Integrating
Augmented Reality in the Web

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The Diversity of AR technologies

- AR covers various kinds of technologies
  - Data Overlay / Insertion
  - Head-Mounted Display (HMD)
  - Real-World Interaction

- Different degrees of usage
  - Smartphones AR Browsers: widespread
  - HMD: specialized markets / prototypes

- Hence, different kinds of expectations
  - Not the same maturity level for each of them

- Focus of this presentation: Data overlay / insertion
  - What to do so that these technologies can be more widely used?
Canon Interest

- Canon is an imaging company, and AR requires imaging technologies
  - Capturing, processing, displaying…

- Long-time interest in AR
    - AR through data overlay
  - Recently: Mixed Reality demo
    - E.g. dinosaurs through HMD
  - Application: new product design
    - Prototype-less development

- Interest in W3C work
  - W3C allows full use of the Web
    - Even for companies which are not Web-focused
Barriers to AR Expansion

- AR applications can now reach a broad audience
  - Especially thanks to recent smartphones

- But the lack of standards limits their expansion
  - Platform barrier: AR browsers come as native applications
  - Data barrier: data silos without standard

- The Web as a solution?
  - Web Browser as AR platform?
  - Web data accessible to any application?
Web Browser as AR Platform

- What is needed for an AR platform is
  - Access to “sensors” (camera, GPS, compass…)
  - Ability to control & enrich video (overlay, insertion)
- Most of this is being standardized
  - Capture, Compass, System & Geolocation APIs
  - HTML5 video support (control?) & canvas (enrich)
- Key technologies for enabling Web Browsers as AR platform will soon be made available
  - Yet, need to check that all the pieces can work together
    - Capture API requirements: SHOULD enable displaying of viewfinder
      - This is required for AR (HTML5 video tag?)
    - Responsiveness? Frame rate? Footprint for constrained devices?
A standard format for AR data would benefit AR applications
- More freedom for developers, so more innovation, and better user experience (e.g. through mash-ups)

Which format?
- KML? ARML? New format?

Beyond that, the Web is the place to get/put data
- Ideally, any resource should be a potential AR data
- Content producers should be able to easily characterize their data regarding AR usage
- Semantic Web may help to achieve this (RDFa?)

Solutions may not be as mature as browser ones, but basis for standardization is available
Conclusion

- The Web is a key for AR
  - The Web is the way and the place to find data

- Still, different situations
  - AR platform: browser technology, quite well defined
  - AR data: many scenarios, many actors, more challenging

- First target may be to make the web AR-compatible
  - Web browser as platform, standard AR format

- A challenge to keep in mind: how to enable AR to fully use the power of the Web?
  - Distributed data, semantic web, user-generated content…