BATCH NO: 1

PROJECT TITLE: ENHANCING URBAN MOBILITY AND EFFICIENCY: A SMART TRAFFIC MANAGEMENT LEVERAGING BLUETOOTH SENSORS NETWORKS

ABSTRACT:

This Project proposes an innovative approach to road traffic analysis and visualization by leveraging the Internet of Things (IoT) for data collection and employing Big Data analytics techniques. This system utilizes a network of sensors and devices strategically placed on roads to gather real time traffic data. The collected information is then processed and analyzed using advanced Big Data analytics tools, allowing for the extraction of meaningful insights and patterns. The proposed system aims to enhance traffic management and urban planning by providing accurate and timely information on traffic flow, congestion, and patterns. The visualization component offers a user friendly interface to stakeholders, enabling informed decision making for optimizing transportation systems and improving overall urban mobility. This project proposes an IoT based data collection system for road traffic analysis and visualization using big data analytics. With the increasing challenges of urban traffic congestion, efficient traffic management systems are essential for optimizing traffic flow, improving road safety, and enhancing urban mobility. The proposed system integrates IoT sensors and devices deployed along roads to collect real time data on traffic volume, vehicle speeds, and congestion levels. These data are transmitted wirelessly to a centralized platform for processing and analysis using big data analytics techniques. Machine learning algorithms are employed to predict traffic patterns and optimize traffic signal timingsin real time,leading to proactive congestion management and smoother traffic flow. This system also includes interactive visualization tools for presenting actionable insights to traffic authorities and the public, facilitating informed decision making and urban planning. By leveraging IoT and big data analytics, this project aims to contribute to smarter, more efficient traffic management systems.

Keywords: IoT, data collection, road traffic analysis, big data analytics, traffic management, congestion, real time, machine learning, traffic signal optimization