

# Wearables

Session 3

INST 346

Doug Oard

# Agenda

- Virtual reality
- Augmented reality
- Lifelogging
- Homework 1



# Human Senses

- Visual
  - Position/motion, color/contrast, symbols
- Auditory
  - Position/motion, tones/volume, speech
- Haptic
  - Mechanical, thermal, electrical, kinesthetic
- Olfactory
  - Smell, taste
- Vestibular

# Virtual Reality Output

- Image
  - Head-mounted, projection
- Acoustic
  - Headphones, speakers, spatialization
- Tactile
  - Vibrotactile, pneumatic, piezoelectric
- Force feedback
  - Exoskeleton, flight controls, ...

# Virtual Reality Output

- Inertial
  - Motion-based simulators
- Olfactory
  - Chemical
- Locomotive
  - Ambulatory, stationary bicycle, treadmill
- Physical
  - Thermal, wind, water spray, ...

# Virtual Reality Input

- Language
  - Speech recognition
- 3-D direct manipulation
  - Wand, data glove
- Remote sensing
  - Camera, speaker ID, head tracker, eye tracker
- Simulation
  - Mechanical controls (flight, car, parachute, ...)

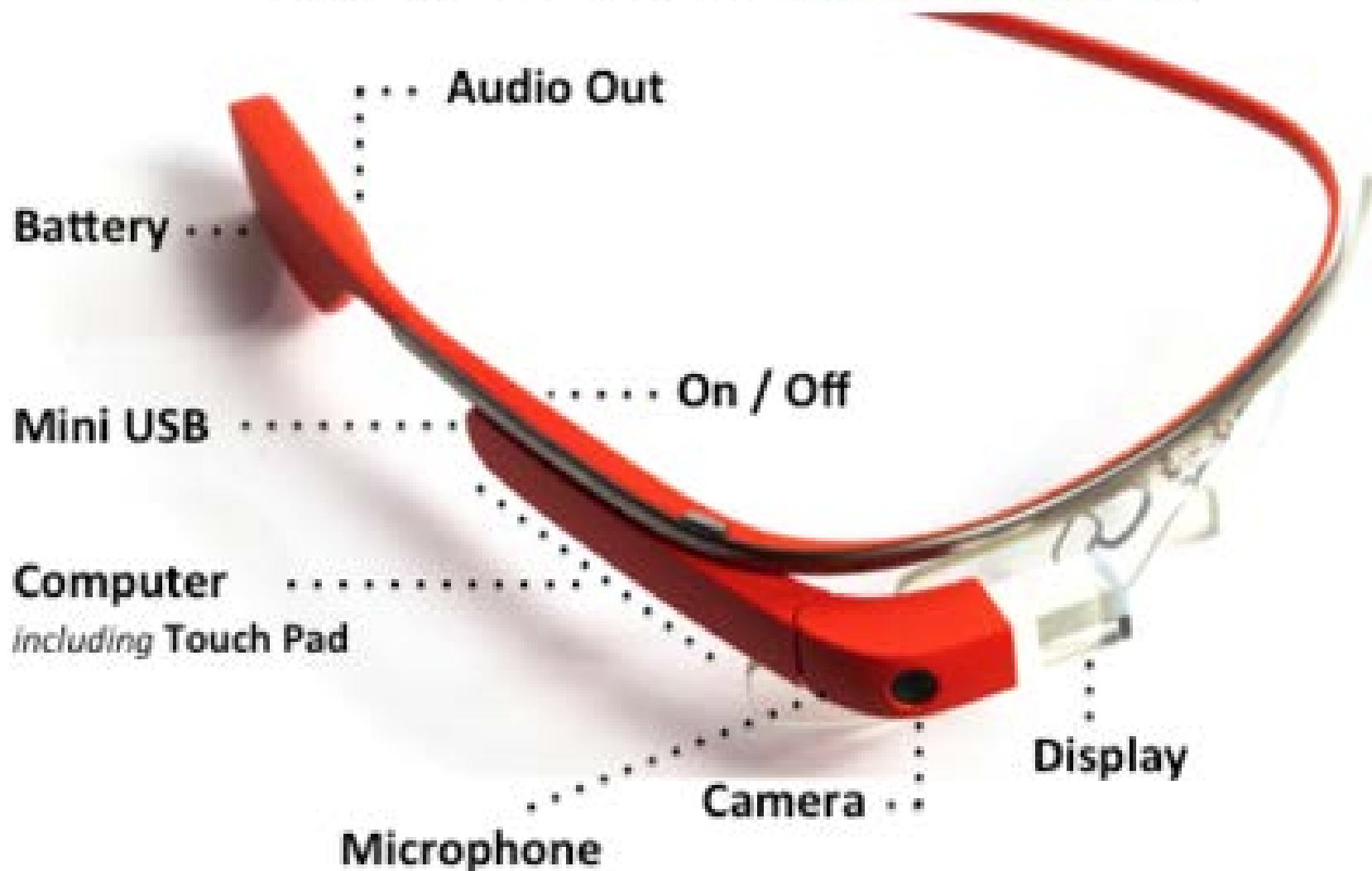








# Google Glass: Hardware





# Lifelogging

- Images
  - Sensecam, video
- Audio
  - Maryland is a two-party consent state
- Spatial
  - Position tracking with GPS, WiFi, cellular, ...
- Biometric
  - Heart rate, respiration, galvanic skin response
- Files
  - Email, SMS, photos, ...

# H1

- Due Friday before class