learning to have the characteristics of the competing traffic flows at the signalized road intersection.



Conclusion

This new system facilitates the movement of cars in intersections, resulting in reducing congestion, less CO2 emissions, etc. While real-time inference is possible, applications that utilize edge devices still require improvements in either the architecture's design or edge device's hardware. Finally, we have proposed a new algorithm taking this real-time data from YOLO and optimizing phases in order to reduce vehicle waiting time.

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