Project Title: **Smart Traffic Management**
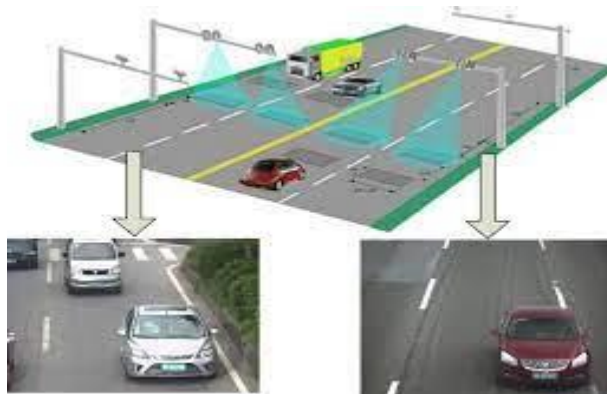
PHASE 2: *INNOVATION*

REQUIRED COMPONENTS:

- ➢ Automatic Vehicle Identifier
- ➢ Sensors
- ➢ Camera
- ➢ GPS

- ➢ <u>Automatic Vehicle Identifier:</u>

    Automatic Vehicle Identification(AVI) offers the opportunity to identify vechicles in various traffic situations in a secure,reliable and cost-efficient way.
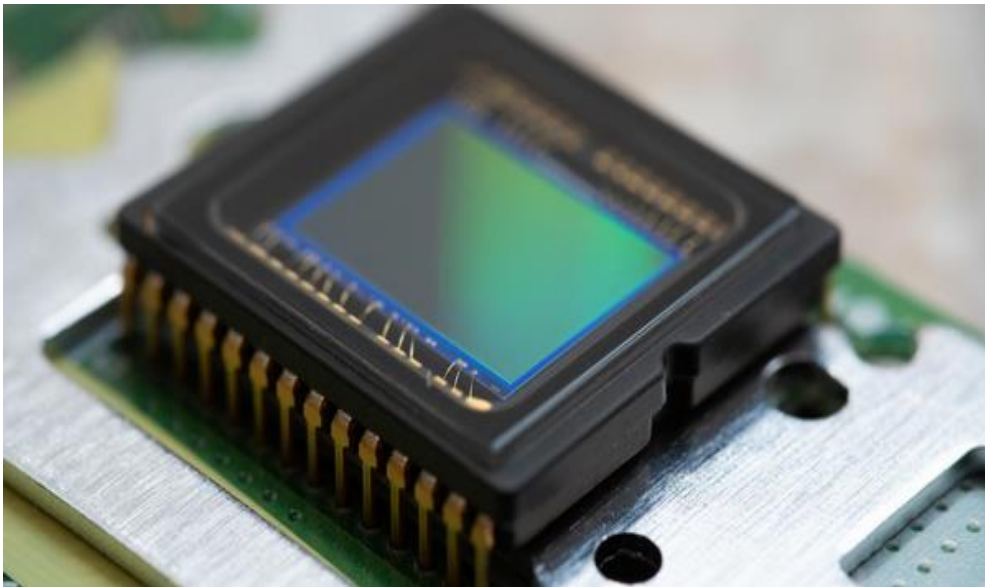

- ➢ Working
    - ▪ **Vehicle Entry/Approach:** The process begins when a vehicle approaches a point where AVI technology is deployed.

- **Vehicle Detection:** The AVI system uses various sensors and detectors to identify the presence of a vehicleVehicle Detection and Identification

➢ <u>Sensors:</u>

➢ A sensor is a device that detects and responds to some type of input from the physical environment.

➢ A sensor that take as input can be light ,heat ,motion, pressure or any number of other environment phenomena.

➢ Infrared sensors are typically used in traffic signals to determine the presence of vechicle at a junction

➢ Working

- Sensors for monitoring traffic
- **Inductive Loop Sensors:** These sensors are embedded in the road surface and can detect the presence of vehicles by

measuring changes in inductance when a metal vehicle passes over them.

- **Magnetic Sensors:** Similar to inductive loop sensors, magnetic sensors detect changes in the Earth's magnetic field caused by passing vehicles.

➢ Cameras:

➢ Traffic cameras form a part of most intelligent transportation systems

➢ They are especially valuable in tunnels,where safety equipment can be activated remotely based on information provided by the cameras and other sensors
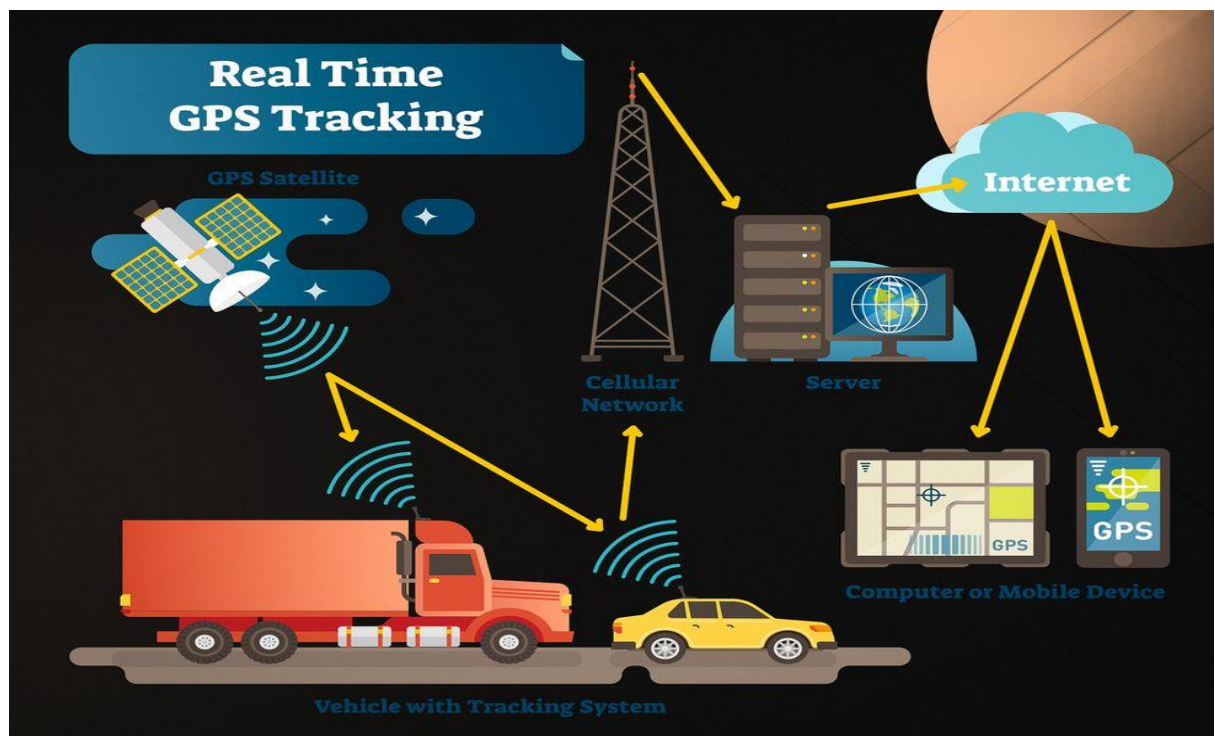
➢ Working Process:

- To monitor the roads and traffic
- To detect incidents
- Continuously collect real_time data
- Collect the accurate traffic data

➢ GPS:

➢ The Global Positioning System(GPS) is a U.S.-owned utility that provides users with postioning,navigation,and timing(PNT) services.

➢ This system consists of three segments

➢ Space Segment

➢ Control Segment

➢ User Segment

- ➢ Working Process:
- ▪ **Vehicle GPS Devices:** Many vehicles, including public transport, delivery trucks, and personal cars, are equipped with GPS devices.Get Real-Time Infromations
- ▪ **GPS Signal Reception:** The GPS devices in vehicles receive signals from multiple GPS satellites.

Circuit diagram:
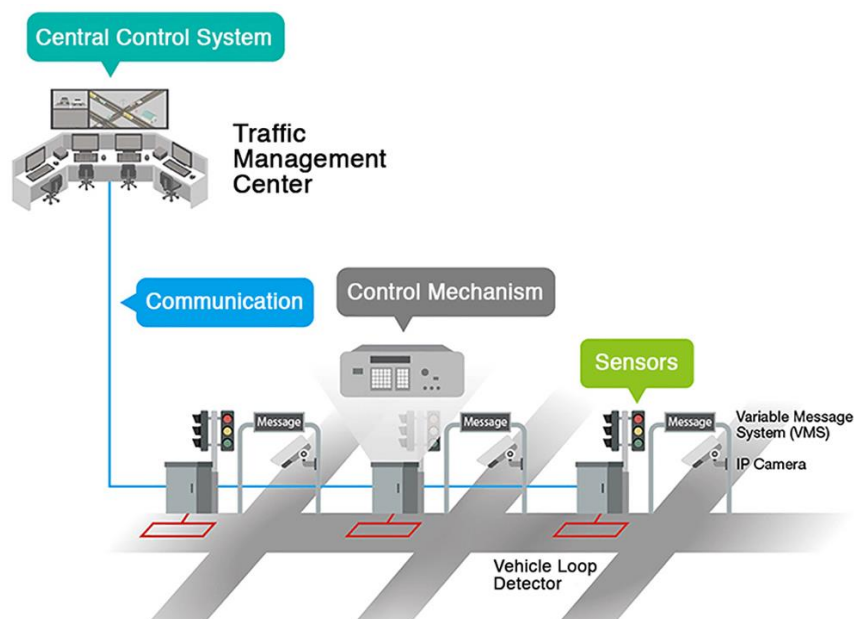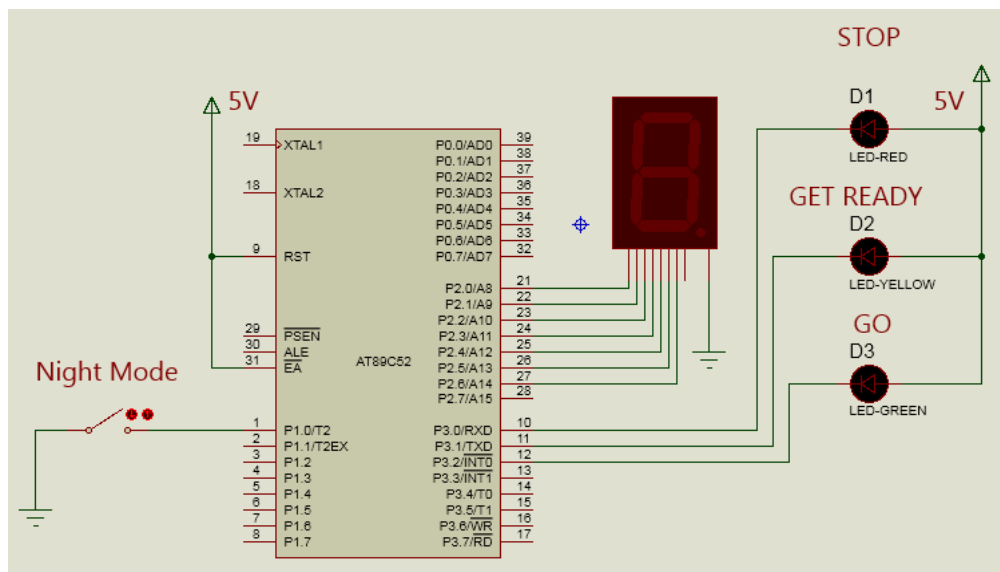
➢ <u>STEPS FOR FLOW CHART:</u>

STEP 1: Start the Program.

STEP 2: Checking for the congestion by using Automatic vehicle Identifiers(AVI).

STEP 3: If There is no congestion then activate the traffic light Control.

STEP 4: If there is congestion then process the below procedure.

- Activate the sensors that are inserted in the cameras.
- Sensors detect the real-time data.
- Signals are sent to the control rooms.
- Control room processes the Singals .

STEP 5: Checking for the alternative routes.

STEP 6: If there is any alternative routes are available ,then the route will be displayed on the mobile by using the GPS device.

STEP 7: If there is no alternative route then it will check for the faster route to reach the desination of the particular vehicle.

STEP 8: After finding the faster route ,then it will be displayed on the mobile by using the GPS device.

STEP 9: Stop the program.

➢ FLOW CHART: