Towards building augmented reality web applications

Jens de Smit, jens.desmit@surfnet.nl

June 15, 2010
About me and my talk

Me:
- Employee of SURFnet, Dutch NREN organisation
- Author of PorPOISe, open source server for Layar

My talk:
- Introduction to AR applications
- Analysis of an AR application
- Thoughts on local device access in web apps
- Security
- Summary
- Questions
AR applications

2009 has seen a slew of AR applications:
- Layar, Wikitude, Bionic Eye, Ray-Ban Virtual Mirror, Flash-based marketing gimmicks

All are delivered via WWW tech

Some of these use web technologies internally such as
- HTTP (Layar, Wikitude, Flash)
- JSON (Layar)
- XML (Wikitude)

but all of them use something proprietary

This should change!
Dissecting Virtual Mirror

http://www.youtube.com/watch?v=Ag7H4YScqZs
What we need

- Access to audio and video feeds
  - Think beyond webcam and microphone, any stream would be great

- Tracking algorithm
  - Built-in saves resources...
  - ...but requires vendors to implement it

- Everything else is (almost) available
  - HTTP for data transport
  - HTML/CSS for interface markup
  - JavaScript for control
  - WebGL for 3D rendering
We want more...

- Mobile AR applications such as reality browsers cleverly combine multiple inputs
  - Camera
  - Location
  - Direction
  - Device position
- We want access to that information too (some is already available in HTML5)
- We want access to other stuff too
  - Gyroscope
  - Thermometer?
  - Altimeter? Air quality? Humidity? You-name-it?
- **Do we need a generic device interface?**
Don’t forget about security!

- Allowing access to local devices is a security/privacy risk
  - Access to personal audio/video recordings
  - Access to local storage
  - Access to security devices

- Some users don’t care (shows Chatroulette)
- Others may decide against using the technology at all

- How can we design our device API’s so that they inspire trust?
Summary

- Augmented reality is all about context
  - Experience is based on input taken from context
  - Output is shown in context, i.e. reality

- Web technologies traditionally lack interface to local resources
- Diversity of local resources is growing, use for applications is obvious
- Security is a very important issue

- Time to design some new features!
Questions?

Any questions or remarks?

Contact information:

Jens de Smit

Jens.deSmit@SURFnet.nl

@jfdsmits

www.surfnet.nl