The GitHub repository "Smart_traffic" by SEPURIPAVAN presents a traffic management system built with real-time vehicle detection and signal control capabilities. The project leverages advanced technologies for vehicle detection, tracking, and signal management, offering a modern and professional user interface.

At its core, the system utilizes YOLOv8 for real-time vehicle detection, distinguishing between different vehicle types (cars, buses, trucks) with color-coded bounding boxes. Each vehicle is assigned a unique ID for smooth and persistent tracking. The frontend, built with React and styled with Tailwind CSS, displays a professional and responsive UI with gradient effects and animations. The system provides real-time vehicle counts and detection status updates.

The interactive signal control interface allows users to monitor and manage traffic flow. The backend, powered by a Flask server, handles video processing and provides RESTful API endpoints for the frontend to consume real-time data. The Canvas API is used for video overlay, providing a seamless integration of the vehicle detection data with the video stream.

The repository includes instructions for setting up the development environment, which requires Python 3.8+, Node.js 14+, and npm or yarn. The instructions outline cloning the repository, installing dependencies for both the backend (using `pip`) and frontend (using `npm`), and running the Flask server and React application separately. The project is licensed under the MIT License, encouraging contributions through forking, creating feature branches, and submitting pull requests.