



# Anurag Pardeshi

Smart Traffic Signals with Green Corridor for Priority Vehicles

TE-IT-B, 3154079

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## Smart Traffic Light Control System using IR and Microcontroller

Traffic light control systems are widely used to monitor and control the flow of automobiles through the junction of many roads. The synchronization of multiple traffic light systems at adjacent intersections is a complicated problem given the various parameters involved. Conventional systems do not handle variable flows approaching the junctions. It also does not consider the pedestrians crossing the passage of emergency vehicles.

This seminar proposes a system based on PIC microcontroller that evaluates the traffic density using IR sensors. A portable controller device is designed to solve the problem of emergency vehicles stuck in the overcrowded roads. The IR sensors are deployed at either sides of a road that will detect a vehicle passing by and will transmit an infrared radiation that will be detected by a traffic master controller which is mounted on the traffic signal which is responsible for lighting transition and their timing slots.



# Gauri Karekar

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## Priority Level Mutualism for Emergency Vehicles using Game Theory

The traffic congestion growth problem is a daily life experience all over the world. Dealing with it using technological advances is the need of the hour. The day-to-day traffic has to be managed in ways that will reduce congestion and facilitate smart and smooth traffic flow. The motion of Emergency Vehicles (EVs) like Ambulances, Police Vehicles and Fire-fighting vehicles are highly affected by traffic congestion, by which rescue time may cost a life.

This seminar will explain an algorithm - **The Priority Level Mutualism for Emergency Vehicle (PLMEV)** algorithm, which aims at reducing the waiting time by giving higher priority for the EVs at intersections. It classifies EVs according to their emergency levels and is highly scalable with a different number of vehicles. The second part, i.e. **the Game Theory**, controls the traffic at the intersection according to the vehicle's priority.



# Shivansh Nathani

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## Using Google Traffic layer API to obtain real time traffic information and harness the signals accordingly

The previous researches and implementations of smart signal do not provide a full green corridor for emergency vehicles to extend the functionality and increase the efficiency of the current system.

We can use Google traffic layer API to determine the traffic at signals which fall between the route of the emergency vehicles and clear the traffic beforehand providing a 100 percent green corridor reducing minute delays

The destination address and the current location of emergency vehicles can be traced using a smart device which is setup in such vehicles. Using the route information and traffic density information at the upcoming signals based on the current location of emergency vehicles we can beforehand clear the traffic using the information obtained by the traffic layer API and the data obtained from the cameras at that upcoming signals using video processing.

The data obtained from google API's is precise most of the time using the real time data from cameras and processing it along with API data would be 100 percent precise. Resulting in a full proof system providing 100 percent green corridor with minimum resources.



# Sujay Sanjay Mahadik

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## Smart Traffic Lights Switching and Traffic Density Calculation using Image and Video Processing

In recent years, metropolitan cities have witnessed a large boom in population. Logically (there has been an increase in the number of vehicles using the same old roads.) increasing the number of vehicles using the same old roads. Police Stations, Municipal Offices, Fire Stations, Hospitals and other high priority buildings are connected via the same roads. Congestion on these roads is a serious problem nowadays. Video surveillance and monitoring (most of the roads) is widely been used in these cities.

This seminar presents the method to use live video feed from the cameras at the traffic junctions for real time traffic density calculation using video and image processing. It also focuses on the algorithm for switching the traffic lights according to the vehicle density on road, thereby aiming at reducing the traffic congestion on roads which will help lower the number of accidents, waiting time, fuel consumption, and delay in High Priority vehicles like Ambulances, Fire Engines. It will also provide with sufficient data which will help in future road planning and analysis. In further stages multiple traffic lights can be synchronized with each other with an aim of even less traffic congestion and free flow of traffic.