Traffic Density Sensed Signal Light System

Abstract:

- This project presents the development of a traffic signal light system integrated with traffic density sensing technology to optimize signal timings based on real-time traffic conditions.
- The objective is to design a smart traffic control system capable of dynamically adjusting signal phases to improve traffic flow and reduce congestion at intersections.
- The system utilizes sensors, such as infrared (IR) sensors or cameras, strategically positioned at intersections to monitor vehicle density and traffic patterns.
- Data collected from these sensors are processed by a microcontroller unit (MCU) embedded within the traffic signal controller.
- The MCU employs intelligent algorithms to analyze traffic density and adjust signal timings accordingly.
- The project aims to address traffic congestion issues by optimizing signal timings in response to actual traffic conditions, thereby reducing waiting times and improving overall traffic efficiency.
- The system's adaptive nature allows it to respond dynamically to changes in traffic patterns throughout the day.