

MS 150 Live on Google Maps



The National MS Society is a volunteer-based organization that works to help people address the challenges of living with multiple sclerosis (MS) and to fund research toward finding a cure. Each year, the Lone Star Chapter in Texas holds several fund raising events around the state, including Austin where National Instruments is headquartered. The [BP MS 150 Bike Tour](#) is a two-day cycling ride from Houston to Austin that raises funds to help people living with multiple sclerosis (MS) in Texas.

Each year, National Instruments employees participate in the MS 150 as the NI Cycling Team. Being a technology company, we have often talked amongst ourselves of ways in which we could use our products to help promote the event. This year we decided to give it a shot.

YouTube Video

Live Monitoring on Google Maps

Using a GPS receiver and a bike-mounted ultra-mobile PC (UMPC) running LabVIEW, the NI Cycling Team tracked riders live on Google Maps. To make it more interesting we decided to give some prototype wireless devices (currently in development by NI R&D) a

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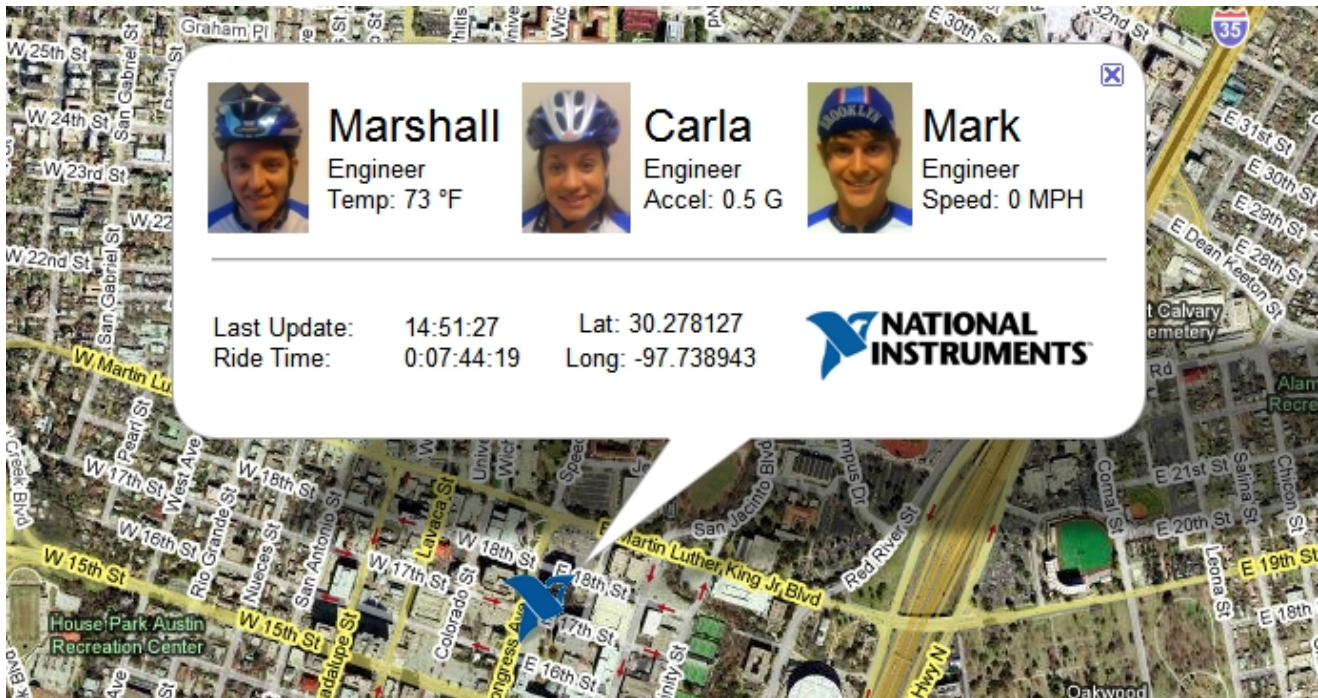
trial run by taking simple measurements on nearby riders. On race day (April 12-13), the community watched as three bikers went over 150 miles. You can view a recorded version of the event by clicking below:



MS 150 Bike Tour[<http://niremotemonitoring.com/>]

[BP

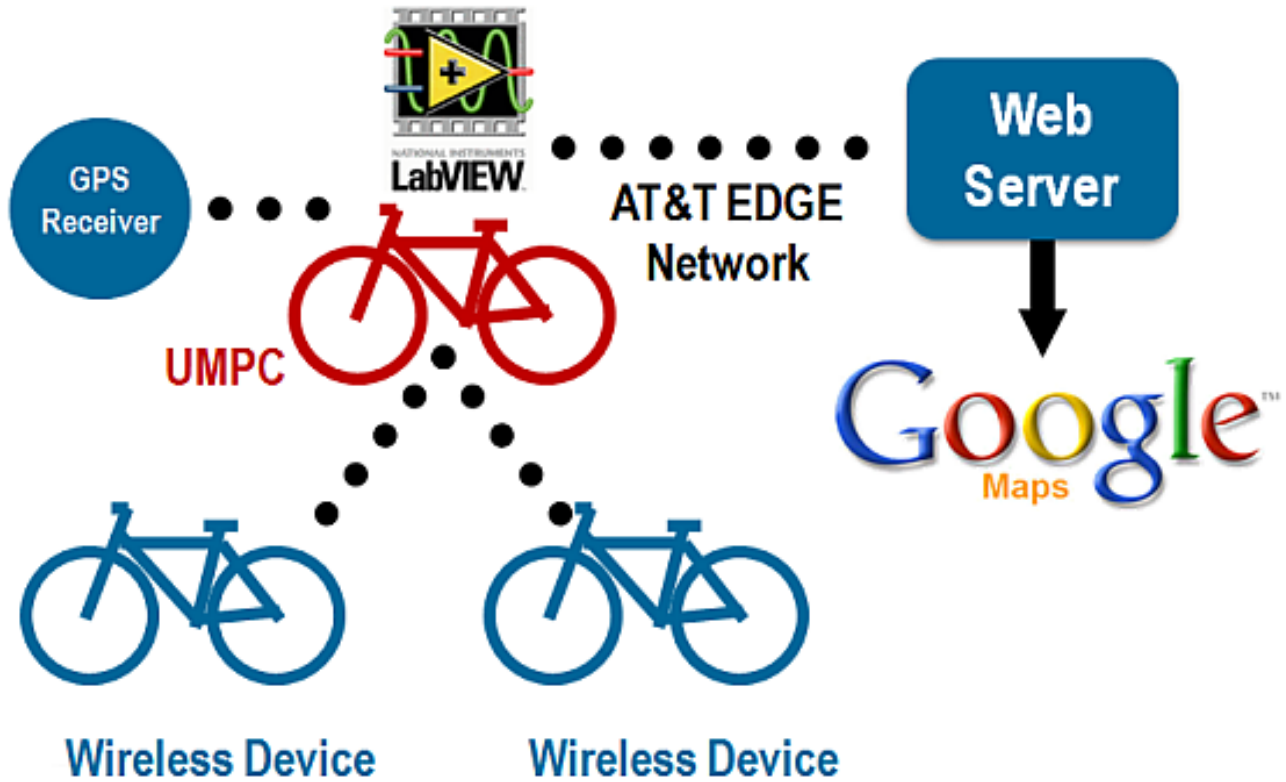
Preview of the Map:



How Does it Work?

The basis for this demonstration is essentially a mobile wireless sensor network (WSN). There are number of different technologies that make it work:

- **Ultra-Mobile PC (UMPC):** The Sony VGN-UX280P is a light-weight, fully functional computer with Bluetooth, Wi-Fi, and EDGE wireless networking capabilities.
- **GPS Receiver:** The Ambicom BT-GPS is a battery-powered GPS receiver that transmits GPS coordinates, time, and speed data over Bluetooth.
- **Wireless Measurement Devices:** The prototype wireless devices take measurements, such as temperature and acceleration, and transmit them back over a wireless connection.
- **Web Server:** The web server receives GPS and measurement data over the AT&T EDGE network and publishes it using a javascript and the Google Maps API.



LabVIEW is the glue that holds all these components together. In this wireless sensor network, two bikes (sensor nodes) each carrying a prototype wireless device transmit either temperature or acceleration data to a third bike (the gateway node) with a UMPC running LabVIEW. A GPS receiver mounted on the UMPC bike transmits speed and coordinates information. LabVIEW collects all data and transmits it to the web server over the EDGE network using an internal mobile broadband modem.

Every five seconds, the javascript running on the web server updates the Google Map with new coordinates and measurement data. A database also logs the riders' progress throughout the entire race. This data will be available after the race is over, and viewable through the Google Maps interface.

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For more information on the MS 150, please visit www.ms150.org

REQUIREMENTS: Application Software: LabVIEW Full Development System 8.5.1 Driver Software: NI ELVIS Software 2.1 Hardware Family: 5B Add-on Software: Counter Palette 8.5.1 Product Category: LabWindows/CVI Development Topic: Best Practices Industry: Research Application Type: Acceleration Technology: Wireless