

The GitHub repository "Smart_traffic" by SEPURIPAVAN hosts a traffic management system project, aiming to provide real-time vehicle detection and intelligent signal control capabilities. The project leverages modern technologies like YOLOv8 for object detection and React for the user interface.

The core features include real-time vehicle detection using YOLOv8, with distinct color-coded boxes to identify different vehicle types (cars, buses, trucks). It incorporates a tracking system that assigns unique IDs to each vehicle, facilitating smooth and accurate counting. The system boasts a professional and visually appealing user interface featuring gradient effects, animations, and a responsive design suitable for various screen sizes.

The signal control aspect offers an interactive interface for managing traffic lights, allowing users to monitor real-time traffic conditions and vehicle detection statuses. This provides the opportunity to potentially influence signal timings based on detected traffic patterns.

The project is structured with a Flask-based Python backend responsible for video processing and YOLOv8 integration. The frontend is built with React and styled with Tailwind CSS, using the Canvas API for video overlays and providing real-time data updates. The backend exposes RESTful API endpoints to facilitate communication with the frontend.

The "Getting Started" section provides detailed instructions for setting up the project, including cloning the repository, installing Python and Node.js dependencies, and running both the backend (using `python yolo_detector.py`) and frontend (using `npm start`). The instructions include the link to access the program. Finally, the README includes a section for how to contribute to the project, and explains the MIT License under which the project is shared.