OmniAir Florida Plugfest 2023

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Emerging Transportation Technology

Over 90% of traffic crashes are attributable to human error. Transportation technologies have the potential to mitigate human error and road traffic crashes. Technology applications also help advance the mobility of people and goods. The Florida Department of Transportation (FDOT) prides itself as a national leader in adopting and implementing emerging technologies and applications for travelers and roadways throughout the state. Examples of transportation technology deployments FDOT has adopted include lane closure notification, wrong-way driving mitigation, pedestrian and bicycle detection, and unmanned aerial vehicles. SunTrax is an important part of FDOT's emerging technology strategy. Sitting on 475 acres, SunTrax is the largest FDOT facility dedicated to the research, development, and testing of transportation technology systems. SunTrax is managed by Florida's Turnpike Enterprise (FTE).

The SunTrax facility features state-of-the-art tracks and citiscapes for testing CV technologies

2023 Florida Plugfest

FDOT partnered with OmniAir Consortium to host the 11th Plugfest in May 2023. OmniAir is the leading industry association promoting interoperability and certification for connected vehicle equipment, Intelligent Transportation Systems (ITS), and transportation payment systems. The Florida Plugfest featured weeklong verification and validation activities where hardware and software applications were run through a suite of test cases ranging from confirming interoperability in a controlled tabletop environment to measuring performance in scenarios on the SunTrax roadways. This event brought the transportation industry to Florida and showcased FDOT's and SunTrax's leadership with technology deployments and testing environment. Plugfest attendees represented the private sector, such as device manufacturers, test equipment providers, and test laboratories. Public sector attendees included federal and state entities and academic institutions such as the University of Florida Transportation Institute (UFTI).

Secretary Jared Perdue gives the keynote address

The Florida Plugfest also hosted a full-day policy conference featuring speakers from FDOT's leadership and industry visionaries. FDOT Secretary, Jared Perdue, spoke about Florida's goal of becoming the national leader in transportation technology, aligning the common goals and vision of communities to provide safer transportation solutions for generations to come. Nicola Liquori, Executive Director of FTE, discussed how SunTrax is an important and integral part of testing applications in Florida's backyard instead of relying on outside entities to advance transportation technology.

The FDOT-led panel discusses Advances in V2X Implementation and Emerging Technologies

FDOT hosted a technical session moderated by Trey Tillander with panelists Raj Ponnaluri, John Easterling, Jeremy Dilmore, and Sanjay Ranka. The panel discussed the importance of focusing efforts on the unique needs at the community level. The panelists highlighted the need to guide technology through the development process of research, pilots, and full deployment. These technology projects need to meet the needs and capabilities of the communities and should account for all modes of transportation.

As one of the 2023 Florida Plugfest partners, UFTI's I-STREET Living Lab traveled in May 2023 to the SunTrax Test Facility in Auburndale, FL, to test an algorithm they created that optimizes and operates traffic signals, thus improving safety and traffic performance at intersections. The key component of this new algorithm is the use of novel vehicle detection and communication technology. Different applications of connected vehicle technology were tested based on cellular-vehicle-to-everything (CV2X). The UFTI research team included Ines Aviles-Spadoni, Dr. Luan Carvalho, Dr. Pruthvi Manjunatha, Dr. Agustin Guerra, and doctoral students Renan Favero, Victoria Zorbas, and Orestis Karamouzis.

UFTI Research Team Testing the CV2X technology

Trust in Technological Innovations

The prominent theme of the policy conference was trust: Trust in technology, data gathering, cybersecurity systems, and the increased involvement of artificial intelligence (AI). Among other key actions, FDOT is dedicated to building trust in transportation data. As connected vehicle technology relies more on AI, testing these systems and securing data is key. This is important as AI is only as good as the data available. With message certificate verification and management systems, cybersecurity initiatives, protections for personally identifiable information, and the development of standards for cloud and edge computing, FDOT's comprehensive approach supports the trusted exchange of data between road users, state agencies, and third-party vendors.

FDOT Leadership tour the CARMA demonstration

Florida is focused on supporting communities in supplying a safe transportation network, and the goal of zero traffic deaths and serious injuries is the motivation behind FDOT's efforts in advancing emerging technology. More sustainable and robust solutions need to be developed. Technology is a powerful tool that can move the needle in trending toward a zero-fatality environment. This commitment to the future requires partnership with the community, agility by those deploying technology, interoperability of technology, and partnerships with stakeholders to build safer modes.