



Florida Department of Transportation Research University of Florida Advanced Technologies Campus Testbed

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Current Situation

Connected vehicles (CV) and automated vehicles (AV) are the subjects of numerous projects around the world. CVs can communicate with a driver, other vehicles, roadside infrastructure, the Internet, or all of the above. These communications can assist with safety, navigation, traffic flow, and more. AVs can communicate like CVs, and have additional technologies that can provide increasingly independent operation. Both CVs and AVs require expertise from many disciplines to develop and test a range of technologies, hardware, and software that must work in the vehicles and in infrastructure components from street level to traffic management centers. Advanced technologies for AVs and CVs will be tested on I-Street, a real-world smart transportation testbed being developed by the University of Florida (UF), its Transportation Institute (UFTI), the Florida Department of Transportation (FDOT), and the City of Gainesville (CoG). This testbed will use roads on the UF main campus and adjoining city streets.

Research Objectives

University of Florida researchers conducted a project to define the vision and components of a cooperative real-world testbed for developing and testing advanced technologies.

Project Activities

Careful planning and cooperation are required by the broad scope of AV and CV technologies, which affect vehicles, local traffic control devices, and traffic management centers. In this initial phase of work for the Gainesville-based testbed, the researchers developed an overall vision as well as goals, benchmarks, and potential projects.

Through a literature review, the researchers assembled a picture of over 400 AV and CV projects, ranging from conceptual studies to test deployments currently underway in many countries, including the efforts of government agencies, academic institutions, and industry. They reviewed numerous roadmaps, guidelines, and vision statements on vehicle connectivity, automation, and deployment of associated technologies. Yet, relatively few efforts implemented the range of technologies in a test environment as envisioned for the Gainesville testbed.

A series of meetings were held, including a research peer exchange in Tallahassee, to engage stakeholders, including industry, private sector developers, research entities, and transportation innovators. The meetings helped to identify goals as well as novel ideas for the testbed project. A synthesis of input from the meetings and the literature review led to a project roadmap.

The project final report sets out the initial vision and components of the testbed's deployment and operation, including an overview of planned infrastructure and data management procedures. It also summarizes the proposed administrative procedures along with a marketing and communications plan. Current, planned, and potential projects are outlined.

Project Benefits

This project and the UF/CoG/FDOT testbed will help pave the way for automated and connected vehicles, which promise many improvements in the safety and efficiency of Florida roadways and increased mobility options for Floridians.

For more information, please see www.fdot.gov/research/.



This self-driving vehicle is fully equipped with sensors and communications devices.