What’s New

- USDOT Announces Second Connected Vehicle PlugFest
  March 12–13, 2014, Novi, Michigan
- USDOT Announces Inaugural Connected Vehicle PlugFest
- Southeast Michigan Connected Vehicle Test Bed 2014
  Project Information Meeting
- NEW Promotional Video for Connected Vehicle Test Bed
- NEW Connected Vehicle Test Bed Brochure Now Available

Test-Bed Community Gets “Plugged In” at Recent PlugFest

More than 50 participants learned about Test-Bed community activities at the U.S. Department of Transportation’s (USDOT) second PlugFest at the Turner-Fairbank Highway Research Center in McLean, Va. January 29 to 30.

Attendees shared lessons learned, tested and demonstrated devices and applications, and supported the connected vehicle technology transition from research toward full deployment.

The 2-day event included two sessions: a classroom training session on the first day and a testing session on the second day. The classroom training session focused on the goals, architecture, concept of operations, and selected detailed designs for the Southeast Michigan 2014 Test Bed Project. The training session was broadcast via webinar to remote participants.

The testing session provided a controlled environment for participants to test and demonstrate their devices.

UPCOMING EVENTS

PlugFest Calendar 2014

- Midwestern PlugFest: March 12–13, 2014, Novi, MI
  Register Now
- Western PlugFest: June 2014, Palo Alto, CA
- Bimonthly World Congress Mini-Fests tentatively scheduled for:
  - May 2014, Novi, MI
  - July 2014, Detroit, MI
  - Mid-August 2014, Detroit, MI
- Hackathon: Early November 2014/
  January 2015, Novi, MI
- Affiliated Test Bed Monthly Meeting, March 19, 2014
and applications. Due to intellectual property considerations, the testing session was only open to those organizations which have signed the Affiliated Test Bed Memorandum of Agreement (MOA).

A key benefit of the event was its holistic approach. “The participants were able to see the concept from start-up to finish all in one setting,” said Walt Fehr, Program Manager, Systems Engineering.

Fehr opened the first day by welcoming the participants and introducing the Southeast Michigan Test Bed 2014 Project. He emphasized the importance of the “Privacy by Design” principle and clearly defined the communication security requirements.

Tom Lusco, supporting the Test Bed Team, provided an overview of the Connected Vehicle Reference Implementation Architecture (CVRIA). This architecture provided the framework for the Southeast Michigan project. He introduced three of the CVRIA architectural views (physical, enterprise and communications) and the CVRIA-based project architectural development tool used on the project.

Jim Marousek, also supporting the Test Bed Team, presented the current version of the 2014 Test Bed project architecture using two different views: the Enterprise View and the Physical View. He discussed the architecture in more detail during an overview of the Concept of Operations (ConOps) specification. This included a breakdown of the various objects, and the relationships and information flows between the objects.

The information flows were illustrated with tailored Message Sequence Diagrams, based on a common pattern that included delineated phases for Service Awareness, Trust Establishment, Data Exchange and Non-Repudiation. Greater detail was provided for the new components on the Test Bed Project, and included Object Registration and Discovery Service, Local Current Situation Data Warehouse, Regional Historic Situation Data Warehouse, and the Situation Data Processing Center.

During the afternoon classroom training session, Frank Perry, presented detailed data contents for the two major types of information flows: Broadcast-mode and Peer-to-Peer (P2P) data exchange mode. Examples of information flows using broadcast-mode were presented: 1) the distribution of Signal Phase and Timing (SPaT)
and 2) Traveler Information Message (TIM) from the roadside infrastructure to passing vehicles.

A similar example of a P2P data exchange was illustrated where vehicles generate, bundle and, when appropriate, transmit situational data to a “center” based data warehouse. Finally, live data feeds where demonstrated in both modes.

On the event’s second day, more than 20 participants joined the testing session for Affiliated Test Bed collaborators at the Saxton Transportation Operations Laboratory (STOL). These included representatives from Arada Systems, Cohda Wireless, Denso International America, and Dering & Estrada.

The participants were able to receive and display broadcast-mode messages, including the WAVE Service Advertisement, SPaT messages in FHWA-blob and SAE J2735 formats, and Traveler Information (Curve Speed Warning) messages. The broadcast messages were transmitted from a road-side equipment located in the STOL, as well as from a RSE located at the nearby signalized intersection on the TFHRC grounds.

Participants were also able to conduct and display a peer-to-peer data message exchange with the Security Credential Management System. Fehr facilitated an informative discussion with the PlugFest participants and the STOL technical support staff about the proper time lags between IPv6 security data transactions and the optimal service channel data rate.

The device manufacturers then tested their respective devices focusing on different aspects of connected vehicle communications using the various facets of the TFHRC test environment. All participants appreciated the opportunity to collaborate. PlugFest provides a beneficial platform for all Affiliated Test Bed members, device manufacturers and third party application developers to test their products in a collaborative environment.

“These events are important for keeping the key players up to date. I was pleased with the progress and expect that to continue,” said Fehr.

The next PlugFest is scheduled for March 12 to 13 in Novi, Michigan. Visit the ITS Test Bed website for updates.