SENSORS ON ANDROID PHONES

Indian Institute of Technology Kanpur
Commonwealth of Learning Vancouver
Keerthi Kumar

Samsung Semiconductors
Keerthi Kumar

IIT Kanpur
Overview

• What are sensors?

• What are the different types of sensors present on current smartphones?

• What these sensors do?

• And how you can use them?
What are sensors?

- Hardware in a device to feed in data from the physical world
- Apps use data from these sensors to do various things
Keep your phones handy!
Types of Sensors

- Location Sensors
- Position Sensors
- Motion Sensors
- Environmental Sensors
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Location Sensors

- These sensors give you the location of your device.

- Precision of the location changes with the different sensor:
  - Wi-Fi
  - Cell-ID
  - GPS
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Location Services

• Location

Reports the current geographical location of your device and the nearby places
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App:
  Google Maps
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App:
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Location Services

- Navigation

Gives you directions to any place you want to reach, and navigates you through the way
Location Services

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App: Google Maps
Location Services

- Tracking

Track the location of the device
Location Services

• Tracking

Track the location of the device

• Apps:
  – Social Tracking
    • GPS Tracking Pro
  – Sports Tracking
    • Sports Tracker
  – Device Tracking
    • Android Device Manager
Location Services

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Position Sensors

- These sensors sense the position of the device
Position Sensors

• Orientation Sensor
  – Determines if the device is in landscape or the portrait mode
Position Sensors

• Orientation Sensor
  – Determines if the device is in landscape or the portrait mode

• Apps:
  – Video Player
  – Browser
Position Sensors

• Proximity Sensor
  – Detects the presence of nearby objects
Position Sensors

• Proximity Sensor
  – Detects the presence of nearby objects

• Apps:
  – Phone App
  – Proximity Actions
Motion Sensors

These sensors measure the movement of the device in multiple directions
Motion Sensors

- Accelerometer or Gyroscope
  - Games (Ex. NFS Most Wanted)
  - Google Sky
  - Seismo
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  - **Seismo**
    - “Smartphones as Earthquake Sensors”
      - National Institute of Geophysics and Volcanology, Italy
Environmental Sensors

These sensors measure the ambient conditions of the device
Environmental Sensors

- Ambient Temperature
- Ambient Light
- Atmospheric Pressure
- Relative Humidity
- Magnetic Field
Environmental Sensors

- Ambient Temperature
  - Thermometer
- Ambient Light
  - Screen Brightness
- Atmospheric Pressure
  - Barometer
- Relative Humidity
  - Humidity
- Magnetic Field
  - Metal Detector
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Miscellaneous Sensors

- Camera
- Microphone
Miscellaneous Sensors

• Camera
  – QR Code Scanner
    • Instant web links
  – Google Goggles
    • Image search
  – Instant Heart Rate
    • Heart rate monitor
  – Smart Measure
    • Measure height and distance

• Microphone
  – Shazam
    • Song identification
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- Android Sensor Box
- Tasker
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THANK YOU