AIWAYSION

WHO WE ARE

AIWaysion, Inc. is a technology company providing Smart Mobility Solutions using Artificial Intelligence (AI) and edge computing for safer and more efficient transportation. AIWaysion utilizes Edge AI technologies for real-time traffic sensing and control, roadway and environmental conditions monitoring, dangerous events detection and warning, smart parking, and connected vehicles applications.

Our next generation connected vehicle (CV) technology integrates sensing, analysis and communications functions all in one device. Combining our unique hardware design and patented software innovations AIWaysion aims to provide transportation practitioners customized solutions for their Intelligent Transportation Systems (ITS) challenges.

What we provide

Next-generation connected vehicle technologies for safer and more efficient transportation.

Contacts

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PRODUCTS

HARDWARE: MOBILE UNIT FOR SENSING TRAFFIC (MUST)

AIWaysion's MUST is a roadside AI Edge device that integrates comprehensive sensing, data fusion, in-device edge analysis, and communications functions all in one unit. Multiple sensors, including PTZ camera, Bluetooth and Wi-Fi antennae, and temperature and humidity sensors, are integrated to address the diverse needs of applications in smart transportation. MUST can detect, analyze, and produce data about vehicle, pedestrian, and cyclist volume, speed and classification; road surface conditions (e.g., dry, wet, ice, snow); visibility; dangerous events including stopped vehicles, collision/near miss, , and travel time estimates. MUST can be configured as a communication node on the infrastructure side for connected vehicle and similar smart transportation applications. MUST's robust engineering design enable it to work under very challenging weather and environmental conditions.

SPECIFICATIONS

Operation Temperature	-40 ℃ ~ 70 ℃
Operation Relative Humidity	10% ~ 90%
Ingress Protection	IP 65
Power Supply	12V(DC)
Energy Consumption	< 35Watts
CPU	ARM1176JZF-S 700 MHz
GPU	128-Core Maxwell 1600MHz
Communication	3G/4G/5G, Ethernet
Operation System	Linux
Local Data Storage	Micro Secure Digital (SD) Card
Weight	10 pounds
Dimensions	170 mm (length), 170 mm, (width), 300 mm (height)

SOFTWARE: WaysionNet

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AIWaysion's WaysionNet is a web and mobile-app based platform for device management, data analytics, visualization, communication and control. This software suite has the following key functions:

WaysionNet TRAFFIC

- vehicle volume
- vehicle speed
- vehicle classification
- travel time measurement

WaysionNet VRU

- pedestrian/cyclist detection & volume
- customized VRU detection (scooters, wheelchairs)

WaysionNet SAFETY

- queue/congestion warning
- stopped vehicle warning
- collision and near-miss events warning
- low visibility and dangerous road surface condition warning
- abnormal objects/event warning

WaysionNet ENV

- environmental condition detection (i.e., temperature, humidity)
- road surface condition detection (i.e., normal, wet, icy, snow)
- visibility detection

WaysionNet CV

- vehicle-to-Infrastructure (V2I) applications
- pedestrian-to-Infrastructure (P2I) applications

WaysionNet PARKING

- parking event (i.e., vehicle type, location, ingress, egress)
- parking availability
- parking duration

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OUR SOLUTIONS

Road-side Device for Connected Vehicles

Travel Time Data Collection

Vehicle Counting & Classification

Roadway and Environmental Conditions Monitoring

Pedestrian Detection & Trajectory

Parking Detection and Security Monitoring

OUR COLLABORATORS

WSDOT

Department of Transportation United States of America

City of Bellevue Washington

Lynnwood Washington A great deal more

Confederated Tribes and Bands Yakama Nation Treaty of 1855

University of Hawai'i Ua mau ke ea o ka 'āina i ka pono 1907

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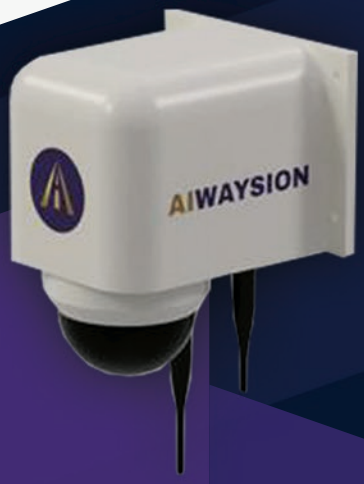
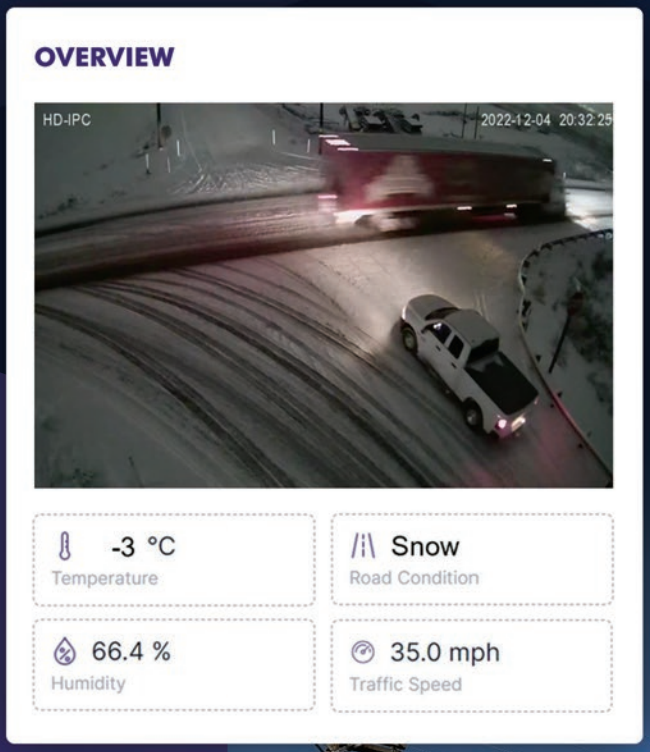
APPLICATIONS

Toppenishl ONLINE

LOCATION: US-97 & Larue Rd, Toppenish, WA 98948
INSTALLED AT: 2022-11-15 15:26:30
LAST UPDATED AT: 2022-12-04 20:30:00





1

RURAL TRAFFIC SAFETY DATA COLLECTION AND TRAVELER INFORMATION SYSTEM PILOT

LOCATION:
TOPPENISH, YAKAMA NATION

Yakama Nation Department of Natural Resources (DNR) Engineering is working with AIWaysion on a pilot project deploying MUST (Mobile Unit for Sensing Traffic) devices on the roadways and intersections for safety data collection (traffic, roadway surface conditions, visibility, environmental conditions, etc.) and real-time warning of dangerous events (speeding, collision/ near-miss, stopped vehicle, snow and icy road surface, low visibility/heavy fog).

2

2022 USDOT SMALL BUSINESS INNOVATION RESEARCH (SBIR) PHASE I: EDGE SERVER-BASED DILEMMA ZONE AND TRAFFIC CONFLICT EVENTS DETECTION

LOCATION:
CITY OF BELLEVUE, WASHINGTON

Funded by FHWA, and partnering with City of Bellevue and Verizon, AIWaysion has been providing real-time detection of dilemma zone and traffic conflict events (collision/near-miss) implementing AI-based video analytics on the Edge Server (Verizon's 5G MEC). The system is able to receive and analyze live video from city's existing cameras and signal timing information, detect dilemma zone and conflict events in real-time (latency < 50ms), and communicate with the traffic signal controller.

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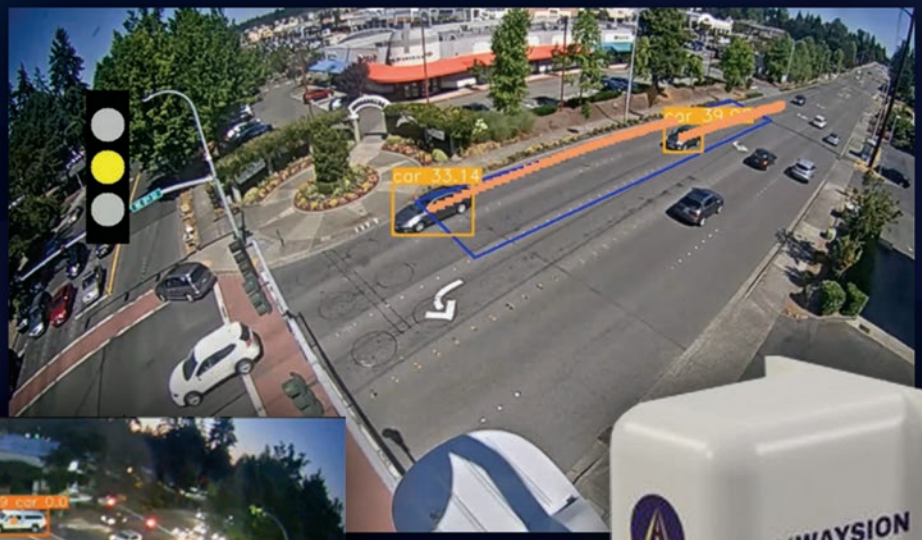
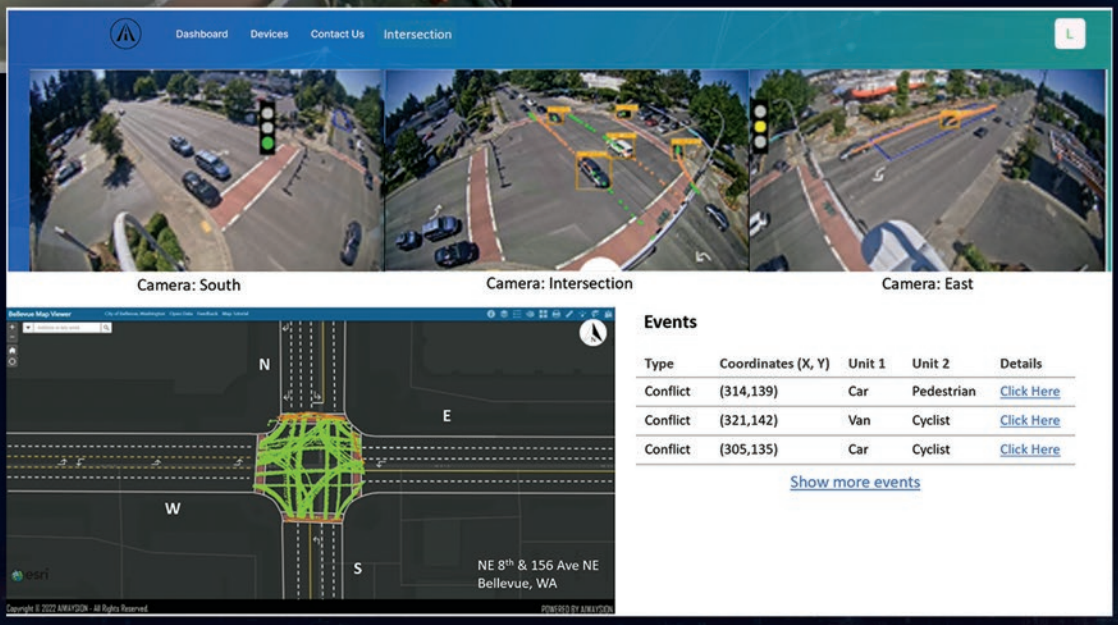


Video-based real-time trajectory conflict events (collision/ near-miss) detection

Video-based real-time dilemma zone detection



User Interface to visualize the live detection results from different camera views of one intersection

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3

2020 WASHINGTON STATE TRANSPORTATION INNOVATION COUNCIL (STIC) PROJECT: AN INNOVATIVE INTERNET OF THINGS TECHNOLOGY FOR COMPREHENSIVE TRAFFIC SENSING AND V2X APPLICATIONS

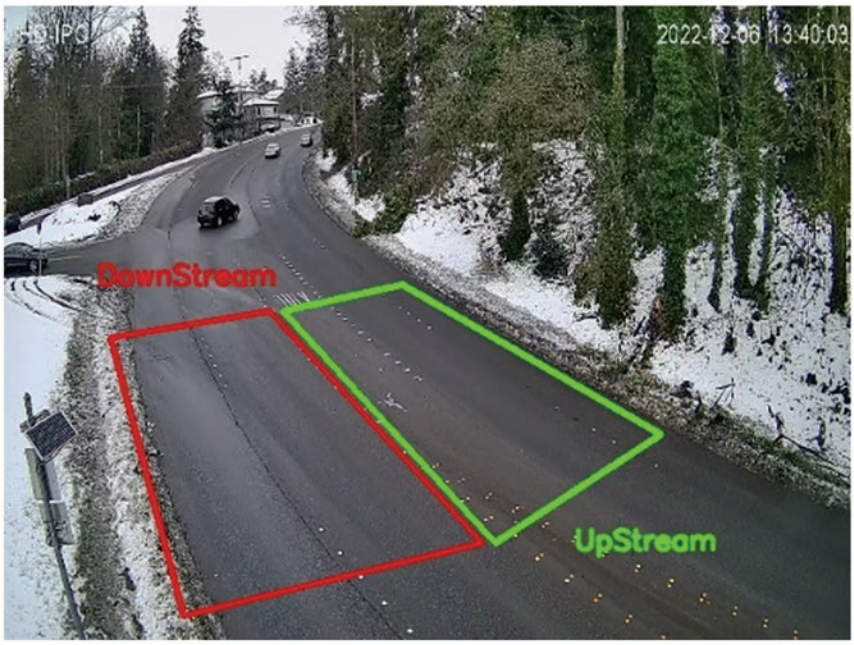
LOCATION:
CITY OF BELLEVUE,
CITY OF LYNNWOOD,
WASHINGTON

MUST devices were installed along roadways with high crash risks, including segments with horizontal and/or vertical curves, frequent snow or ice coverage, speeding, etc., to monitor traffic and roadway surface and environmental conditions and communicate with TMC as well as broadcast useful information to road users when needed.

Lynnwood1 ONLINE

LOCATION: 44th Ave W, Lynnwood, WA 98037
INSTALLED AT: 2022-11-23 16:18:30
LAST UPDATED AT: 2022-12-06 13:40:47

OVERVIEW



7.2 °C Temperature	Wet Road Condition	12 Downstream Traffic Count
99.9 % Humidity	20 Upstream Traffic Count	38.1 mph Traffic Speed

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4

2022 WASHINGTON STATE TRANSPORTATION INNOVATION COUNCIL (STIC) PROJECT: COST-EFFECTIVE REAL-TIME VISIBILITY DETECTION SYSTEM BASED ON INTERNET OF THINGS (IOT) AND COMPUTER VISION TECHNOLOGIES

LOCATION:
CITY OF BELLEVUE, CITY OF LYNNWOOD, WASHINGTON

MUST devices were installed in two corridors in the City of Bellevue and City of Lynnwood, Washington. MUST implements the cutting-edge Computer Vision technologies to estimate visibility only based on single image captured by camera.

ORIGINAL IMAGE

DEHAZED IMAGE

SCATTERING MAP

DARK CHANNEL

MAXIMUM CONTRAST

COLOR ATTENUATION

HUE DISPARITY