**GROUP 2 : INTERNET OF THINGS(IOT)**

**TRAFFIC MANAGEMENT SYSTEM**

**PHASE 4 : DEVELOPMENT PART 2**

## **INTRODUCTION :**

The intelligent Traffic Expert Solution for road traffic control System offers the ability to acquire real-time traffic information. Traffic Expert enables operators to perform real-time data analysis on the information gathered. Traffic management measures are aimed at improving the safety and flow of traffic utilizing traffic capacity more effectively.

## **PURPOSE :**

## Smart Traffic Management is mainly improvised for looking after the Set off data of a region to manage the Traffic along that area and implement various useful technologies which are been required by various persons like vehicle owners, pedestrians, police officers etc….Mainly the purpose of Smart traffic management system is to give the details which can be used and they can be implemented in their daily life. The problems which have been occurred at their presence can be solved by this Smart Traffic.

## **SCOPE :**

Smart Traffic is a Video Analytics Module and provides ****Traffic Incident Detection****, and real time ****Traffic Flow Metrics**** & statistical analysis. Smart ****Traffic Monitoring**** can integrate with third party ****traffic management**** and ****smart roadway systems****and hosts a feature rich product scope itself. The system can be used for incident detection or for statistical metrics of a roadway.

****Related work :****

* Traffic lights, traffic signals, stoplights or robots are signalling devices positioned at ****road intersections, pedestrian crossings****, and other locations to control flows of traffic.
* The world’s first traffic light was a manually operated gas lit signal installed in ****London****in December 1868. It exploded less than a month after it was implemented, injuring its policeman operator. ****Earnest Sirrine**** from Chicago patented the first automated traffic control system in1910. It used the words “STOP and “PROCEED”, although neither word was illuminated.
* Traffic lights followed a universal ****color code**** which alternates the ****right of way**** accorded to users with a sequence of illuminating lamps or LEDs of three standard colours.
* ****GREEN light****: allows traffic to proceed in the direction denoted, if it is safe to do so and there is room on the other side of the intersection.
  + ****RED light****: prohibits any traffic from proceeding. A flashing red indication requires traffic to stop and then proceed when safe.
  + ****YELLOW light****: warns that the signal is about to change to red, with some jurisdiction requiring drivers to stop if it is safe to do so and others allowing drivers to go through the intersection if safe to  do so.

## **ADVANTAGES :**

* ****TRAFFIC CONTROL****
  + Existing centralised traffic control system go someway towards alleviating traffic congestion and ensuring the smooth flow of vehicles through a road network.
  + Intelligent transportation systems, however, allow traffic lights to respond to changing pattern themselves.
* ****TIME SAVING****
  + At certain junctions, sometimes even if there is no traffic, people have to wait. Because the traffic light remains red for the preset time period, the road users should wait until the light turn to green.
  + In smart traffic management system, if there is no vehicle present on a particular lane, then we can bypass through that lane, thereby saving our time.
* ****DETECTION AND MANAGEMENT OF TRAFFIC CONGESTION****
  + In addition to the earlier method of traffic congestion detection, a server can be maintained which can receive certain crucial data such as the density of vehicles present on a particular lane.
  + The main aim is to implement a system that would trace the travel time of individual cars as they pass and if congestion is sensed then system would control traffic signals and generate automatic re-routing of vehicles.

**SOURCE CODE :**

#Function to simulate a traffic light#It is required to make 2 user defined functions trafficLight() and light().def trafficLight():

signal = input("Enter the colour of the traffic light: ")

if (signal not in ("RED","YELLOW","GREEN")):

print("Please enter a valid Traffic Light colour in CAPITALS")

else:

value = light(signal) #function call to light()

if (value == 0):

print("STOP, Your Life is Precious.")

elif (value == 1):

print ("PLEASE GO SLOW.")

else:

print("GO!,Thank you for being patient.")#function ends here

def light(colour):

if (colour == "RED"):

return(0);

elif (colour == "YELLOW"):

return (1)

else:

return(2)#function ends here

trafficLight()print("SPEED THRILLS BUT KILLS")

#### **Logic:**

* Define the function trafficLight().
* Prompt the user to enter the color of the traffic light.
* If the input is not “RED”, “YELLOW”, or “GREEN”, display an error message.
* If the input is valid, call the function light() with the input as the argument.
* Store the return value from the function light() in the variable “value”.
* Based on the value of “value”, display the appropriate message.
* Define the function light() which takes the color as an argument.
* If the color is “RED”, return 0.
* If the color is “YELLOW”, return 1.
* For any other color, return 2.
* Call the function trafficLight().
* Print the safety message “SPEED THRILLS BUT KILLS”.

#### **Output:**

* >> Enter the colour of the traffic light: RED
* >> STOP, Your Life is Precious.
* >> SPEED THRILLS BUT KILLS

CONCLUSIONS :

In this way we are developing a very smart traffic control system which can be able to detect and monitor the traffic. It can take decision according to the density of traffic. The proposed work guarantees that it will give an efficient and dynamic management of traffic considering emergency vehicles. The speed detection system implemented can help reduce accidents and hence save lives.