**Smart Traffic Management System**

**Problem Statement**

Traffic congestion is a main problem with foremost cities. In India the traffic lights are based on timing system i.e. whether the vehicles are present or not the timing will remain constant which makes people to wait unnecessarily for longer time. The key characteristic of the traffic in cities particularly for developing the geographies is that even if the geographies are explicitly mentioned/marked on the roads it doesn’t move through the lanes.

In Emergency cases (VIP’s) or ambulance the signals are sent through via Blynk Software, which is a hard-hitting task and can’t be executed successfully.

**Introduction**

Controlling the traffic becomes the challenging task due to increased usage of the vehicles by the people. Sometimes green light is given for junctions with less density also. To correct the above mentioned issue in the system handling the traffic for vehicles is implemented. Presently in different directions the traffic lights with fixed time delay are set according to a specific cycle while switching from one signal to other. This creates unnecessary traffic during rush hours. This project can applied using IR sensors, node MCU and with the Wifi and Blynk Software.

**Abstract**

Density of road traffic is a severe problem in the present world. The objective of this work is to manage the traffic lights and to provide importance in emergency cases using Wifi. Traffic control system is a density based system that can determine the density of the vehicles at each side of the junction road when vehicles are nearer to that junction and transfer the information to the Node MCU. The presented system works based on a node MCU Microcontroller. Density of vehicles is detected using Infrared sensors, which are placed within a fixed distance.

Priority is provided to the overcrowded side of the road in traffic.

**Project Description**

The basic idea behind the project is to reduce the traffic jams with the help of embedded device and IOT. Due to the increase in demand for Vehicles, up brings more traffic jams and thus is a major factor in slow development of the country.

Our main purpose is to decrease the time of red light according to traffic on the road which was detected by IR Sensors.

Our another purpose is that the project can also detect car which cross the zebra crossing ,in case mail will be send to traffic police and also to person on whose name the car is registered also get the mail of crossing the red light and the traffic police can capture him.

We also work for emergency vehicles like Ambulance, police van when any of these vehicles are on road so the light became green automatically by the help of inbuilt WIFI system.

So we need a system that can handle the traffic effectively.

So for this we make a sustainable project by implementing some Sensors we can prevent such traffic jams. Sensor such as IR, SEVEN SEGMENT DISPLAY, Node MCU has been used.

**Hardware Required**

IR Sensors, Node MCU, Seven Segment Display, Jumper Wires, LED and Breadboard.

**Software Required**

Blynk Software, Arduino, and Pycharm.

**Future Scope**

We want to implement machine learning in our project for image recognition of number plate on car by which we can get the owner info from database and send the message of penalty to owner and he can pay online but to get the receipt he need to visit RTO office.

We can also pay online toll tax.