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Proving Grounds: The University of Minnesota Demonstrates Proof-of-Concept with the Cellular Development Platform

Start with a Possibility

The University of Minnesota is internationally renowned for its commitment to research and development of commercially-viable technological applications. Recently, Dr. Max Donath, Professor of Mechanical Engineering and Director of the Intelligent Transportation Systems Institute, and graduate student Brian Davis began to explore an inexpensive method to support the national agenda to enhance fuel efficiency while still generating the tax revenues required for roadway maintenance and operations. They needed a way to test their concept that the existing cellular infrastructure could be used to help record the vehicle miles traveled (VMT) for a given vehicle within specific geographic zones and then transmit the data back to the central office for processing.

Add the Cellular Development Platform

Though the project team initially turned to a mobile phone development platform to build their solution, they quickly discovered that the platform didn't allow low-level hardware access or the data control their application required. Conversations with Matt Sharma, Executive Vice President of Multi-Tech Systems, identified the Cellular Development Platform (CDP) as a prototyping testbed for their algorithms.

"The CDP hardware is ideal for our application because we require a CPU, cellular modem and on-board storage, which is exactly what the Cellular Development Platform offers," stated Brian Davis. "We found that the Linux development environment was easier to use and served our purpose better because it gave us more control over the data from the cellular modem and access to more detailed information. Additionally, Multi-Tech provided a great deal of availability and support from various people within the company."

Cellular Development Platform

· Application-ready hardware platform

· Custom Linux distributions branch

· Standard deployment models for immediate deployment

· Includes cellular modem and GPS receiver

· Serial, USB and Ethernet interfaces

Prove the Concept

After creating a working prototype, the ITS research team was able to deploy beta units in the field using the Cellular Development Platform deployment models. "The CDP hardware is more physically robust than the mobile phone and has withstood short-term vehicle deployment well. Having a proven hardware already developed and tested certainly shortens the path to a commercially-viable deployment solution," remarked Professor Donath.

For more information on the VMT project and other projects underway, visit the University of Minnesota Intelligent Transportation Systems Institute research page at http://www.its.umn.edu/Research.

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