Ideation Phase: Brainstorm & Idea Prioritization Template

Date: 31 January 2025

Team ID: ___LTVIP2025MID44781___

Project Name: TrafficTelligence: Advanced Traffic Volume Estimation with Machine Learning

Maximum Marks: 4 Marks

Step-1: Team Gathering, Collaboration and Select the Problem Statement

Urban areas suffer from severe traffic congestion, resulting in delays, pollution, and safety issues. There is a lack of accurate real-time traffic volume estimation, which prevents effective traffic management and planning. This project aims to build an intelligent system that leverages machine learning to predict and estimate traffic volumes using historical and sensor data.

Step-2: Brainstorm, Idea Listing and Grouping

- Use real-time CCTV/video feeds to monitor traffic volume -> Data Sources

- Integrate GPS and mobile data for live traffic estimation -> Data Sources

- Train ML models on historical traffic datasets -> Machine Learning Approaches

- Use weather, time, and event data to improve prediction accuracy -> External Factors/Features

- Deploy system on cloud for scalable and remote access -> Deployment & Infrastructure

- Provide a dashboard for city traffic departments -> Visualization & UI

- Alert system for traffic congestion or incidents -> Application Features

- Compare performance of different models (Random Forest, XGBoost, LSTM) -> Model Evaluation

- Implement anomaly detection to flag unusual traffic patterns -> Advanced Analytics

- Predict future traffic volumes for planning purposes -> Forecasting & Planning

Step-3: Idea Prioritization

Idea	Impact	Feasibility	Priority
Train ML model on historical traffic data	High	High	****

Use weather/time/event as features in model	High	Medium	***
Real-time traffic estimation from video/CCTV feeds	High	Low	**
Develop visualization dashboard for authorities	Medium	High	***
Integrate GPS/mobile data for real-time updates	High	Medium	***
Forecast future traffic volume for better planning	High	High	****
Compare and select best-performing ML models	Medium	High	***
Cloud deployment of traffic intelligence system	Medium	Medium	***
Alert/notification system for traffic congestion	High	Medium	***
Anomaly detection for unusual traffic patterns	Medium	Medium	***