Web & Automotive

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Aims

- To discuss potential for Web Apps in cars

- Identify what kinds of Web standards are needed

- Discuss plans for W3C Web & Automotive Workshop

  - Share information on stake holders and contacts

  - Identify potential locations and venues

Web Apps in the Car

- Web took off first on desktop computers

- Next on mobile, and now slowly on TV & home media devices

- Cars are expected to be next big market!

Challenges

- **Driver distraction**

  - Risk of accidents, and concerns over legal liability
    - Automakers don't want to be sued!
  - Mitigation through context awareness, attention to user experience and minimizing loss of attention to the road

- **Obsolescence**

  - Rapid pace of development of consumer electronics
  - Embedded systems soon risk falling behind
  - Mitigation though symbiotic relationship with portable personal devices, or easy replacement of head-unit subsystems

Use Cases & Ecosystems

- Successful standards depend on shared understanding of expected use cases

- Important task to collect these!

- Also important to understand nature and roles of players in ecosystem needed for encourage growth in apps and users

  - Who are the different players?

  - What are the ecosystem drivers?

  - What are the challenges?

Example Applications

- Media player for local and streamed media

- News and weather -- local, national, international, sports, business, arts, ...

- SatNav with live traffic data and parking information

- Location based search and advertising

- Games -- for passengers

- Social network apps -- tweets, posts, photos, location, ...

- Mobile office apps -- contacts, email, phone, to-do lists, calendar, custom enterprise apps, ...

- Car status -- fuel efficiency, servicing info, ...

HTML5

- HTML5 brings rich opportunities for Web Apps

- Risk of fragmentation if vendors vary in which features they support

  - Facebook recently highlighted this as a major issue for mobile devices!

    - Core Mobile Web Platform Community Group

      - Expectations and test suites for mobile browser implementations
      - Alleged lack of enthusiasm by Apple and Google to improve given their success with native app stores

- Which features of HTML5 are key to automotive?

Application Packaging

- Success of Apple/Google with app stores has focused attention on app stores for Web Apps

- New work planned at W3C on JSON-based manifest format for second generation standard

    - Web Widgets used an XML format, but Google and others opted for a different approach

- Opportunity for fresh look at security and privacy

- Also for signed hosted Web Apps that are dynamically downloaded rather than installed

Multi-Tasking

- Likely need to run multiple independent services at the same time

    - For example: music player, satnav, news bulletins, and tweet feeds from friends

- How can this be supported effectively in the car?

    - Conventional tabbed browser isn't a good match

    - Android model with one foreground app controlling display plus background services and notifications

    - Node.js with services defined in JavaScript

Multi-Device Applications

- People will want to use the car's head-unit together with their personal devices
  - Smart phones, tablets and even notebook computers
- At home, synchronizing car with home network
  - Downloading trip information, music or even games to keep the kids occupied during the drive
- What are the key use cases?
- How to ensure the user experience is seamless?
- What are the implications for Web standards?

User input controls

- Touch screens popular for smart phones & tablets

- For cars, value in providing input devices users can operate through tactile feedback without need to shift eyes from the road ahead

  - Only a sneak peek needed, you can then reach out by dead reckoning with feedback from grasping the control

- What is needed for Web apps to support this?

- Likewise for novel forms of output controls?

Vocal and Multi-Modal UI

- Voice allows you to keep your eyes on the road, and your hands on the steering wheel

- W3C has worked on vocal interaction for many years,
    - VoiceXML, SRGS, SSML, EMMA, EmotionML, …
    - More recently, work on HTML5 + Speech

- Accurate large vocabulary recognition and sophisticated task oriented natural language understanding best done in the Cloud

- Command and Control with small vocabulary can be handled locally and work even when you are offline

- What kinds of standards are needed to support this and to enable a thriving market for valued added third party services?

Context Awareness

- How can apps be made aware of the context and adapt to change?

  - Whether car is parked or in motion, but many others

    – Background noise, driver alertness, time of day, road conditions, upcoming junctions, car in front pulling out, etc.

- Trusted applications which adapt by themselves

- How can the web run-time force adaptation?

  - Untrusted applications from an arbitrary website

Notifications

- How to handle notifications in different contexts?

- Some categories could be de-prioritized

- Use of different aural, visual and tactile cues for easy recognition of various kinds of notifications

- Multiple sources of notifications

  - Foreground application, and background services

- Opportunities for W3C Web Notifications WG

Automotive Specific APIs

- What uses cases are there for exposing different aspects of the car to Web applications through automotive specific APIs?

  - Car sensors for road conditions, nearby vehicles

  - Information on fuel efficiency, need for servicing

  - Lots of car subsystems, but how much information do end-users really want?

  - What are the safety and privacy issues?

- What new standards are needed for this?

Security, Privacy and Trust

- W3C experience with designing APIs for apps running in the browser sandbox
  - Giving users control in a contextually relevant manner
  - Limiting what data is made available to applications
  - Minimizing opportunities for finger printing
- Web Intents as a means for users to choose which service providers to use with any given app
- System level APIs require higher level of trust
  - Signed apps, or curated collections in app stores
  - Upgrading or disabling apps in timely way, e.g. as security flaws are discovered
  - Potential role of federated approach to trust
  - Plans for new W3C Systems Level APIs Working Group
- Need to clear history and private data, e.g. when returning rental car
- Do not Track preference setting

User Preferences

- Cars may be shared by several members of same family

- How to seamlessly support personal preferences?

- Implies some means for car to recognize each person

  - Car "keys" are insufficient for social reasons

  - Face, finger print or voice recognition?

- Opportunity to sandbox user preferences, browsing history and personal data

Advertising

- **What are the challenges for context-based advertising in the car?**

  - Current location, the trip plan registered with the satnav app, or deduced based upon observed driving patterns, time of day, amount of traffic and so forth

- **Will be impacted by user preferences**

  - Different users react differently to different ads

  - Further motivation for sandboxing different users

- **Opportunity for personalized context-based ads inserted within media streams**

Payments

- Many existing or upcoming payment solututions
  - Embedded wallets, e.g. by ISIS, Visa, and Google
  - Network based solutions e.g. GSMA OneAPI
- Users should be free to select means of payment
- Web Intents is part of the solution
  - Web app asks for payment, user selects how to pay
- Further work is needed on open standards for
  - How payment solutions are registered with browser
  - How Web application communicates with payment solution
- Open standards would reduce porting costs for developers

Web & Automotive Workshop

- Workshops held to advise W3C on whether it is timely and appropriate to initiate standards work

- Can last from one to three days with 20 – 100 participants

- Program Committee formed to advise on Chairs, Agenda, to review submissions, and to help with outreach

- Deadline for submissions has to allow for review process and time for people to make travel arrangements after receiving notification of acceptance

- No decision on location and venue as yet

- Date: the week of 10-14 September 2012

Further Questions?