

## 8. Advantages & Disadvantages of TrafficTelligence

### ✓ Advantages of TrafficTelligence

#### 1. Real-Time Prediction

- Provides instant traffic volume estimates based on current weather inputs.

#### 2. User-Friendly Interface

- Simple web UI using HTML & CSS for easy interaction.

#### 3. End-to-End ML Integration

- Covers full ML workflow: data preprocessing, model training, evaluation, and deployment.

#### 4. Reusable & Scalable Architecture

- Clean project structure allows easy upgrades and API integration.

#### 5. Fast Model Performance

- Random Forest delivers high accuracy with low prediction time.

#### 6. Modular Code

- Components (training, backend, UI) are separated and easy to maintain or replace.

#### 7. Open Source & Educational

- Great for learning and demonstrating ML + web development concepts.

### ⚠ Disadvantages of TrafficTelligence

#### 1. No Real-Time Data Source

- Predictions rely on manually entered weather values, not live weather APIs.

#### 2. No User Authentication

- No login system to track user history or restrict access.

#### 3. No Data Logging

- Predictions are not stored for future reference or analysis.

#### 4. Limited Input Validation

- Accepts any numeric values; lacks error messages or warnings for unrealistic inputs.

## **5. Basic UI Design**

- Minimal styling; not optimized for mobile or tablet devices.

## **6. Model Generalization**

- Trained on a specific dataset; may not generalize well to other regions or timeframes.