

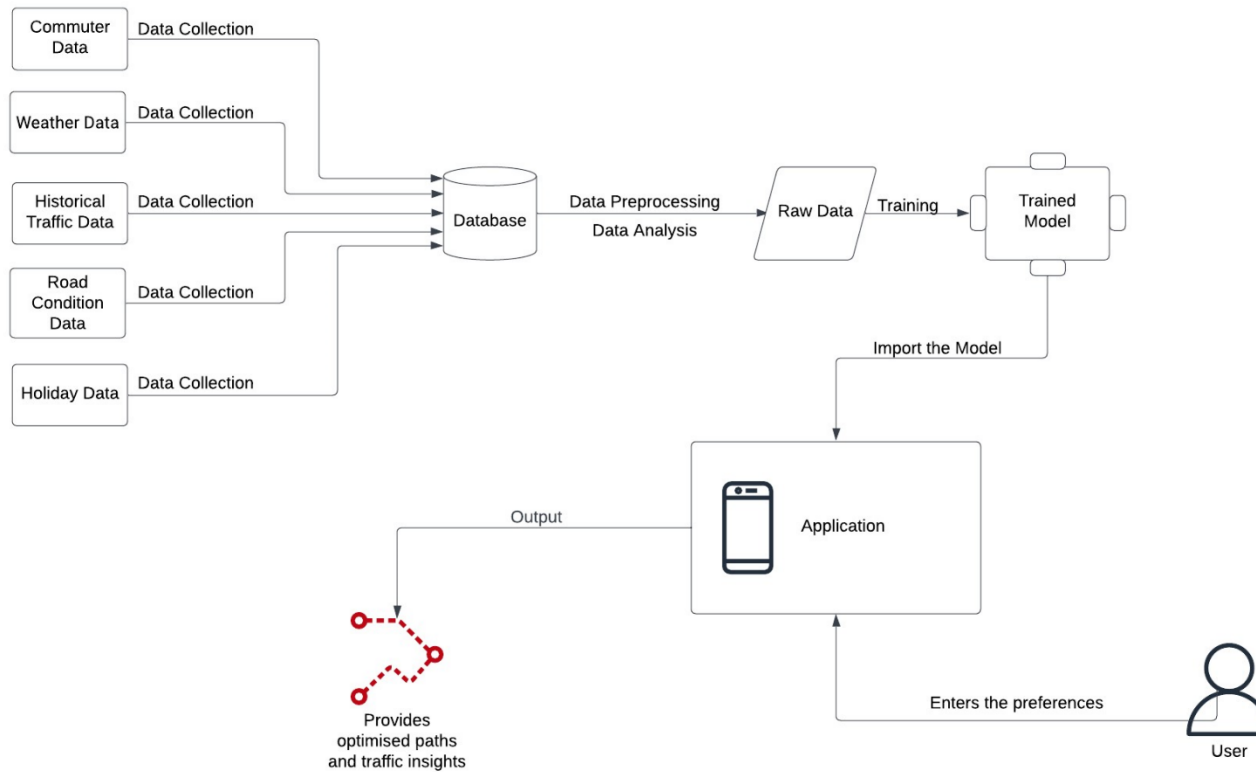
Project Design Phase-II

Data Flow Diagram & User Stories

Project Name

TrafficTelligence: Advanced Traffic Volume Estimation with Machine Learning

Data Flow Diagram:



User Stories

| User Type | Functional Requirement (Epic) | User Story Number | User Story / Task | Acceptance criteria | Priority | Release |
|---|------------------------------------|-------------------|--|---|----------|----------|
| Traffic Management Authorities | Project setup & Infrastructure | USN-1 | Set up the development environment with the necessary tools and frameworks for the traffic volume estimation project. | Successfully configured development environment with required tools and frameworks. | High | Sprint 1 |
| City Traffic Departments | Dataset Collection | USN-2 | Gather a comprehensive dataset containing real-time traffic data and relevant contextual variables. | Collected diverse and comprehensive dataset including traffic flow data, weather conditions, and historical patterns. | High | Sprint 1 |
| Public Safety Agencies | Data Preprocessing | USN-3 | Preprocess the gathered dataset by cleaning, organizing, and structuring it for machine learning. | Successfully preprocessed dataset including data cleaning, normalization, and segregation into training and validation sets. | High | Sprint 2 |
| Traffic Engineers | Model Evaluation | USN-4 | Explore and evaluate different machine learning models to determine the most effective for traffic volume estimation. | Thoroughly explored different ML architectures and selected the most suitable model for traffic volume prediction. | High | Sprint 2 |
| Transportation Technology Companies | Model Training | USN-5 | Train the selected machine learning model using the preprocessed traffic dataset and monitor its performance on the validation set. | Successfully trained the model and assessed its performance on the validation set. | High | Sprint 3 |
| Navigation Providers | Model Enhancement and Optimization | USN-6 | Implement optimization techniques to enhance model accuracy and robustness for real-time traffic predictions. | Improved model performance through augmentation, hyperparameter tuning, and optimization based on real-time user feedback. | Medium | Sprint 3 |
| Traffic Control System Integrators and App Developers | Model Deployment & Integration | USN-7 | Deploy the trained machine learning model as an API or service for traffic detection. Integrate the model's API into a user-friendly interface for traffic analysis. | Deployed scalable API and integrated it into an intuitive user interface allowing users to receive real-time traffic predictions. | Medium | Sprint 4 |
| Quality Assurance Teams | Testing & Quality Assurance | USN-8 | Conduct thorough testing of the model and interface. Identify and report any issues or bugs. Optimize model performance based on feedback and testing results. | Completed rigorous testing, reported issues, fine-tuned model based on feedback. | Medium | Sprint 5 |

