Commercial Truck Parking Detection Technology Evaluation for Columbia County Rest Areas

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Current Situation

Rest areas along Florida's interstate highways are heavily utilized by commercial trucks for overnight parking. Many of the rest areas regularly experience 100% utilization of the commercial truck parking spaces during the evening and early morning hours. Drivers may spend significant amounts of time searching for a place to stop for the night – often when they are already tired.

Research Objectives

University of Florida researchers tested several systems which automatically detect the presence of vehicles in commercial truck parking areas, with the goal of creating a system that would remotely inform truck drivers of vacancies.

Project Activities

The researchers evaluated selected products for their ability to reliably detect vehicles in commercial truck parking spaces at interstate rest stops. The evaluation focused on specific capabilities of the technologies: the accurate

With its large population and numerous ports, Florida's highways are used by millions of trucks every year.

detection of vehicles in parking spaces; cost; installation, setup, and maintenance requirements; and sensor output integration with SunGuide software. Evaluation of sensor durability was also evaluated, but on a limited basis, due to the relatively short term of the project.

Three different products were tested which use two detection methods: Sensit uses magnetic and infrared detection while both the Sensys and CivicSmart use microwave radar. Both methods involve sensors which are placed in or under the monitored parking spaces. These sensors communicate wirelessly with an electronic "gateway" that aggregates the information and relays it to a central location. For study purposes, this location was a company server, but in practice, the information would be sent to SunGuide to make it accessible to users of the SunGuide app.

A rest area along I-75 in Columbia County (FDOT District 2) was selected as the test site. Specific test areas of the commercial parking facility were chosen for installation of the detection technologies. Video cameras were also set up in the test areas as a quality control mechanism to confirm the results. At least one month of data was collected for each technology.

Generally, all three technologies were able to detect the presence of vehicles accurately, at 95% accuracy or greater. All technologies integrate with the SunGuide system and software. Pricing or maintenance issues may guide the choice of technology.

Project Benefits

Trucking plays a crucial role in the economic life of Florida. Making it easier for drivers to locate a place to stop for the night reduces the time they spend checking rest areas for available spaces and helps them plan a safer and more efficient trip.

For more information, please see dot.state.fl.us/research-center.