

SIGNS WITH SMART CONNECTIVITY FOR BETTER ROAD SAFETY

PROPOSED SOLUTION

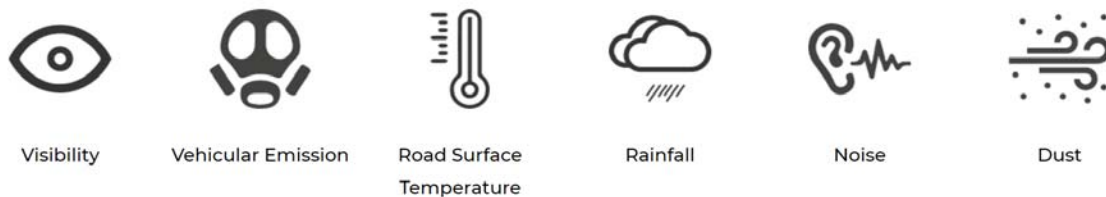
Problem

Reckless driving and poor weather conditions are one of the major reasons for most of the road accidents. Annually more than 6 million car accidents happen due to poor weather conditions and rainfall in the US. The problem is 10 times more critical on a global scale. Adverse weather situations reduce road visibility and in particular weather conditions, the roads are slippery, which further increase the chances of accidents. Exposure to critical air quality levels in tunnels, parking lots and crowded streets leads to serious health hazards. It is necessary to take preventive actions and avoid vehicular congestion, which are the hot-spots of heavy emissions.

Concept

Roadside monitoring of weather parameters from strategic locations can address the problem of accidents due to poor weather conditions. Weather monitoring solutions capturing the target parameters should be installed at specific intervals on the roadways to gather data. The data can be used to derive dynamic speed-limit which should be enforced using a speed-control system. Air pollution monitoring at crossroads, tunnels and multi-level parking facilities is critically important for ensuring health and safety within the transportation networks. Actions like adjusting tunnel ventilation intensity, traffic lights regulation, etc. can greatly limit the exposure to high levels of emissions and restricting access to basement parking when needed.

Target Parameters



Proposed Solution

[Oizom Weathercom](#) is a smart device to be used at accident-prone zones on the roads and highways. The intelligent road sensors monitor critical parameters like road visibility, road surface temperature, and rainfall in real-time. [Oizom Polludrone](#) needs to be installed at crossroads, tunnels and multi-level parking facilities to monitor vehicular emission. Weathercom and Polludrone push the real-time data obtained to the Oizom cloud. The top-speed limit is calculated based on weather speed index. The dynamic speed limit is then served to the drivers in the form of push notifications through maps, and Visual Messaging Displays. Effective vehicular route management is performed in case of higher pollution levels. Tunnel and parking ventilation are automated based on the pollution level.

Compact 
Light-weight and compact system installed
at 12-15 feet (3.5-4.5 m) height

Ultimate Durability 
Made of high-grade engineering-metal and
composite polymers for long life

Network Agnostic 
Wide range of connectivity options like GSM
/ WiFi / LoRa / NBIoT/ Ethernet

Over-The-Air Update 
Automatically upgradeable from a central
server without any onsite visit



Solar Powered 
Capable of running independently on solar
power

Real-Time Data 
Continuous monitoring and real-time data
transfer at configurable intervals

Weatherproof 
IP65 grade enclosure for endurance against
harsh weather conditions

Identity & Configuration 
Each equipment carries its unique identity
with geo-tagging

Impact

Integrating weather and road condition monitoring into Intelligent Transport Systems (ITS) helps in reducing road accidents by 12-16%. Air quality monitoring on the roadways and tunnels ensures human exposure to vehicular emission is within the permissible limits. Automation of the ventilation manages the air circulation and improves the air quality inside tunnels and multi-level parking facilities.



Speed Enforcement Solutions



Fixed Radars

RAMER10 PT stationary radar speed camera is a suitable solution for locations with high risk of exceeding the speed limit. Rectangular shape of cabinet and its possible height up to four meters significantly decreases risk of vandalism and damaging of the installed radar speed camera unit. RAMER10 PT can be placed on the road verge or into the central reservation area in case of separate traffic lanes for each direction. Special design of radar sensors enables speed measuring up to four traffic lanes simultaneously.



Handheld Radar

The TruCAM II is more than just a speed enforcement laser. Officers can gather the proof needed for other traffic violations including following too closely, aggressive driving, misuse of HOV lanes, distracted driving, obstructing traffic and seat belt violations. Violations can be recorded sooner with the TruCAM II extended video tracking and speed capture offering a range of up to 320 km/h for both approaching and departing vehicles.



Tripod Radar

This model of the traffic speed camera is designed for widespread use under any traffic conditions. It is suitable for a wide range of applications under any light conditions. This assembly can be transported in a boot of a passenger car, or even carried in hand. If speed measurement takes place under a deteriorated weather conditions, it is necessary to make use of a protective rainproof cover. When in operation, the device is power supplied from a battery (part of the power supply block).

Long operating time, covers up to 4 traffic lanes, high-resolution black & white or colour digital camera (up to 16 MPx), auto iris control for optimum image quality, high-rate of measurement, furnished with touchscreen display, tablet PC or UMPC, integrated battery charger, communication through standard VGA or LAN interface, or WiFi and image transmission via LAN, USB or WiFi.



In-Vehicle Radar

This advanced model of Doppler-based radar speed camera is designed for in-car applications and ranks among the most widespread and popular speed enforcement solutions. Provides comfort for patrolling staff, allowing them to measure speed of traffic while driving or when parked.

- Maximum mobility
- Fully automated speed measurement during driving
- Both parabolic and planar antenna available
- High-resolution monochrome or colour camera with auto iris control
- Measurement at approach, departure, or both directions

- Other speed measurement methods available (vehicle tracing, average speed by start-stop principle)
- No deactivation of airbag needed
- Radar battery automatically recharged from onboard electrical network
- Image transmission through arbitrary interface
- Wireless data transmission to back office
- Customised installation

Ai Based Enforcements



Automatic Number Plate Recognition (ANPR)

Our ANPR software, combines neural technology and artificial intelligence, to develop traffic analytics efficiently and quickly for any scenario: Onboard systems (police vehicles), cameras at fixed points (to recognize vehicle license plates continuously, at any speed).

Our solution has been developed with the aim of offering the road safety authorities better control to improve safety, mobility and traffic management; It offers the possibility to perform historical searches by number plate, brand, color, speed, direction of traffic and lane as well as vehicle classification, detecting those that violate the traffic rules and endanger the lives of other citizens.



Red Light Violation

Our solution is designed for obtaining documentation of vehicles that run the red light signal at intersections. The ANPR cameras capture red light running vehicles at the stop-line. The overview camera detects and documents the phase of the traffic light as well as records the situation in the intersection and the motion of vehicles into the intersection.

Due its non-intrusive nature there is no connection to the traffic controller required and it can operate without inductive loops as well.



Illegal Turn

Edge-to-edge solution for traffic violations detection. It combines specialized ruggedized hardware components and software for high precision detection and automatic license plate recognition (ANPR). The solution is supplied with onboard processing, environmentally protected ready-to-mount cases and built-in illumination. It is designed to monitor multiple vehicles and pedestrian behavior at crossroads or in potentially dangerous streets and automatically detect suspected traffic law violations.



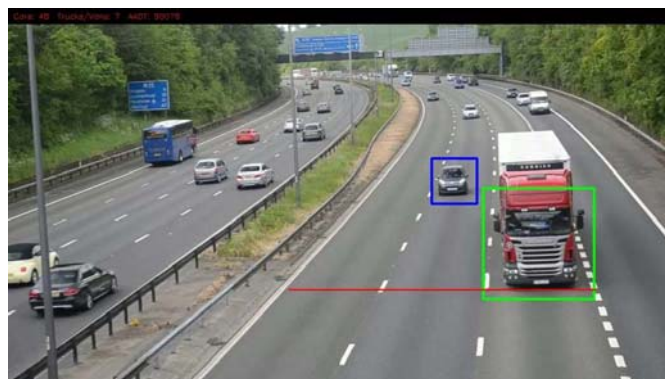
Mobile Phone Usage Violation

The increased use of digital video and image processing technology has paved the way for extending the traffic enforcement applications to a wider range of violations as well as making the enforcement process more efficient. Automated traffic enforcement has mainly been applied towards speed and red light violations detection. In recent years, there has been an extension to other violation detection tasks such as mobile phone usage and seat-belt usage.



Seatbelt Violation

We provide solution that enables Government Authorities to bring down the death rates that are caused due to non usage of seat belts in the vehicle. The high amount of such fatality can be avoided through ensuring that each driver in the car is following the safety guidelines implemented by their government. We provide AI based imaging system that can detect whether the driver of the vehicle is wearing seat belt or not and can provide alerts or information of the vehicle like Plate Number, Image of the plate, photo evidence. The information is managed and stored in the centralized database allowing the authorities to implement the legal process. The system is capable of being installed on slow moving inter city to high movement/flow locations like highway.

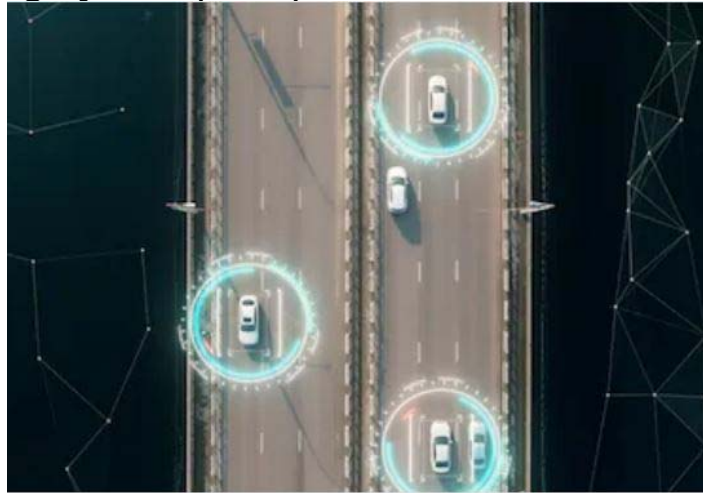


Vehicle Classification and Counting

The solution provides an easy means for authorities to understand the load on their public transport across the country and allow them to take important decisions to tackle the ever growing needs of enhancing the infrastructure. The system is capable of Vehicle Classification allowing you to know the various types of vehicle movement in a zone and also provides the traffic flow count at the same time.

Another implementation would be to limit heavy vehicle to get onto core city roads in specific times of the day. The system can also be extended to handle extensions like Weigh In Motion which can detect the weight of heavy vehicle by axle and capture vehicle that are higher weight as defined by the Road Transport Authorities.

Vehicle Tracking System (IVMS)



Our IVMS allow the user to view their vehicles in real-time, at any time, from any device. No additional software is necessary; everything is accessible from the internet/intranet. IVMS consists of two main parts – vehicle tracking device and fleet management software. When fleet is equipped with the tracking devices and company is using an advanced real time fleet management software, resources required for daily fleet operation can be significantly reduced and their productivity increased. IVMS will allow the user to Monitor speed, acceleration, and braking profiles of the drivers, See start and end times and location, Create geographic zones, Set rules and times for each zone, and receive alerts when rules are broken, and many other useful features.