Internet2 of Things Project
University Electric Vehicle (UEV)

To help address the rapidly expanding world of connected devices, the “Internet2 of Things” showcase debuts at the 2014 Internet2 Global Summit to highlight the growing opportunity for research in this area and research opportunities emerging from industry as the world becomes more connected.

Featuring the Innova Dash 100% electric vehicle, Internet2 is coordinating an innovative pilot project sponsored by Innova, Inc., who will deploy uniquely equipped University Electric Vehicles (UEVs) on campuses that have both an active program to reduce carbon footprint, and one or more existing, funded, research project(s) in the general area of sustainability. The UEV models will be available for general use on campus, and will demonstrate a “connected” low-carbon-footprint campus transportation alternative, foster research involving sensor data, deepen understandings of the emerging Internet of Things phenomenon, and help move BEYOND Bring Your Own Device (BYOD)–to devices that can bring you!

The UEV models feature advanced research and education (R&E) technologies such as Internet2 eduroam®—an installed 802.1x certificate enabling campus Wi-Fi connectivity to facilitate communication between campus vehicles and autonomous transmission of operational data (such as position, speed, battery charge) real-time over the campus Wi-Fi network to a central server, where the data can support relevant sustainability research projects.

Via Internet2’s InCommon—the U.S. Identity Management Trust Federation protecting the online identities of more than 6 million R&E end-users, UEV users will be able to use their campus credentials to log in, reserve and activate vehicle use and provide comments on vehicle performance and utility. Via a mobile application, users will know if a vehicle is available, where it is and where it will be.
This project is part of Internet2’s larger efforts to support member research involving sensor data collection, analysis and interactivity/interoperability across networks, and model broader applicability for seamless sign-on and federated identity—all key to deepening understandings of the “Internet of Things.” Innova will fund the project, providing the all-electric vehicles to up to four campuses and a modest “campus coordination” stipend to each campus aiming to engage with researchers in all fields across higher education.

Innova Dash University Electric Vehicle (UEV) models will utilize advanced R&E Network, Cloud, and Trust solutions providing:

- Federated, single sign on to the vehicle’s computer with campus credentials via Internet2’s InCommon—a framework of trust services, including the U.S. identity management trust federation protecting the online identities of more than 6 million R&E end-users through federated identity management
- A global roaming wireless Internet connection via Internet2 eduroam—enabling students, researchers, and staff to use their home institution credentials to obtain federated, secure and fast Internet connectivity at other participating organizations in over 60 countries
- The ability to share big data generated by the Innova Dash over the 100GE Internet2 Network. The network is so advanced, it’s capable of transmitting the entire printed holdings of the Library of Congress (approximately 420 terabytes of data) in under nine hours—compared to five weeks for the same transfer on a better-than-average residential connection.
- Data from the vehicle and its use will be stored, analyzed and accessible using secure, cloud-based technology

Research
This project is part of Internet2’s larger efforts to support member research involving:

- Sustainability and carbon footprint reduction on campuses
- Sensor data collection and interoperability across networks
- Broader applicability of federated identity and single sign on
- Aggregated data collection from non-traditional devices

The Internet2 research and education community shaped the Internet we know today. Created by R&E leaders in 1996 to continue the legacy of University-based excellence in the development of the Internet, Internet2 exists to develop “what’s next” for advanced Internet technologies and applications and poised to lead the future, again.

Innova UEV, a zero emissions electronic vehicle company, is based in the Chicago suburb of Burr Ridge, Illinois. Innova’s Dash is a new urban electric vehicle, and fills the important zero-emissions gap between motorcycles and compact cars. For more: www.innovauev.com