

Tongle

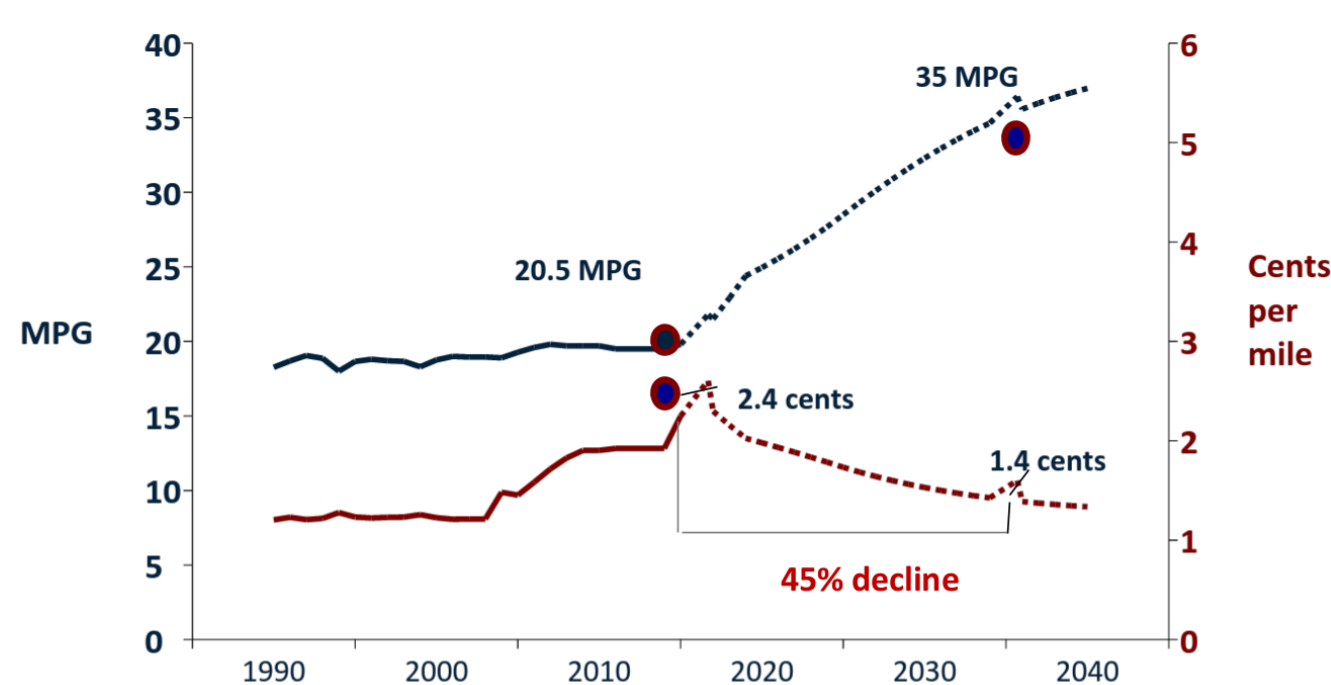
A high-tech mileage reporting system for use with Washington State's upcoming Road Usage Charge



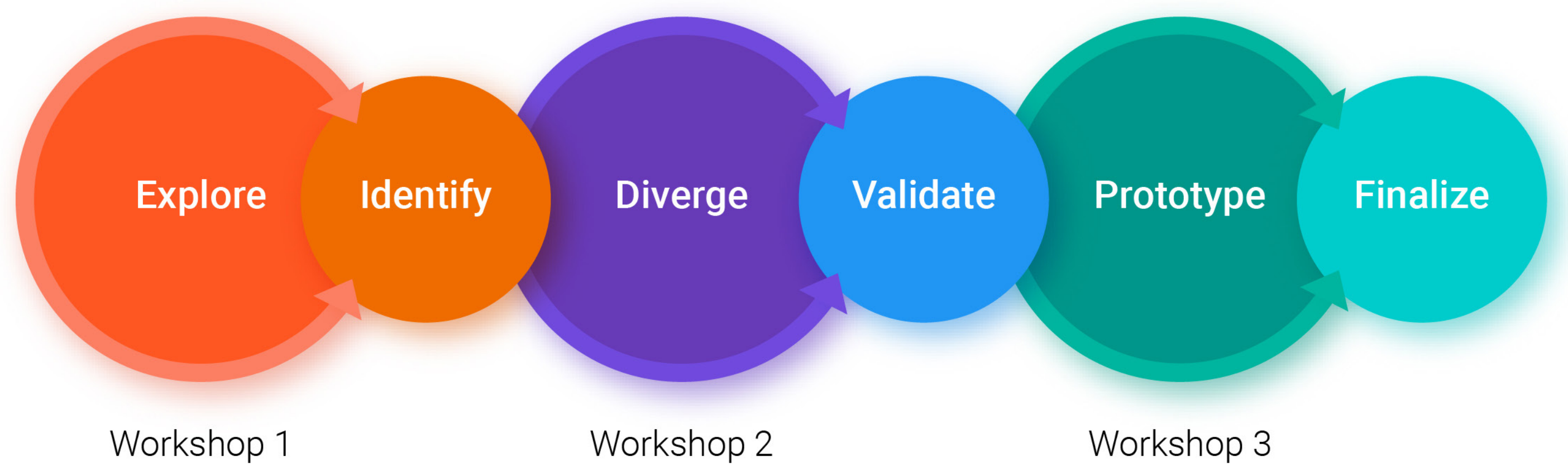
How can road infrastructure be funded in a more inclusive way?

Problem

Fuel-Efficiency & Gas Tax Revenue
(source: WA RUC)



Process



Road Usage Charge

With an increase in *average fuel efficiency*, funding roads with a gasoline tax is *no longer sustainable*. Washington State has proposed a per-mile tax based on miles driven, called the Road Usage Charge.

Participatory Design

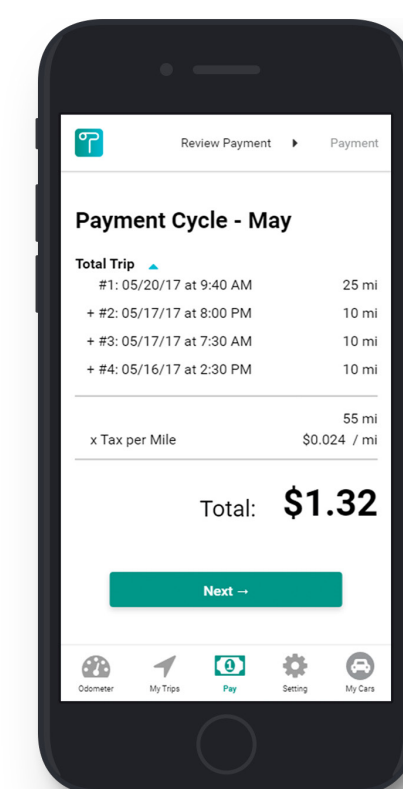
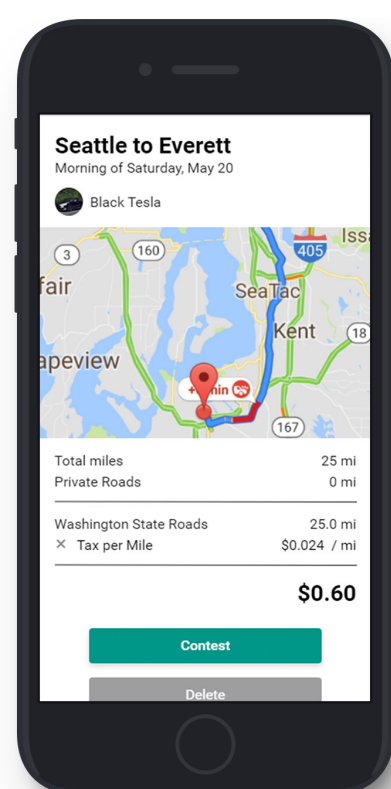
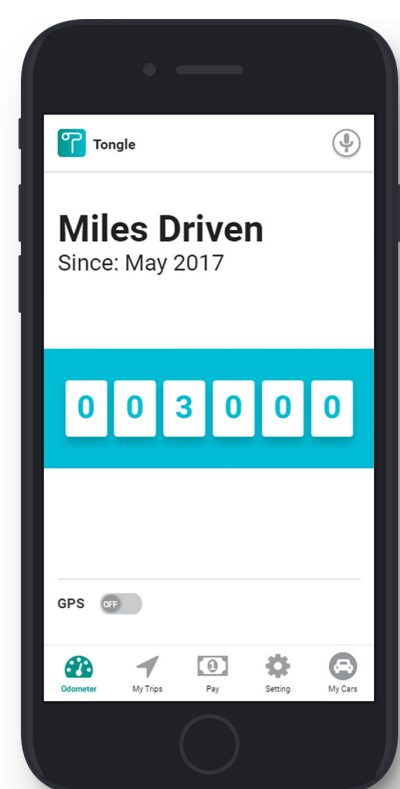
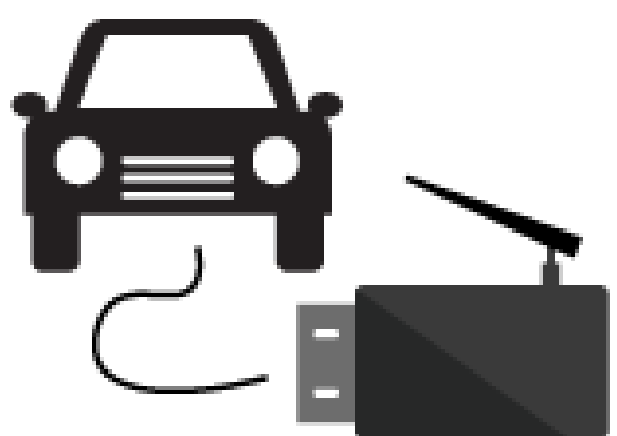
We sat down with 8 drivers from all over Washington State over the span of workshops to understand and incorporate their perspectives into the design process.

Rapid Prototyping with User Values

Our participants' perspectives revealed a core set of values to be addressed in our designs. Our prototypes sought to effectively address the tensions between those values.

Prototype

Tongle pairs a smartphone app with an external device to ensure fair and convenient mileage recording. The external device, plugged into a car's OBD-II port, records and stores a car's trip data. The coupled app allows users to view, contest, and pay for their road usage.



1) Drive your car

Tongle maximizes *convenience* by requiring to connect the device once

2) Record Mileage

Tongle provides *accountability* by automatically record the road usage

3) Control Privacy

Users choose which trips are tracked with GPS to *secure* their *privacy*

4) Pay for Trips

Tongle *fairly* charges users only for their public road usage in Washington State

5) Store Data

User data is stored on the cloud to provide transparency and *fairness*

Project by

Shin Young (Lucia) Choi
Molly Fallen
Michael Fernandes
Alex Gilbert

Sponsored by

Washington State Transportation Commission with support from:
• D'Artagnan Consulting
• The Mobility Innovation Center



HUMAN CENTERED DESIGN & ENGINEERING
UNIVERSITY OF WASHINGTON