



Research Notes

RSN 15-01

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BLUETOOTH DATA COLLECTION SYSTEM FOR PLANNING AND ARTERIAL MANAGEMENT

This project developed an inexpensive portable wireless roadside data collection system. The system is comprised of the roadside data collection units (DCUs) and a web-based software application that is used to process the collected data.

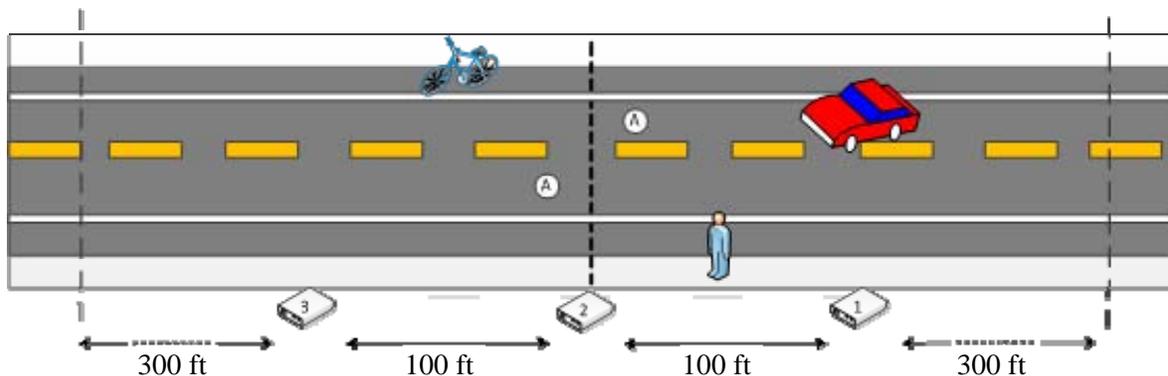
The system utilizes Bluetooth technology due to the widespread use of Bluetooth-enabled devices in vehicles. It builds off of results gained from prior ODOT sponsored projects that focused on the development and implementation of a permanently installed Bluetooth-based travel-time data-collection system for arterials.

The data collection units are used for short term data collection (normally a week or less). They are portable and can be deployed anywhere on the roadside. The current design has the units mounted within traffic barrels. This is convenient for many applications such as travel time data collection, origin-destination study data collection, and intersection performance data collection.

The DCUs and software application were deployed for testing in real-world applications. The system has been used for origin-destination data collection for two ODOT model development projects in the Transportation Planning Analysis Unit: Corvallis-Albany-Lebanon area model, and Newport model. The system provided important data for the models. The data collection cost was reduced significantly compared with the traditional license plate method.

The system was used to estimate traffic control delay at an intersection in Corvallis. The data from the portable DCUs provided results that agreed well with time duration data obtained from video recording. The system was also tested to estimate time-distance diagrams for individual vehicles.

The deployment trials also demonstrated that the system can be used for identifying different travel modes (vehicles, bicyclists, and pedestrians).



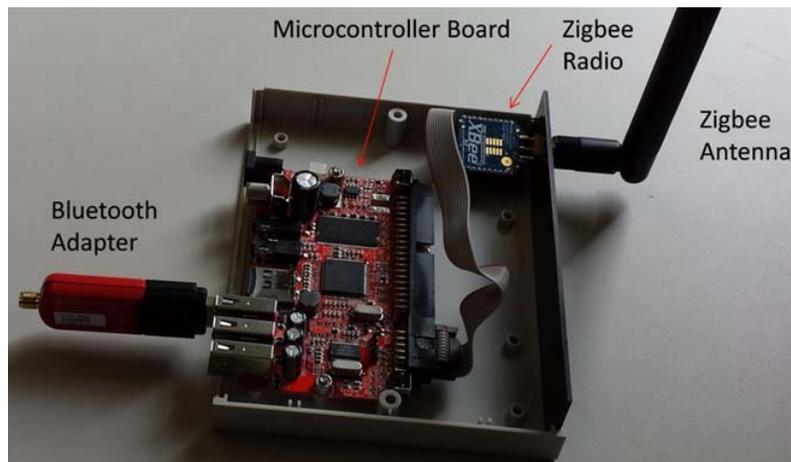
System Test to Identify Travel Modes

To assure data privacy, the system has been designed to remove the first four characters (out of 12) of every MAC address that is recorded by the device. This eliminates the possibility of associating a specific MAC address to an individual's mobile device.

The research team wrote a user's guide for the data collection, as well as a user's guide for the web-based application. This system is expected to be used for various applications by ODOT and MPOs.

For more information:

The ODOT research report, including the user's guides, is available online. A link to the report is provided below.



Bluetooth Data Collection Unit



Oregon Department of Transportation
Research Section
555 13th St NE Ste 1
Salem, OR 97301-6867
Telephone: 503-986-2700

To read the research report go to:

http://www.oregon.gov/ODOT/TD/TP_RES/docs/Reports/2014/SPR_757_Final_Bluetooth.pdf

For additional information, contact Luke Li at (503) 986-4115, or via e-mail at xiugang.li@odot.state.or.us