Smart City Traffic Analysis Project

Durga Samir Sachin . Indrashil University

Week 1 Summary

This week focused on data import, cleaning, and exploratory analysis to uncover traffic patterns. Heatmaps and distribution charts were created to analyze traffic volumes and timings. Initial findings showed uniform traffic distribution with higher volumes on weekdays.

Week 2 Summary

Progress was made in emergency vehicle simulation, predictive modeling, and adaptive traffic light algorithms. A random forest model successfully predicted green light timings with low error. A simulated 6% emergency vehicle frequency was added to the dataset.

Week 3 Summary

Computer vision was integrated for vehicle counting, but the model predicted uniform green light times for all junctions due to dataset limitations. Improvements to the dataset were proposed to reflect realistic traffic variations.

Week 4 Summary

Final improvements included expanding the dataset to include peak hour variations. The re-trained model showed more accurate results, with reduced error and better performance in predicting green light timings based on real-world traffic behavior.

GitHub Repository

Find the project code here:
https://github.com/SamDurga2507/upskillcampus/blob/main/Traffic_control.ipynb