UNIVERSITY TRANSPORTATION CENTER

RESEARCH BRIEF

PROJECT TITLE: DSRC/WAVE Enabled Connected Vehicles Infrastructure

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INSTITUTION: UNIVERSITY OF WASHINGTON

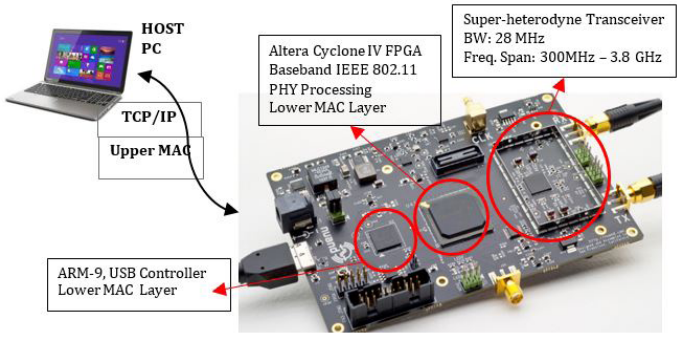
ESTIMATED COMPLETION DATE: AUGUST 2019

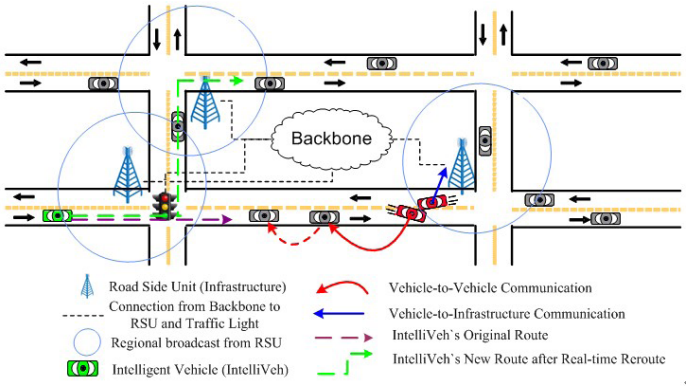
SPONSORS: THE PACIFIC NORTHWEST TRANSPORTATION CONSORTIUM, NOKIA

Background

Connected Vehicles enabled via installation of IEEE WAVE/DSRC standard-compliant radios in-vehicle and on roadside units (RSU) that operate in DSRC bands will lead to innovations that promote safety and efficiency, such as via intelligent signalized intersections that allow a RSU at the intersection to obtain real-time visibility of traffic at intersections and hence reduce the likelihood of collisions and delay by means such as broadcast of suitable warning or emergency messages.

Key to the above is evaluation of the performance of the 802.11p/WAVE standard in real operational settings, since the original design is intended largely for low-mobility, single-hop, non delay-critical applications. Much of the protocol stack modifications proposed for the necessary low-latency, potentially multi-hop broadcast needed for remains un- tested in operational scenarios.





Research Project

The PIs Lab (FUNLAB; depts.washington.edu/funlab) is a recognized leader in implementing 802.11 nodes on a Software Defined Radio platform. When integrated within the proposed UW PacTrans test-bed for an intelligent signalized intersection, it can be used to demonstrate the performance of proposed WAVE protocol stack enhancements. The availability of SDR implementations with an open protocol stack developed locally facilitates the sort of experimentation that is infeasible with commercial 802.11 hardware that are closed. The specific objective is to deploy (close to UW campus, Montlake Blvd. test-site) a test-node as a RSU that can communicate with vehicular DSRC units.