



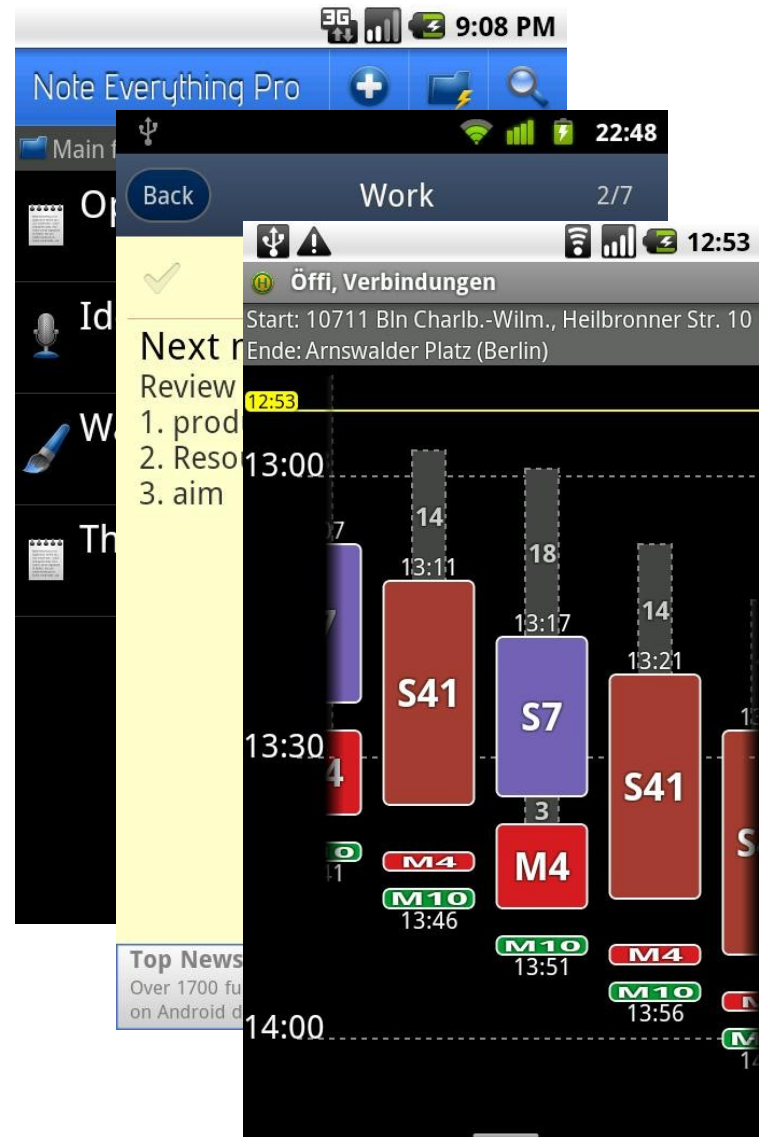
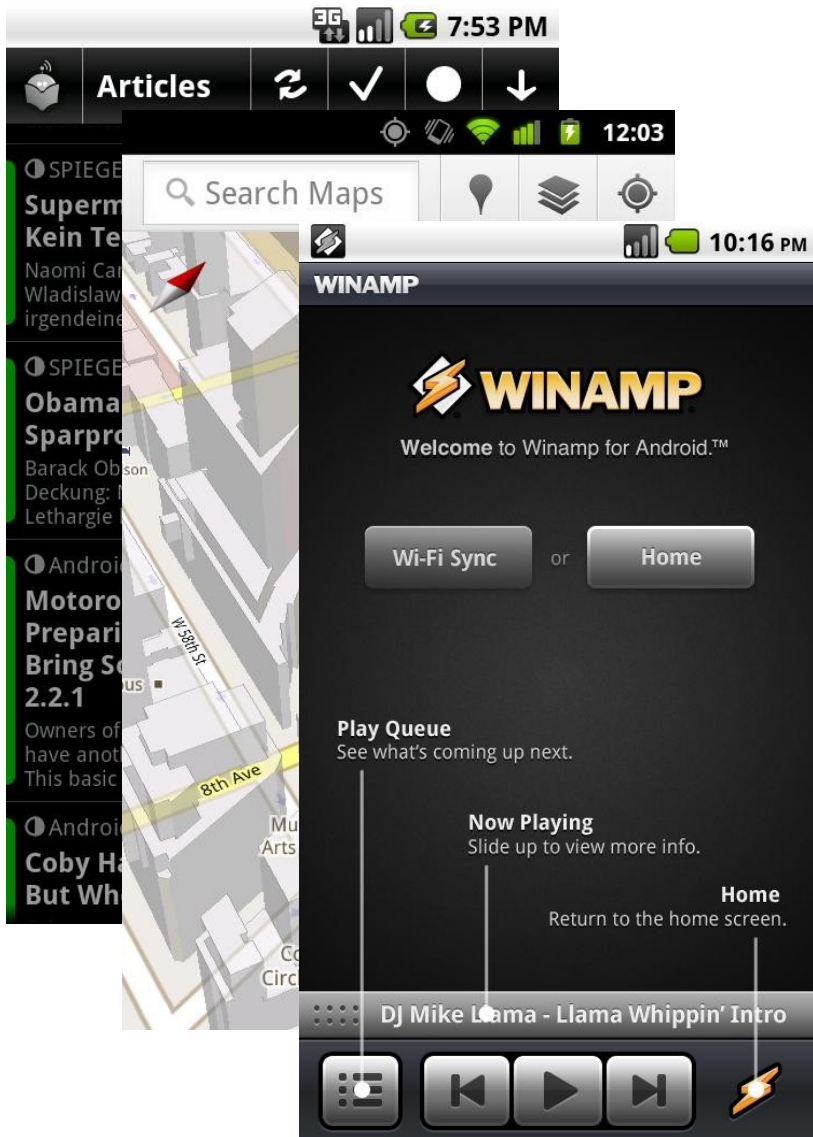
media
computing
group



RWTHAACHEN
UNIVERSITY

Introduction to Android

Jonathan Diehl (Informatik 10)
Hendrik Thüs (Informatik 9)



Devices



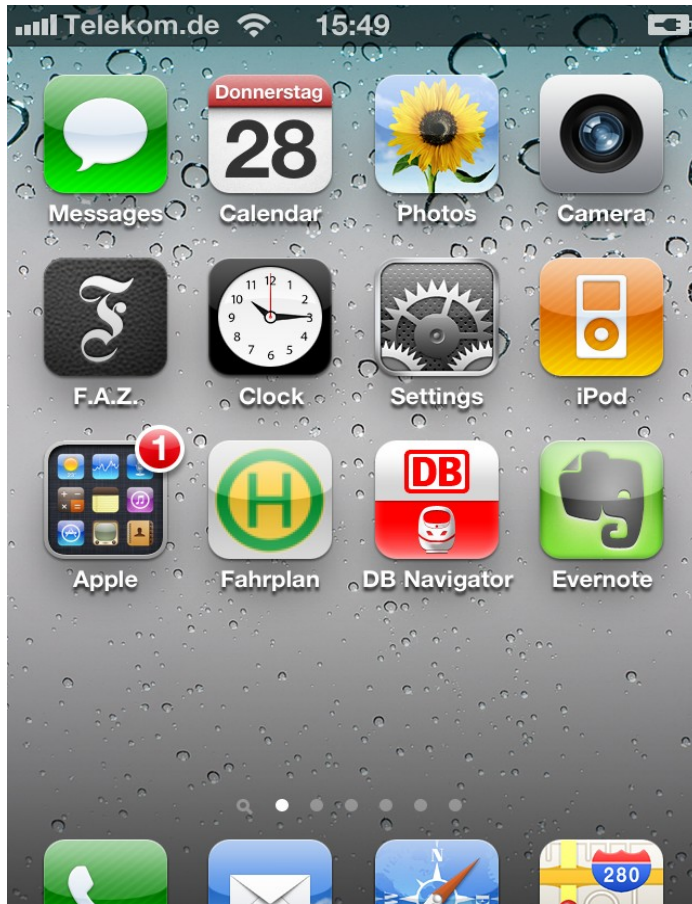
Hardware Characteristics

- Various resolutions (240x320 ... 768x1366)
- Three density classes
 - ldpi (120 dpi)
 - mdpi (160 dpi)
 - hdpi (240 dpi)
- Density-independent pixel (dp/dip)
 - $\text{pixel} = \text{dp}(s) * (\text{density} / 160)$
- No hardware specification

Hardware and Interaction




Apps and Widgets



Android OS

Android OS

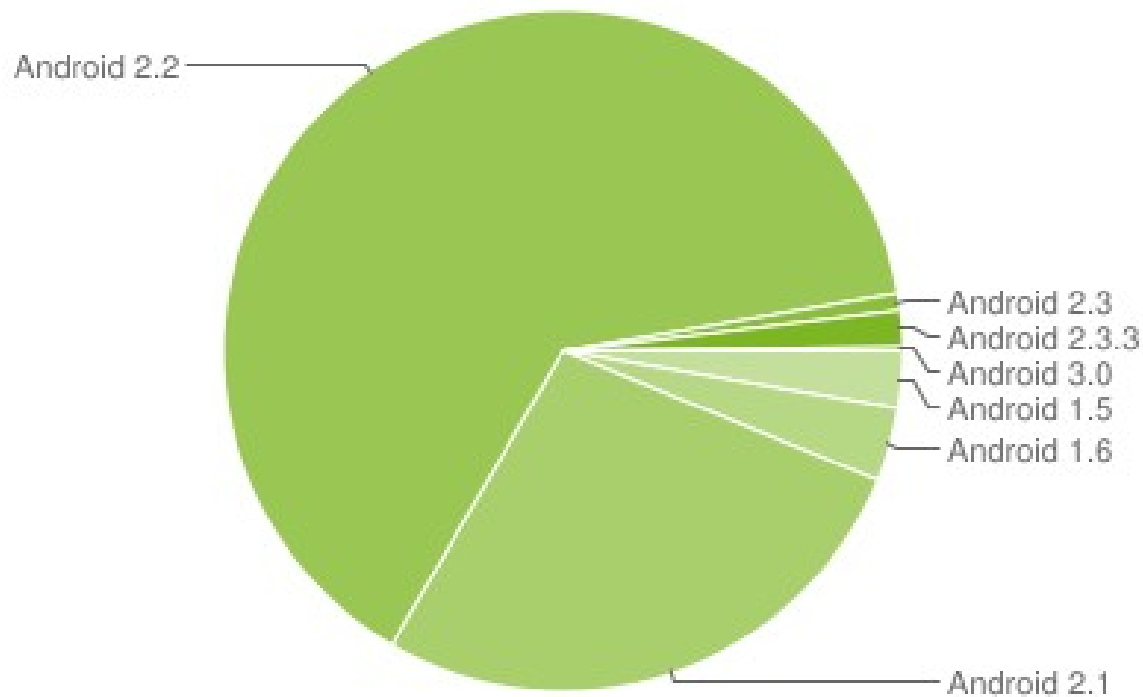
- Operating System for mobile devices
- Based on the Linux-Kernel
- Dalvik Virtual Machine
- Developed by the Open Handset Alliance



Versions

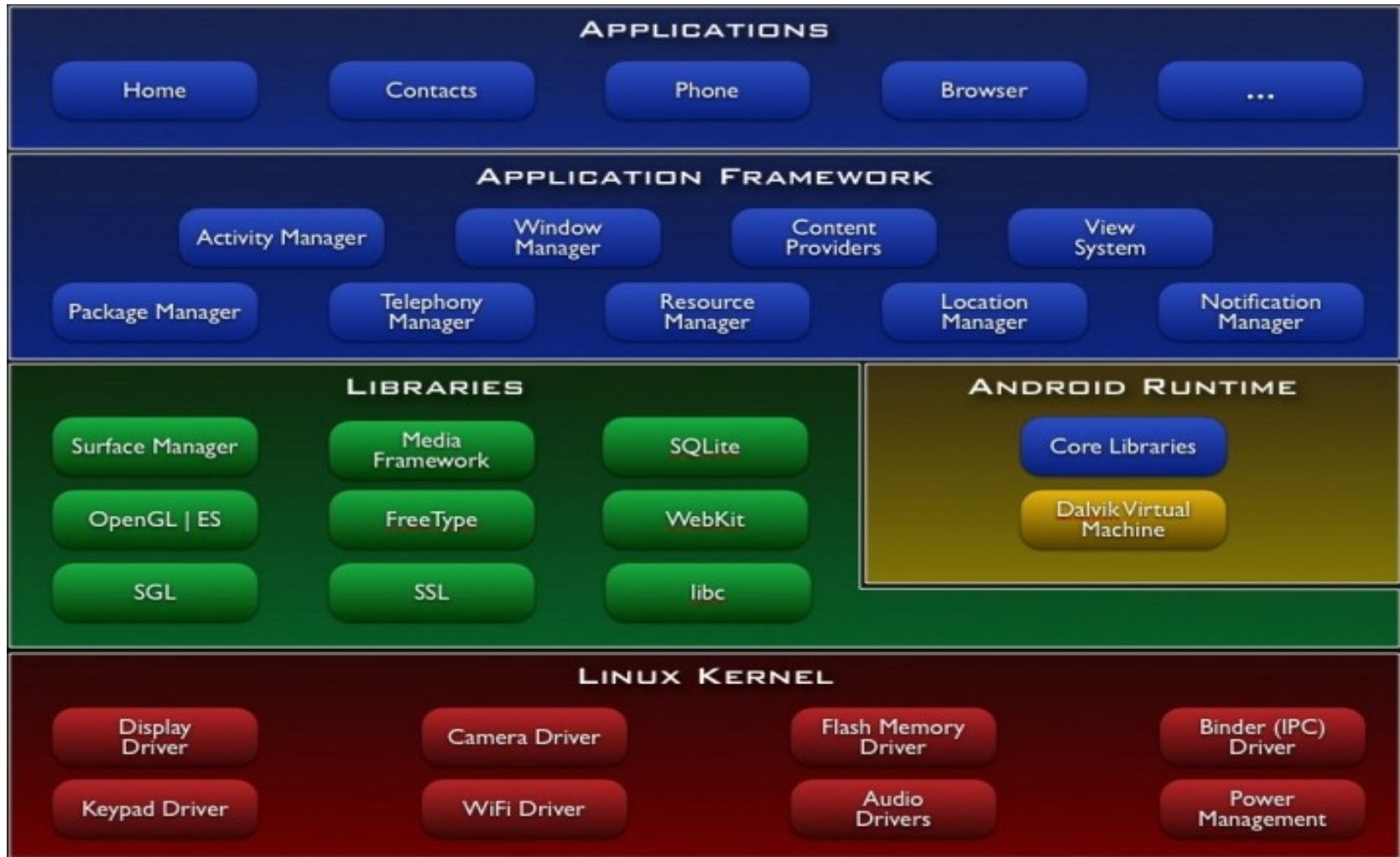
- 10.02.2009: Version 1.1
- 30.04.2009: Version 1.5 (Cupcake)
- 15.09.2009: Version 1.6 (Donut)
- 26.10.2009: Version 2.0 (Eclair)
- 03.12.2009: Version 2.0.1
- 12.01.2010: Version 2.1
- 20.05.2010: Version 2.2 (Froyo)
- 06.12.2010: Version 2.3 (Gingerbread)
- 23.02.2011: Version 3.0 (Honeycomb)
- Q3 2011: Version 3.1 (Ice Cream)

Platform Versions

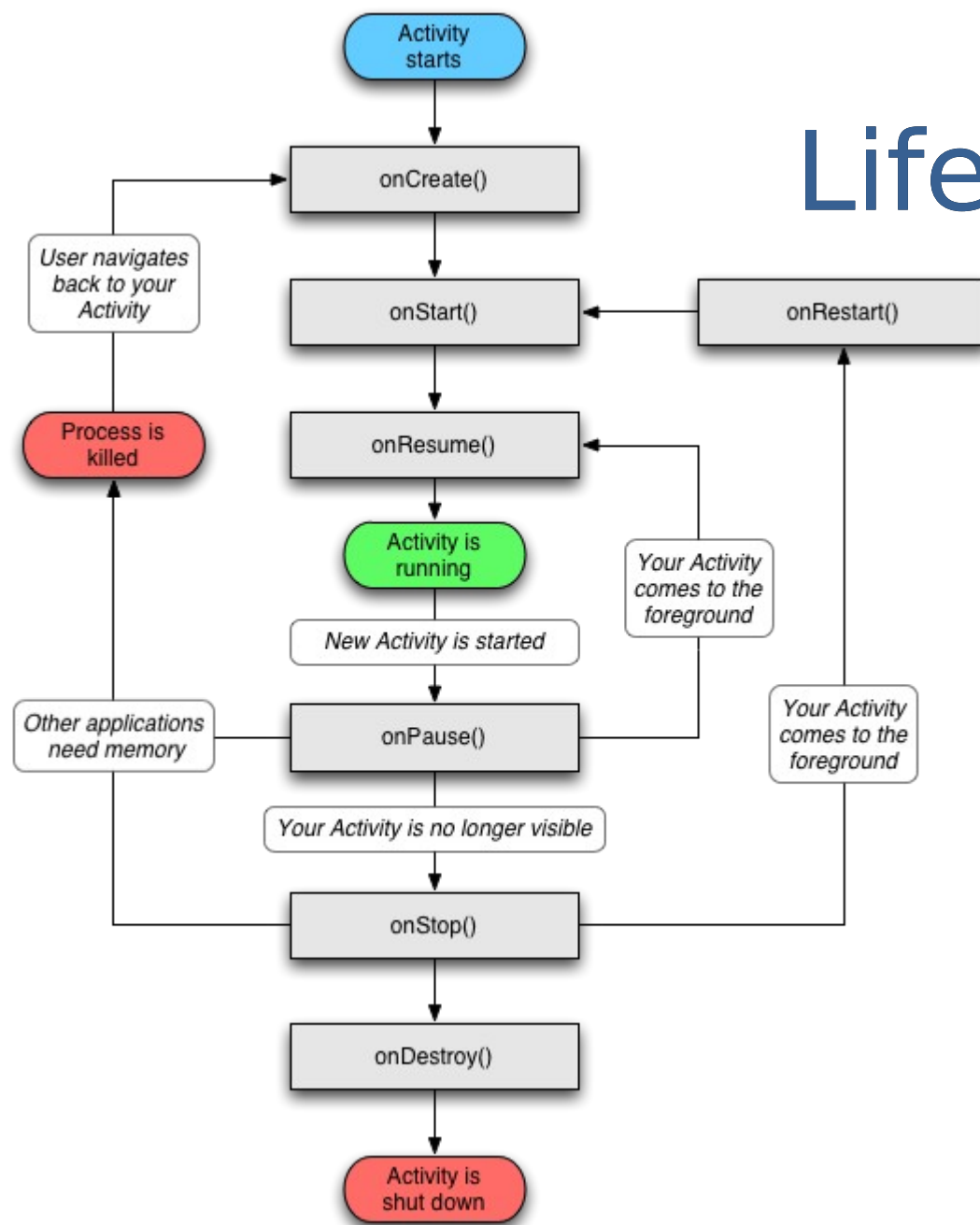


April 1, 2011

Architecture



Lifecycle




Task & Memory

- OS takes care of memory
- Having empty memory is not a good thing
- Important/often used information are kept
- Services



Do not use a Task-Killer

Services

- *Not* a separate process 
- *Not* a thread
- Schedules work for the system
- Expose functionalities to other apps

Development

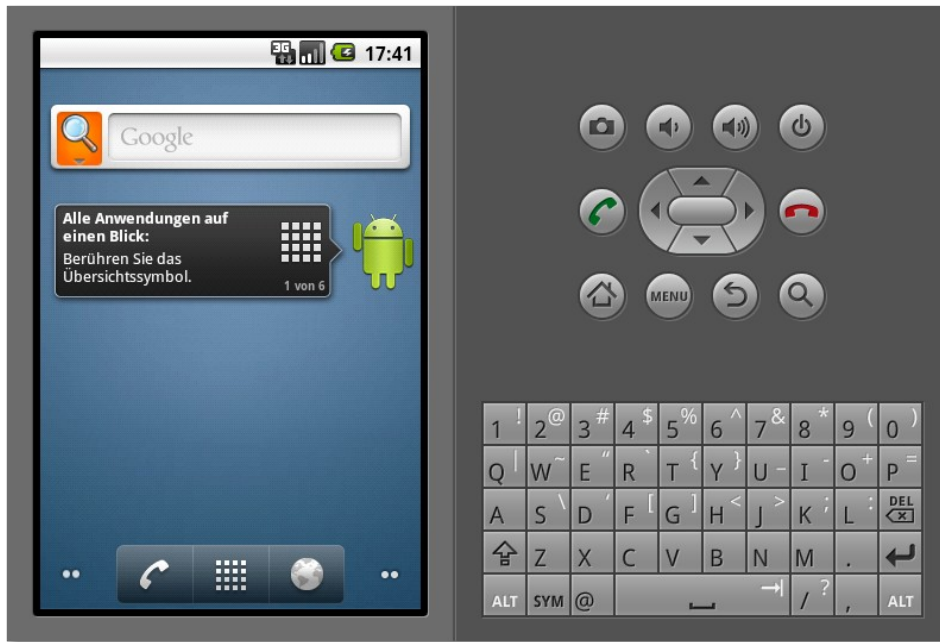
Environment

- Operating System
 - Windows
 - Mac OS
 - Linux
- Eclipse
- Android SDK



<http://developer.android.com/sdk/installing.html>

Testing



Settings > Applications > USB debugging

Limitations

- Emulator is not capable of
 - Receiving actual phone calls
 - Camera/video capture
 - Audio input
 - Determining connected state
 - Determining battery charge level
 - Bluetooth
 - Limited positioning / use of sensors

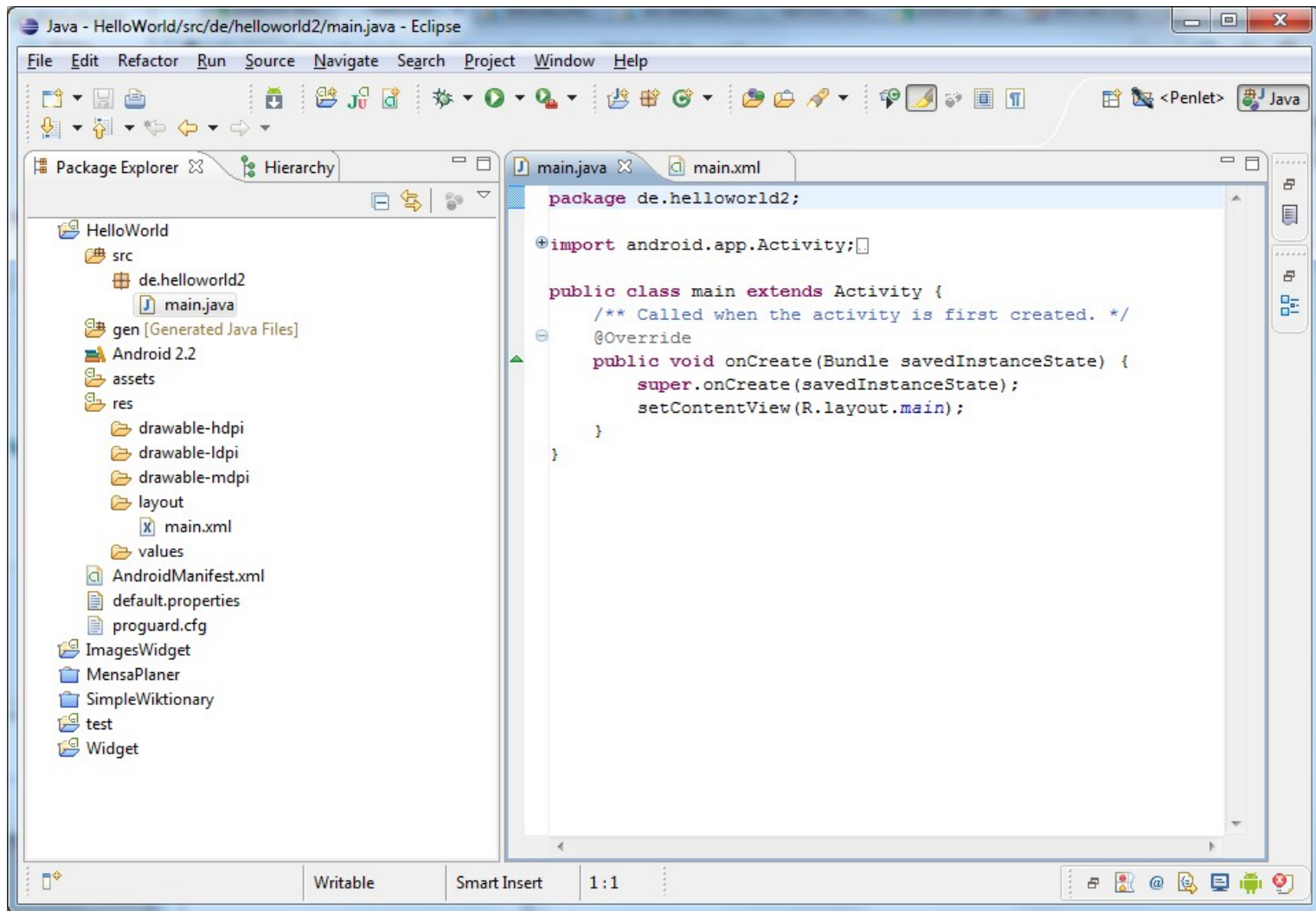
Distribution



- Android Market
- Self-published on a web site .apk
- 3rd party app stores
 - AndroidPIT
 - SlideMe
 - Amazon Appstore



Hello World

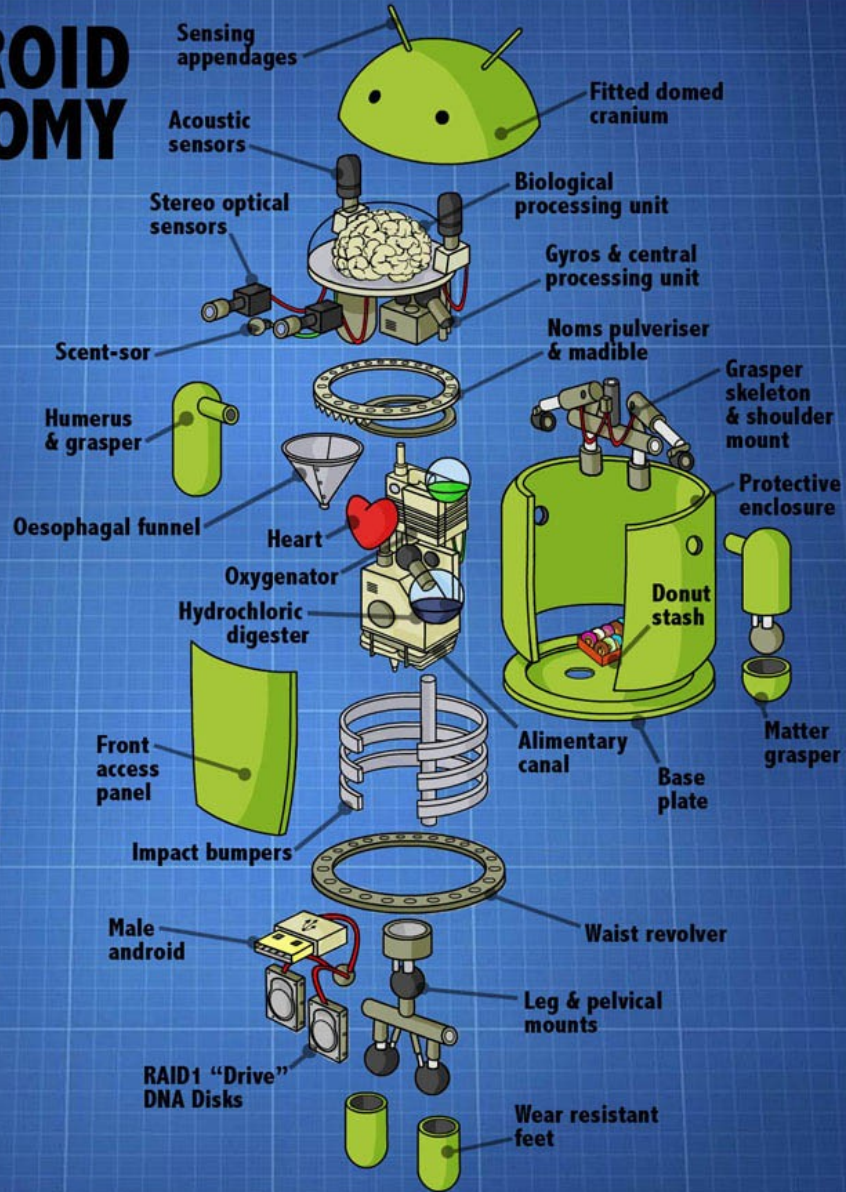




ANDROID ANATOMY



androidus robosapiens
(beep boop beep beep)



twitter.com/Gyrowoof | www.furaffinity.net/user/woofdude/

