Fiestaware and the Future of IT in the Vehicle

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Importance of Platforms

Traditional automotive design cycle
- Single-purpose hardware module implements new infotainment feature
- Years to develop
- Technology is obsolete upon release

Consumer electronics design cycle
- Months vs. years
- Multipurpose devices
Automotive Infotainment Platform

Hardware/software platform enables shortened design cycles, ability to quickly react to customer desires

Example: Ford SYNC 2007-present
- 2007: voice control over phone and music player
- 2008: 911 Assist and Vehicle Heath Report
- 2009: Turn-by-turn directions and information
- 2010 (announced): API access given to smartphone apps
Need for a Software Research Platform

Engage student and third-party developers
Encourage a new crop of students with software skills to consider automotive careers
Fiestaware Platform

Research platform targeted at student developers in partnership with U. of Michigan, Microsoft, Intel, and Cumulux

- Modified new Ford Fiesta: 10.2” touchscreen, 3G mobile broadband, 4GB RAM, 2.6 GHz Core 2 Duo, Windows 7
- Social: Facebook, Twitter, foursquare
- Vehicle data and sensors
- Mapping
- Voice recognition and text to speech
Expandability and Apps

Built as a service-oriented architecture on Microsoft Robotics Studio

- New aspects (services) can be added rapidly to support new apps or augment existing apps
- Use cloud to offload computation, extending the platform lifetime

Example social apps:
- Next-generation navigation: find friends’ POI
- Collaborative green apps
American Journey 2.0

Students developed infotainment software on Fiestaware platform as part of a U of Michigan project course. Design competition winners roadtripped with Ford team to Bay Area Maker Faire.
Winning Student App: CaravanTrack

Track multi-vehicle roadtrips

Students: John Ciccone, Collin Hockey, Sangmi Park, Joe Phillips

photo by Steve Crang
CaravanTrack

Real-time map showing all vehicles
CaravanTrack

Real-time driving information
CaravanTrack

Group messaging

- There’s an accident
- There’s a cop ahead
- Let’s stop here
- Call me
- The road is slippery

- Joe: There’s an accident
- John: There’s a cop ahead
- Collin: Let’s stop here
- Sang: Call me
- Sang: Call me
Ford apps: Virtual Road Rally

Navigate between waypoints while adhering to constraints
Ex: Tour rally – drive between community-chosen points of interest
Tweet when waypoints are reached and at conclusion of rally
Foursquare Checkin

Automatically check-in when no ambiguity exists
Otherwise, prompt the driver
Auto(matic) Blogging

Use vehicle powertrain data to intuit when the vehicle is driving on a fun road
Post pictures and status to Twitter and Foursquare
Tweet about weather, fun drives, headlight events, low fuel
The Road Ahead
App Store for Automobiles

Trend in vehicle interfaces: customer configurable

SmartGauge on Ford Fusion Hybrid lets customers change the instrument cluster

Empower: Adds power to wheels, engine pull-up threshold and accessory power consumption.
App Store for Automobiles

Why not an “App Store” for automobiles?

Managed openness: OEM influences look and feel, ensures driving-appropriate interface

- Goal is to create a platform that developers can be successful on
- Non-interactive apps could be less managed

Ford SYNC 2010+, which integrates Pandora, Twitter, and Stitcher on mobile devices, an example of managed
Future for IT in the Vehicle Space

Vehicle software platforms
- Innovate faster than traditional automotive cycle

Apps
- Allow customers to modify their vehicle experience