The Role of Carried-in Devices in the Future of Transportation

Jim Sayer
Our Growing Reliance on Personal Electronic Devices

- We use smart phones, tablets, watches ...
- ... to communicate with others, shop, travel, dating, personal finance, fitness, and to store the details of our private lives
- These devices have become some of our most important personal effects
  - What can’t we do with them any more?
  - What are their roles in future mobility, shared and autonomous mobility in particular?
The Vehicle as a Docking Station

- At what point will many vehicle features and preferences simply be carried with us?
  - Navigation, Infotainment, Route Optimization, Driver-Vehicle Interface, Interior Configuration

- Might vehicles become chassis that simply serve as docking stations?
Vehicle to Device Interface

- Given what personal devices know, why wouldn’t you take advantage of them?
  - Where I need to be, and when
  - Conduct financial transactions for shared vehicle use, parking and tolls
  - My need for physical activity
    - Determine drop off/parking location
  - When my dry cleaning & prescription are ready
  - Preferred routes, stores and restaurants
Shared Mobility Scenario

- Getting me to my next meeting
  - Device knows where I am (GPS), where I need to be when (Outlook), and how long it would take to get to the next meeting (Waves)
  - Asks if I need transportation and for how many, reserves it (Zipcar), tells me when I have to leave based on traffic, directs me to vehicle
  - All financial transactions are handled (Apple Pay)
  - Plans the route (Google Maps) to include a stop at the pharmacy (pharmacy app) along the way
Shared Mobility Scenario (cont.)

- Locates parking (ParkMe) based on time until meeting, personal goal for steps (Fitbit), price and weather conditions now and after meeting (Wunderground)
- On my trip home, it routes me to the grocery store to get milk (Todoist) and starts the oven as I approach (smart appliance app)

- What isn’t possible, other than the act of transporting itself?
Interfacing with the Vehicle

- Cybersecurity issues ... that already exist
- Software interface uniformity to link variety of devices and provide power
- Physical interface standards/uniformity
  - Docking and vehicle display capabilities
- All would seem necessary moving towards autonomous vehicles, in particular
Summary

- Reading our smart phone is the next best thing to reading our minds...
- ... and in many instances more reliable!
Is the automotive industry open and ready to take advantage of these possibilities?
Thank You

jimsayer@umich.edu