

# Vehicle Density Based Smart Traffic Management System Using IoT

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**Abstract:** increase in vehicular traffic flow has become a challenging role in controlling the metropolitan cities. Efficient flow of traffic control being critical in adjusting to traffic management conditions. The traditional management is inefficient to control the traffic density. Traffic management system is considered as one of the major dimensions of a smart city. With the rapid growth of population and urban mobility in metropolitan cities, traffic congestion is often seen on roads. To tackle various issues for managing traffic on roads and to help authorities in proper planning, a smart traffic management system using the Internet of Things (IoT) is proposed in this paper.

The rapid Increase in urbanization and the consequent rise in vehicle ownership have elaborated traffic congestion in cities . By continuously changing the traffic conditions the system aims to enhance the overall traffic system . using a vehicle density as a basis for traffic signal management and the control is one strategy. The main objectives of the density based smart Traffic management system are to enhance the traffic control and maximize the performance of transportation networks. The purpose of this project is to address this effect using Machine learning based traffic management system. So, the vehicle density detection is also implemented in this project using object capturing with the help of Raspberry pi camera module in Machine learning. The future scope of this project is to implement and develop several areas such as Real time traffic optimization predictive traffic management, improved public safety, scalability and adaptability

**Keywords:** Microcontroller, Sensors, HC-05

