Designing Effective Voice User Interfaces for the Connected Car

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The Problem

• 3 types of driver distraction in the car:

- Cognitive
- Visual
- Manual

Texting while driving
Top Distractions

• Other people in the car (passenger & backseat)
• Grooming (hair, makeup)
• Things outside the car (accidents, landmarks)
• Mobile devices (calling, texting, email, navigation)
Statistics

• In 2011, approximately 17% of crashes involved distracted driving\(^1\)
• 9% increase in distracted driving injuries from 2011 to 2012
• Almost half of all U.S. teens 16 or older text or email while driving
• 31% of U.S. drivers ages 18-64 reported reading/sending texts/emails while driving *at least once* in the last 30 days before surveyed
• Increasing laws prohibiting use of handheld devices in cars

\(^1\) CDC, Centers for Disease Control and Prevention
Why do people use their phone in the car?

• Average length of initial vehicle ownership increasing: 7 yrs, 9 months
  • Longer auto loans
  • Greater car reliability

• Average lifespan of a cell phone: 18 months
  • Customers have incentive to trade in old phones
  • Culture of “latest and greatest”
The Design Challenge

• Simplify to the necessary tasks required in the car
• Respect the driving environment
  • Eyes on the road
  • Hands on the wheel
• Minimize driver interaction with screen
  • Use speech recognition input and TTS output for majority of interaction
  • Optimize pre and post-driving information on the screen
The Solution

• **Increased connectivity** incorporated into the car’s head unit

• **Navigation capabilities** comparable to smartphones
  • Integrated with most updated maps providers
  • **Non-static content** for:
    • Business search
    • POI search
    • Addresses

• **Cloud-based media content**
  • Updated music, news, podcasts
  • Capability to dynamically integrate other providers
Design Approach

• Aggregate app & service contributions in a **common** UX framework that:
  
  • **Anticipates** user needs:
    • where to go
    • who to talk to
    • what to listen to
  
  • **Orchestrates** contributions by relevance:
    • personal
    • temporal
    • appropriate
  
  • **Scales** to new app & service contributions (future-ready)
  
  • Built on top of CloudCar Services Platform
CloudCar™ is proud to announce **justDrive™** — developed in consultation with global automotive manufacturers.

**justDrive** is a comprehensive automotive solution that evolves with the driver and remains current throughout the vehicle’s lifetime. Our driver-focused experience extracts pertinent information from your apps, services, & activity from your smartphone and integrates it seamlessly with the car’s display and controls.
The Future

• **Media suggestions** based on:
  • Past history
  • Navigation data
  • User profile

• **Search/discovery** of new content

• Notifications can help you **ignore** your phone:
  • Heads-up dismissal of incoming calls/emails/texts/tweets
  • Use car data to suppress notifications under certain driving conditions
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