Real-World Applications

Edge Server-Based AI Application for Dilemma Zone and Traffic Conflict Events Detection (USDOT SBIR FY22 Phase I & II)

U.S. Department of Transportation
Volpe Center

Edge Computing and Sensor Fusion System for Comprehensive Monitoring of Traffic and Road Conditions (USDOT SBIR FY23 Phase I & II)

U.S. Department of Transportation
Federal Highway Administration

Integrated Perception & Communication System for Cooperative Driving Automation (USDOT SBIR FY24 Phase I)

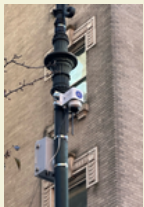**EDGE AI** TECHNOLOGIES FOR **SAFER,** MORE **EFFICIENT TRANSPORTATION**

Yakama Nation	**Bellevue, WA**	**New York, NY**	**Tucson, AZ**
Lynnwood, WA	**Tacoma, WA**	**Olympia, WA**	**Spokane, WA**

About Us

At AIWaysion, we provide the next generation Edge AI technology that integrates sensing, analysis and communication functions all in one device. Combining our unique hardware and software technologies, AIWaysion aims to provide transportation practitioners and researchers customized solutions for the challenges and opportunities of Intelligent Transportation Systems (ITS).
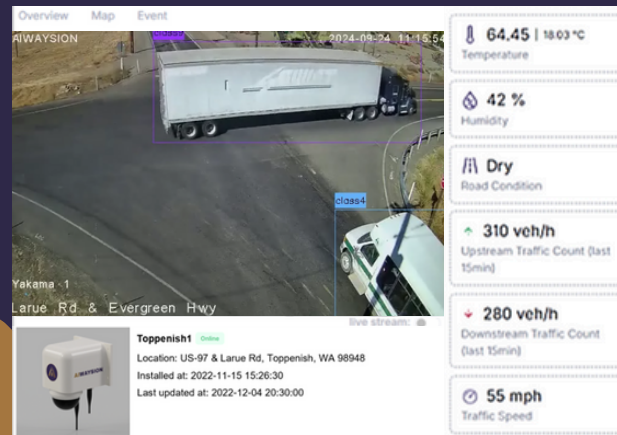
Why Us?

HARDWARE (Plug-And-Play):
- Multi-sensor
  - Camera, Bluetooth/Wi-Fi MAC Address sensor, environmental sensors
- High performance computing board
- Cellular communication module

SOFTWARE (User Friendly):
- Flexible applications
- Comprehensive sensing
- AI-powered algorithms
- In-device (Edge) data analysis
- Leverage existing cameras

Dashboard for Device & Data Management

AIWaysion

The Future is at the *Edge*

AI-Powered Solutions

Comprehensive traffic sensing
- Volume, classification & speed of vehicles and vulnerable road users

Road conditions monitoring
- Road surface (dry, wet, ice, snow)
- Visibility, temperature, humidity...
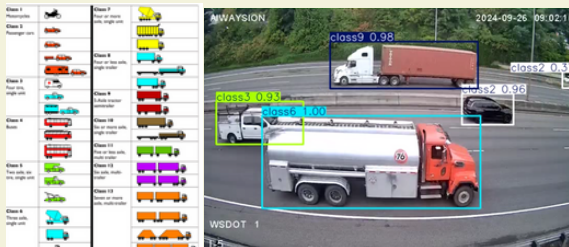
Hazardous events detection
- Adverse road surface conditions
- Collision/near-miss events
- Dilemma zone events
- Stopped vehicles, debris, queues, speeding, wrong way driving

Communication with TMC, road users, and traffic control devices
- Events with snapshots/video clips
- Alerts and messages
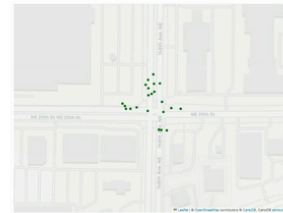

Cellular 4G LTE/5G, Sign/Signal Comms

FHWA 13-Category Classification

Technology

Mobile Unit for Sensing Traffic (MUST) is a Plug-and-Play Edge AI device with perception, computing & communication all in one unit.
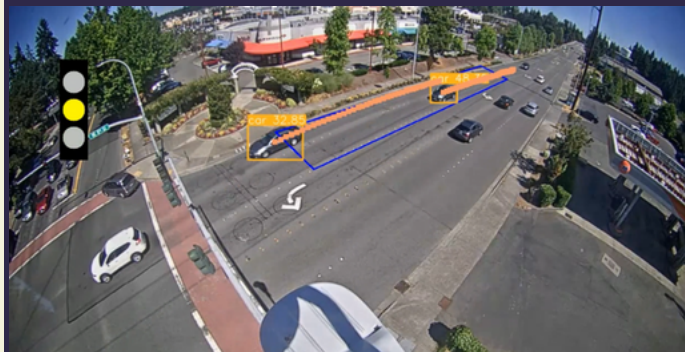
Real-world coordinates & trajectories of vehicles, pedestrians and cyclists from multiple, fused camera views on OpenStreetMap

Camera view 1   Camera view 2   Camera view 3

Real-Time Trajectory Analysis & Prediction

Collision/Near-Miss Events Detection

Dilemma Zone Events Detection

Customers & Partners

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