

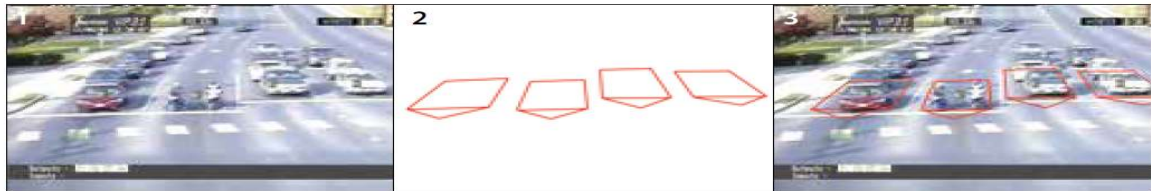
Broward County ITS Case Study

Technical Paper U-T4E-20004

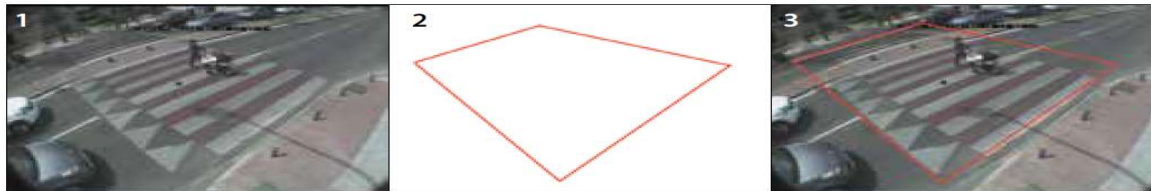
Overview

One of the important elements of an intelligent traffic system (ITS), is its ability to not only detect traffic flow, but also increase safety and security of our transportation network with the use of both video and infra-red cameras.

Vehicles



Pedestrians



1. A video camera is monitoring traffic. Its video signal is used as input for the detection unit.
2. During set-up of a video detector, detection zones are superimposed onto the video image.
3. Vehicles, pedestrians or bicyclists crossing the detection zones are detected.

Threat

Over \$ 8 billion dollars is currently being invested across the by the US Department of Transportation in the ITS market in 2016. Any premature failure of critical components like traffic cameras and vehicle detection systems, would be considered a threat to Federal, State and County strategic transportation plans. Broward County contacted Citel because it's camera systems were failing prematurely outside of its designed life cycle. These failures increased the risk of traffic accidents; which in turn increased the risk to both lives and vehicles moving on both local and state highways. After reviewing what components failed, it was believed the failures were being caused by lightning and transients surges.





Solution

Citel was called in to investigate the failed systems. Data was gathered in the field by opening the ITS equipment cabinets and reviewing industry installation practices. Technical information was added from the camera manufacturers and from our the Citel surge testing laboratory based in Miramar Florida. Citel engineering completed the risk analysis and using the data gathered from our test lab, resulted in similar failures to be seen. This data clearly showed that surge protection was required at all critical points entering and leaving the ITS cabinet. This included signal and power to the cameras, data to the central office and all AC and DC power. After review of the cabinet layout, suggestions were made concerning grounding and bonding inside of each of the cabinets, referencing IEEE 1100-2005 (Emerald Book) and Motorola 587 Equipment Installation guides.



Results

With Citel providing both engineering support and solution based products to Broward County, they saw a significant drop in premature failure of their camera and supporting equipment. This resulted in:

- Increase reliability in DOT traffic monitoring systems.
- Increase safety to drivers of Broward County.
- Lowering the carbon foot print of Broward County by increasing traffic flow efficiencies in the area.

Citel product approved for use by Florida Department of Transportation

