Enhancing Safety and Accessibility for Active Users at Signalized Intersections under the Signal Phasing and Timing (SPaT) Challenge
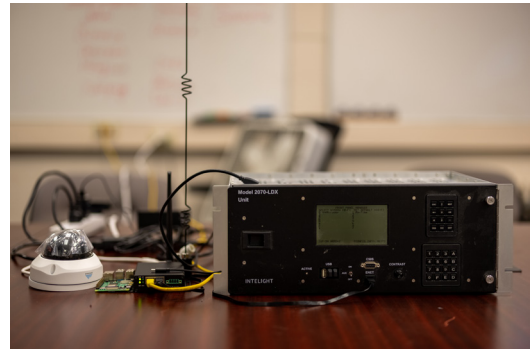
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Background

The National Operations Center of Excellence (NOCoE) initiated a program called the Signal Phasing and Timing (SPaT) Challenge to encourage the adoption/study ofCV applications across the country. Under this program, departments of transportation in all 50 states were encouraged to equip at least 20 signalized intersections with radio equipment capable of broadcasting SPaT information and other CV messages via DSRC, the CV communications standard. While this project has obvious benefits for drivers (e.g., eco-driving, route optimization), it and many other projects focusing on CV technologies often ignore pedestrians and other active road users.

As such, the Smart Transportation Applications and Research (STAR) Lab at the University of Washington initiated a project co-sponsored by WSDOT (who is taking part in the SPaT Challenge) where the lab is working to develop an application (app) for use on mobile devices. This app can (1) present SPaT data to active road users and (2) allow such users to actuate pedestrian crossing signals at intersections equipped for the SPaT challenge via the app (i.e., the app has a virtual "pushbutton").

Research Project

The objective of this project is to enhance both safety and accessibility for non-motorized road users (henceforth referred to as active users) at signalized intersections in urban areas. This project will build on the team's work for an existing project with WSDOT and make use of sensing technology developed in the PI's lab, notably the Mobile Unit for Sensing Traffic (MUST sensor). The core of this project involves two main components: (1) development of a framework for video detection of active road users such as pedestrians at signalized intersections and (2) development of a means to convey the information on the presence of active users to both the signal controller (intersection management program) and drivers making use of a mobile application (via V2X communications).

ABOUT THE AUTHORS
The research team consisted of Yinhai Wang of the University of Washington.

ABOUT THE FUNDERS
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EXPECTED DATE OF COMPLETION
March 2022

FOR MORE INFORMATION
https://depts.washington.edu/pactrans/research/projects/enhancing-safety-and-accessibility-for-active-users-at-signalized-intersections-under-the-signal-phasing-and-timing-spat-challenge/