Google
Developers

Google I/O 13

Voiding your warranty

Hacking your glass

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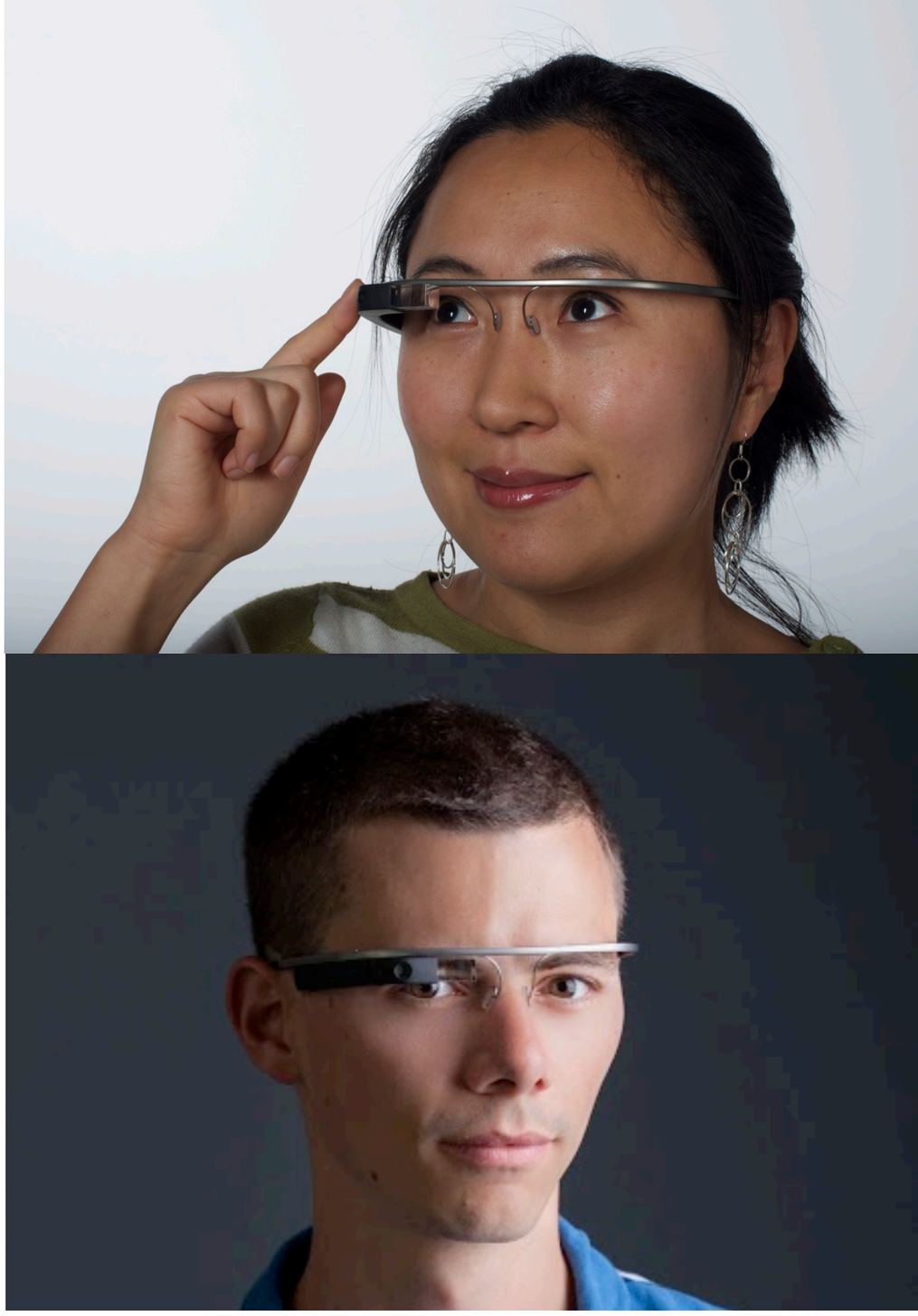
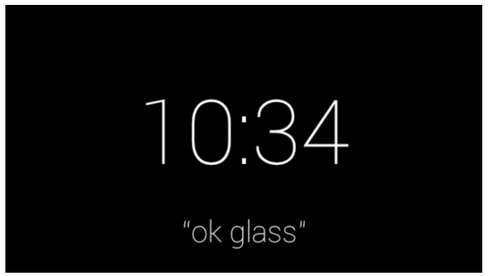
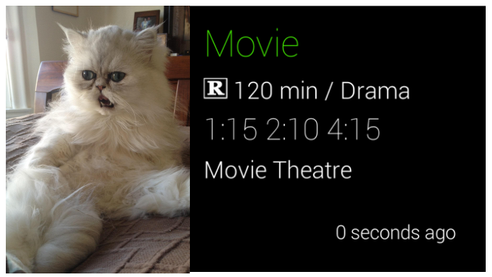
Google [x] Software Engineers



Recap of previous Glass sessions

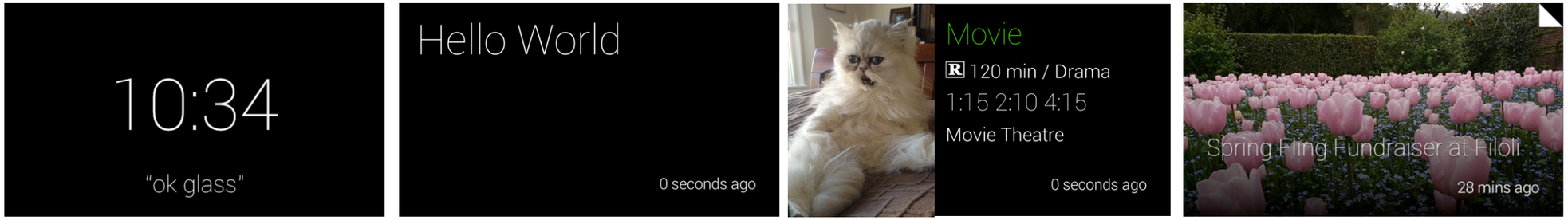
Timeline





Recap of previous Glass sessions

Timeline



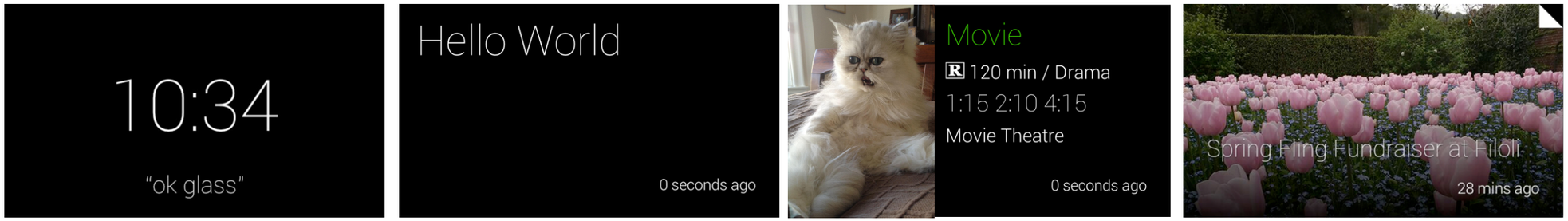
Insert timeline item cards

Mirror API

3rd party service

Goal of this talk

Timeline



Insert timeline item cards

???

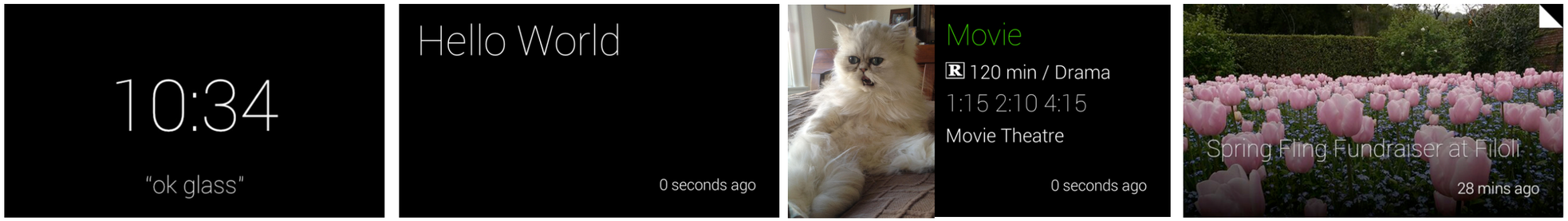
Mirror API

Glass SDK

3rd party service

Goal of this talk

Timeline



Insert timeline item cards

???

Mirror API

Glass SDK

???

3rd party service

Glass Platform Hacking

Overview

- Prerequisites
  - Developers for Glass
  - Android basics
- Overview
  - Run applications on Glass platform without root access
  - Root your Glass (void your warranty)

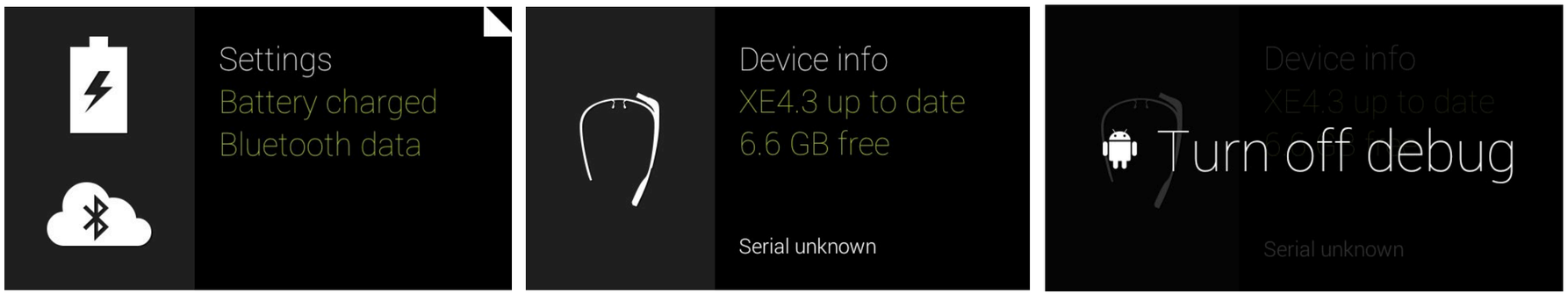
Experiment with Android Applications

Before you void your warranty

Android Debug Bridge

- Client (Laptop)
  - download the latest Android SDK
  - *[SDK directory]/platform-tools/adb*

- Host (Glass)
  - use “Device Info” settings card



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Glass platform

- Operating system
  - Android ICS MR1 (4.0.4)
  - API level 15

- Hardware
  - GPS, wifi, bluetooth
  - Microphone, Camera, IMU sensors, Touchpad
  - Transparent display (640x360 px)

Demo

- From AOSP
  - Launcher
  - Settings
- From Android SDK samples
  - Notepad

Video

- From High Fidelity Inc.
  - Glass Explorer
  - Avatar app
    - motion sensors
    - microphone

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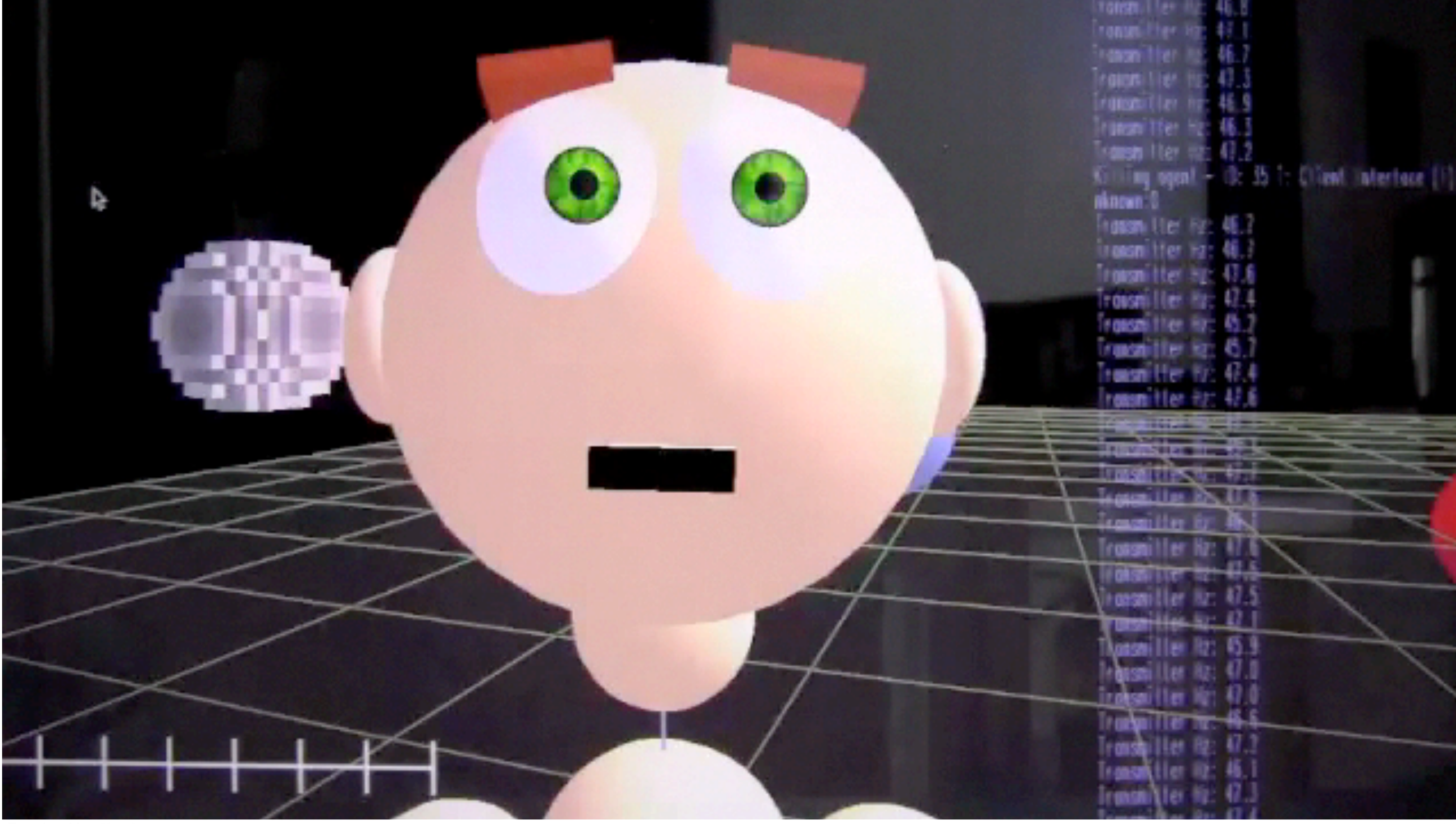

Limitations

- No root access
  - cannot access user data space

```
$ adb shell ls /data
open failed, Permission denied
```

  - cannot delete stock Glass system applications

```
shell@android:/system/app $ rm GlassHome.apk
rm failed for GlassHome.apk, Permission denied
```

  - cannot replace the operating system

Gain root access

Void your warranty

Become Root on Glass system

```
$ adb reboot bootloader
$ fastboot oem unlock
$ fastboot flash boot boot.img
$ fastboot reboot
$ adb root
```

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Become Root on Glass system

```
$ adb reboot bootloader
$ fastboot oem unlock
$ fastboot flash boot boot.img
$ fastboot reboot
$ adb root
```

Access the bootloader

Host (Glass):

Custom bootloader for Android
“fastboot” protocol, USB-based

Client:

[SDK directory]/platform-tools/fastboot

Become Root on Glass system

```
$ adb reboot bootloader
$ fastboot oem unlock
$ fastboot flash boot boot.img
$ fastboot reboot
$ adb root
```

Unlock the device

Removes security precaution
Can flash system partitions with custom rom images

== Erases all user data
== Void your warranty and no OTA update

Become Root on Glass system

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$ adb reboot bootloader
$ fastboot oem unlock
$ fastboot flash boot boot.img
$ fastboot reboot
$ adb root
```

Replace the boot image

http://developers.google.com/glass/downloads

Become Root on Glass system

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Become Root on Glass system

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$ adb reboot bootloader
$ fastboot oem unlock
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$ fastboot reboot
$ adb root
```
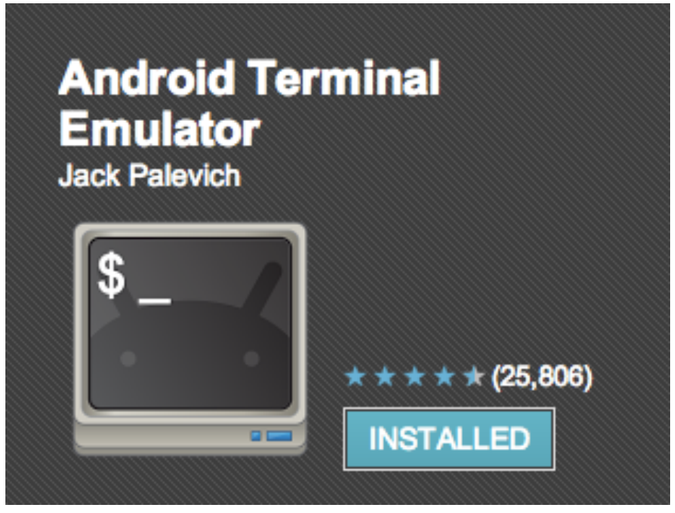
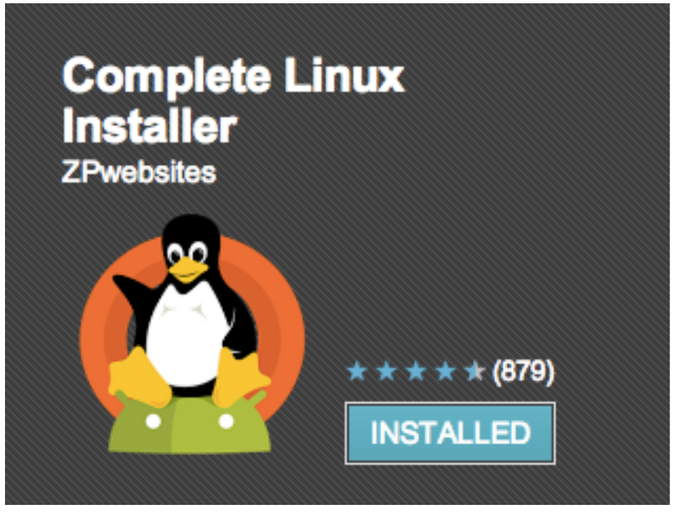

Video

- Steps to root your device

Demo

- Run ubuntu on Glass device





Summary

Debug mode

Can install apk's

Example: Settings, Launcher, NotePad

Root mode

Can change system partitions (e.g., /data, /system/apps)

Example: Run Ubuntu

Under warranty
OTA update

Void your warranty
No OTA update

Resources

developers.google.com/glass/community

stackoverflow

GitHub

google-glass-api

Google Mirror API bug reports and feature requests

Resources

Explorer Community

www.glass-community.com

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Thank you!

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Glass track

Day 2	10am - 11am	11:15am - 11:55am	12:45pm - 1:25pm	1:40pm - 2:20pm	2:35pm - 3:15pm	3:30pm - 4:10pm
Glass	Developing For Glass Room 2		Building Glass Services with the Google Mirror API Room 7		Voiding Your Warranty: Hacking Glass Room 2	Fireside Chat with the Glass Team Room 7

Google I/O

Glass track

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