Phase 2: **INNOVATION**

Here are innovative module ideas using algorithms to enhance traffic management

**1.Traffic flow optimization:**

• This module uses an Min-cost flow algorithm that optimize traffic flow by adjusting traffic light timings dynamically based on real time traffic data.

**2.Adaptive route planning:**

• This module uses an Traffic routing algorithm that suggests alternative routes to drivers based on current traffic conditions, accidents and avoiding traffic jams.

**3.Public transportation scheduling:**

• This module uses an Shortest path first and A\* algorithm to optimize the schedules of buses, trains and other public transportation modes based on demand patterns.

**4.Smart traffic signage:**

• This module uses an Linear regression algorithm that dynamically changes digital traffic signs based on real time traffic conditions, construction zones or emergencies, providing up-to-date information to drivers and improving traffic management.

**5.Traffic incident detection:**

• This module uses an Histogram of oriented gradients(HOG) and Linear SVM (Support vector machine) algorithm that uses real time traffic data and incident reports to detect accidents or road accidents promptly, allowing for faster emergency response and traffic rerouting.

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