RJIT Research Journal of Information Technology

OPEN ACCESS

Executive Summary

Improved GPS Trajectory Classification Using Machine Learning Algorithms

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The Sustainable Development Goal (SDG) of Industry, Innovation, and Infrastructure, which may be achieved with effective use of IoE, has been handed to IoE by the United Nations (UN) as an opportunity. Building robust infrastructure, encouraging sustainable industry, and fostering innovation are all parts of this objective. IoE is employed in infrastructure and smart cities in addition to those two areas. While some of these advancements provide new difficulties, others help achieve the Sustainable Development Goals. To comprehend the nuances of the user's experience, including the crowding of shared rides, the performance on the day, and the length of rides, a system is currently being developed. Among the advantages of ridesharing are bettering one's health, protecting the environment, and speeding up traffic commutes.

Although carpooling strategies are growing more and more common, doing so presents challenges. To enable passengers to make an informed choice between a car or bus, the datasets should be quickly examined. A group of people who use a car or another vehicle to get to the same or a nearby area is said to be ridesharing. A collection of decision tree algorithms makes up the boosting algorithm. The accuracy of the models is increased by repeatedly fitting a few decision trees. The subset of data is chosen using the boosting approach. By estimating a regression function via random selection, boosting aims to reduce the loss function expectation. Support vector machines (SVM) should ideally be trained using poly kernel sequential minimal optimization.

On the training set, a 10-fold and a leave-one-out cross-validation (LOOCV) experiment was run. Metrics for evaluating performance demonstrated that Random Forests outperform linear models. Even though Intelligent Transportation System (ITS) technologies have made substantial progress, it is still necessary to investigate the possibilities for enhancing the system's performance. Understanding how transportation systems and travel demand interact is necessary for this. The Social Internet of Vehicles (SIoV), GPS, and other sensors used by SMAC generate enormous volumes of data. It is necessary to apply and handle this massive amount of data effectively to derive insights from it. Identification and reduction of features led to a decrease in computational complexity and the acquisition of the needed information, enabling effective categorization.

Based on the outputs of the current investigation, policymakers will be able to create appropriate rules to counteract the effects of urbanization. The study made it feasible to comprehend parameter variability in great depth, which helped the researchers comprehend the intricate urban network and sentiments connected to it. The deliverables could be used to develop and analyse various

environmental impact assessment scenarios in the risky areas.

Source: Information

KEYWORDS
Carpooling; GPS Trajectory; SMAC; Random Forest; feature ranking; SDG 9