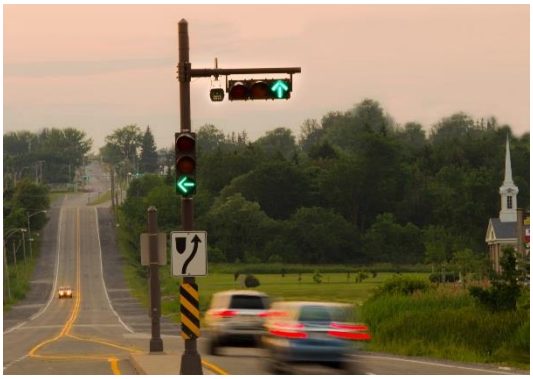
Improving Traffic Management Efficiency with Leddar d-tec Traffic Detection Sensors

The Challenge

A city part of a large North American metropolitan area had recurring problems with traffic detection at crucial intersections, and complaints from the public were ongoing.



The city was unhappy with the performance of their stop bar video detection system, and many motorists were complaining about missed and false vehicle detection that was hindering traffic flow at this location. Systems using video cameras were also installed, but these were also having recurring issues, regardless of the set up.

Because of these problems, the city's traffic management department wanted to replace their systems with a new solution that would provide better performance and reliability. The system had to detect vehicles with high reliability and minimal false positives, in any lighting and weather conditions, with minimal maintenance requirements and without interruption (24/7).

The Solution

An authorized distributor of LeddarTech products met with city officials to propose a "try before you buy" pilot project with the Leddar™ d-tec traffic detection sensors.

The d-tec offers accurate stop bar and advanced detection of vehicles of all sizes, bicycles, motorcycles, and pedestrians. It compiles data thousands of times per second for accurate detection in all environmental conditions. The d-tec provides a range of up to 250 feet, using Leddar optical time-of-flight sensors. Specific detection zones can be set in the sensor's field of view to discriminate between each traffic lane. The system also identifies the direction of the traffic flow, thereby preventing false calls to traffic signal controllers.

Its robust waterproof enclosure is designed to withstand the worst adverse conditions. The Leddar d-tec works reliably in rain, fog, or snow, thanks to the use of diffused LED light sources combined with proprietary signal processing which filters out unwanted noise to generate cleaner detection results.

The typical d-tec installation is fast and simple. The sensor can be mounted to existing infrastructure using a simple Astro-Brac camera bracket. Power over Ethernet (PoE) supply and data communication to the d-tec is done by a single Cat5 cable that is pulled from the controller cabinet to the sensor. Inside the controller cabinet, a Controller Interface Card is installed in the card rack. The card is NEMA compliant and is suitable for all the different standardized types of traffic controllers found in North America. The d-tec is then configured through a user-friendly software installed on a laptop. An integrated onboard image processor enables the alignment of the sensor remotely, further reducing installation and maintenance time. The onboard image processor also provides the value-added capability to transmit video images of the detection area back to the Traffic Operations Center (TOC).

The Outcome

An evaluation consisting of a 30-day trial was performed to compare the Leddar d-tec's performance with the former detection system.

The d-tec performed flawlessly, as observed by the manager of the traffic management center who praised the sensor's consistently reliable detection capabilities and positive impact on traffic flow. Immediately following the trial, city officials decided to deploy the Leddar d-tec traffic sensors at a strategic intersection.

Based on Leddar's superior sensing capabilities, another installation was made, this time to detect incoming cyclists and improve safety at a busy intersection. Once again, city officials were really pleased with the results: *"We just installed a d-tec sensor this week at one of our major bicycle corridors and it seems to be working great, picking up the bicyclist anywhere in the detection zone. And since it sends out its own IR pulse, it is independent of the ambient light and works great at night, unlike some camera systems we have tried"*.

This represents another major advantage, as illustrated by the following feedback from one of the traffic signal technicians: *"We have had nothing but success with this product. It was a cinch to install with the single cat5 cable pull and the user friendly programming interface. I have never set up a system so fast and with such ease."*

These two key criteria of reliable performance and ease of use were instrumental in the officials' decision to approve the Leddar d-tec as a vehicle detection system for the city.

Product Reference

- Leddar d-tec traffic sensor