http://goo.gl/umlJF2
Ubiquitous Android

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• In the classroom
  ○ CS Department experimental curriculum
  ○ Other academic uses

• On campus
  ○ Need a smartphone? Here.
  ○ How can we help U?

• In the larger community
  ○ My little struggling town, Medaryville Indiana
• Take-aways from OSCONs past
• Alumnus Blake VanEekeren's gift
• My history as a bottom feeder
  ○ Sourcing on eBay
  ○ Cracked digitizers
• Campus move to Google Apps
Get phones
Criteria

- Cheap
- Reliable
- Easy to root and flash
- No-plan service available (Virgin Mobile)
- (Front-facing camera)
Approximate average costs

Used Phones: $60
Bad ESN Phones: $40
Bad Digitizer Phones: $25
Digitizers: $10
SD Cards: $5

Failure rate has been very low
Broken? We can use it for parts
Teaching: CS
Android-oriented curriculum

- **App Inventor** is the crucial component
  - This all started (for me) at OSCON 2011
  - CS1 100% in App Inventor
  - CS2 App Inventor/[Java Bridge]/Eclipse

- **Upper-level courses will use Android**
  - Software Engineering
  - Operating Systems
  - Networking
App Inventor

- **Original version**
  - No local scope
  - Scaling poor
  - Java Web Start dependent
  - Finicky Windows drivers

- **App Inventor 2 based on Google's Blockly**
  - 100% browser-based
  - WiFi connection to phone
  - Streamlined UI
  - No more Java
  - Incompatible with O'Reilly book
  - Hello sub-$300 Chromebook development
Classroom Simulation

In case of technical issues, here are screenshots of what I hope to demonstrate

Sing along:

- **Alpha version of App Inventor 2**
- **On an Android phone**
  - Install the Companion app from the QR code
  - Wifi turned on and connected to house net
We had four CS1 study groups

- **Hardware**
  - Digitizers
  - LCDs, buttons, bezels, etc.

- **ROM**
  - Life on the XDA
  - Grabbing for the brass ring: our own branded ROM

- **MOOC**
  - Hangouts (on phones with front cameras)

- **Chromebook**
  - App Inventor 2
Moving beyond: The Java Bridge

- Java classes which mimic App Inventor components
- Eclipse-oriented
- This part is the real trick
Android as sensor box

- Geotagged images
  - Software engineering 2010
  - Geocam (Screenshots)
- Soil Science Apps
  - SoilWeb (Screenshots)
  - Soil Survey (Screenshots)
  - Texture Apps
- High-quality recorder
- 5mp camera + GPS
  - (Now there are Android cameras)
- Plus free voice and SMS over WiFi
Upcoming Campus Projects

- Alumni magazine app
- Newspaper transformation to digital
- "The cafeteria app"
- Everybody has ideas
Community Service
Outreach

- Free SIP service via Google
- Ready recorders of history and culture
  - Geotags
  - Reminiscences
- Outreach
  - Foreign and low-income students
  - Free Wifi and free phones at Linda's Diner
    - Free calls, web browsing, texting
    - Do you remember?