ECE 1778:
Creative Applications for Mobile Devices

Lecture 3

January 19, 2016

Why We're Here

- To bring together people from different disciplines to build an interesting & creative mobile/wearable application

- To learn how to do this & actually do it!

Today

1. Logistics/Organization of Course & Project
2. Assignments P2 & S2
3. Idea Brainstorming and Creativity Inspiring:
   - Case Studies of Apps
4. Project Group Forming

Logistics

Assignments: Bringing you Up To Speed

- S1 and P1 were due last night
- S2 and P2 are due next Monday at 6pm
  - Are posted on both main course website

- Will be two more assignments after that
  - Assignment #3 will be due two weeks after assigned next week
    - except S3 part 1 is due sooner;
  - S3 and P3 will be posted this week

Project Stages 16

1. **Forming Groups**
   - Within 3 weeks; extra meet Tonight @6:30pm
2. **Project Approval-in-Principle**
   - Done via email
   - Due January 26th prior to class; Must have approval to proceed
3. **Project Proposal/Plan**
   - Document Due Feb 1st
4. **Proposal & Plan Presentations**
   - February 9 & 11
   - **NOTE EXTRA LECTURE Thursday Feb 11, 6-8pm, Loc:TBD**
5. **Spiral 2 & Spiral 4 Presentations**
   - 2: March 1/8 4: March 15/22
6. **Final Presentations**
   - Weeks of March 29/April 5
7. **Final Report Due April 7th**

Groups Need to be Formed Soon!

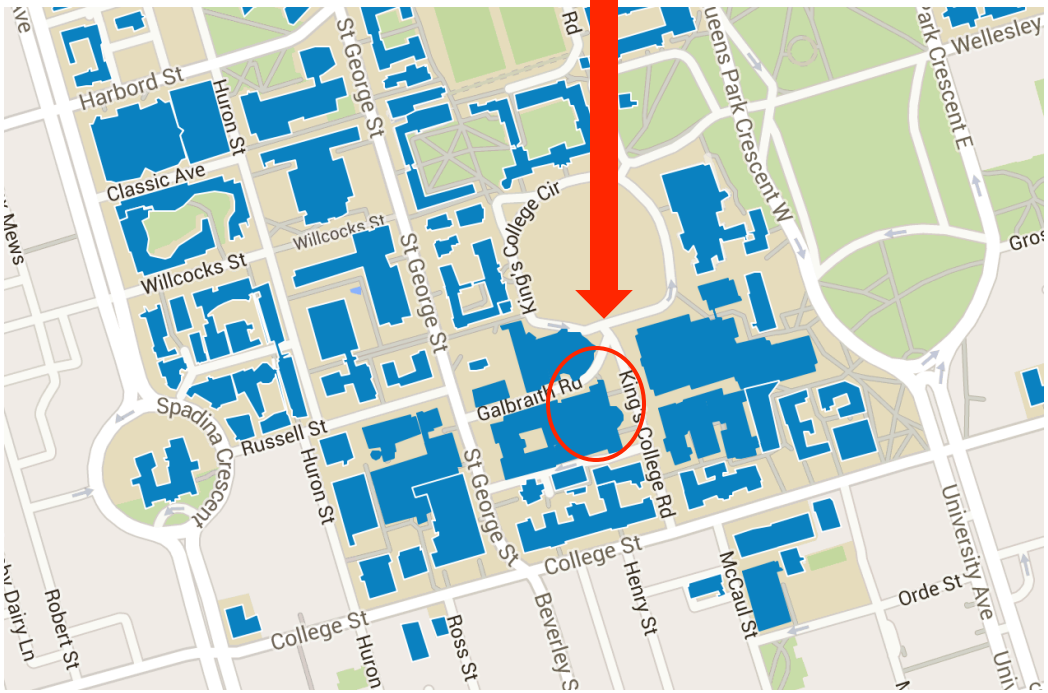
Programmers	Specialists
57	22

- Above count comes from assignment P1 and S1 submitted + external specialist count (7)

- Groups: 1 Specialist + 2 Programmers
- Just a few groups ‘formed’ (5) as of this morning
  - Must send me email to ‘form’
- Will provide time today to help form groups & this eve

Tonight's Meeting Location

- Tuesday January 19th
- 6:30pm-8:00pm (in addition to the class that day)
- Galbraith Building, Room 221
  - 35 St. George Street
  - Will help make matches.



Send Me Group Info When Formed

- Send email to me:
  - Jonathan.Rose@ece.utoronto.ca

- The email **must** contain (please read this):
  - Names of all students and student numbers
  - Department & Field of each group member
  - Degree being pursued by each group member (M.A., Ph.D., M.A.Sc., M.H.Sc., M.Eng, M.S.A.C., etc.)
  - **Indicate who is Programmer, who is Specialist and if someone is serving as both**
  - Mobile platform you plan to do the project on
    - Android, iOS

Next Project Step:

Approval-in-Principle

Approval-in-Principle: January 26

- Once your group is formed, you must fairly quickly come to a idea of what you're going to do
- This week you should be kicking around ideas between yourselves, myself and TAs
  - We will go back and forth as necessary
- Your group must have my approval of the general idea of your Project by Monday January 26, 6pm
  - Start now! Can use this evening's meeting to have informal discussion of topic with team and myself/TAs

What to Send for Approval

1. **What & Why:** A few sentences describe what the project is and how it is motivated.

2. **Expertise Link:** Make clear how this app fits within the expertise of the Specialist and what the contribution the project makes to their field or research

3. **Name:** Give your App a Name
   - name should convey the essence

How to Describe Your Topic?

- Key is to say **what** & **why**
  - engineers tend to think about ***how*** too soon, be warned
  - do need to think about how to make *what feasible*, but not in first description for someone else to understand

- Could be the completion of this sentence: “The goal of our app is to …”

Good Example Description

- **What**: The goal of our App is to help train surgeons to gain fine motor skills by measuring their movements and providing feedback on the movement quality.
- **Why:** Surgical training is difficult, and lacks quantitative feedback.
- **Specialist Expertise:** Training to be Surgeon, currently taking 1 year off to do M.Ed.
- **Name:** STAN “Surgical Trainer and Navigator”

- …. **How:** accelerometer attached to hands to measure fine motion quantitatively

A Little Lie

- This is the description at the end of the project
- It didn't start out this way, it needed refinement
- This refinement process is an essential part of learning

Poor Example Description

It's a customizable cloud-based student/teacher homework and dynamic scheduling app that learns how and when students do their homework, rewards task completion, pushes reminders and adjusts scheduling according to need. It also allows teachers to create ubiquitous learning exercises and to push AR enhanced homework to students. We also hope to build in a GPS-based study group and knowledge building capability. It sounds like a lot but my coders believe they can pull it off. We have prioritized elements and are confident that the core elements can be coded. I will send you the required Apper summary later this week.

What is Wrong with it?

1. Hard to say **what** it is – it is many things, and lacks focus.

2. Doesn't say **why** (e.g. What problem is being solved, why a specific capability is needed/worthy).

3. No name! (This group had real trouble with names)

4. No connection to what the Specialist's expertise is.

How To Send in Approval-in-Principle

- Make a **private post** to instructors on Piazza
  - Just one per group
- Due January 26th, 6pm

- Need to get statement back "Your Project has Approval in Principal"
  - May not get that, in which case you'll have to revise & resubmit
  - Over these years, there has been a fair amount of revision

Step After Approval-in-Principle:

Proposal/Plan

Proposal/Plan Due Feb 1 @ 6pm

1. Reprise Goal, make more precise
   - What & Why
2. Rough design of what the user sees
   - Mock-ups of screens
   - https://moqups.com
     - From Specialist Assignment 2
     - Any drawing package will do
3. Block Diagram overview of planned code
   - Top down
   - With short prose description of each
   - Should be linked to the screens
   - I will discuss creation of block diagrams next week

Plan, continued

4. Statement of Risks/Issues
   - What roadblocks/issues/challenges do you foresee?
   - App-wise, programming-wise, hardware-wise, ethics-wise
5. What do you need to learn that you don't know
   - all members
6. **Important:** Specialists
   - Submit a separate essay on how App relates to field of Specialist, and how the Specialist will contribute to project
   - 500 words

Proposal/Plan Document

- length: 1500 words max
  - not including Specialist essay (#6)
  - include word count, penalty for overage

- Seeking clarity, not quantity of words
  - Omit needles words

- Specialist should Submit to Portal, under “Specialist Assignments” look for **Proposal-Plan**
- Worth 10% of grade
  - including in-class presentation done following week
- Due Tuesday February 1st at 6pm

Week After That: Prop/Plan Presentation

- February 9 and 11 (extra) lecture
  - Concise, clear presentation by all groups of proposal/plan

Assignment P2 – for Programmers

Fragments, Containers, Select, Lists and Files

Available on Course Website

Assignment P2

- Goal is to learn about
  - Fragments
  - Lists – a very common way to display information
  - Files – persistent storage
  - Basic UI design
- App for recording people's age and favourite movies
  - Create a list of people
    - Record age and food preference from specific list of movies
    - Store List in a File
    - Be able to retrieve previously stored files & Display
- **Due next week, Monday January 26th at 6pm**

Key Note for Programmers & P2

- This is a lengthy assignment for graduate-level programmers – at least 8 hours of work.
- If your background isn't strong enough, it will take quite a bit longer
- This assignment often causes programmers to realize that this course is too much work for them
  - It's only Assignment 2, and there are 2 more assignments to go
  - And the real work starts with the project!

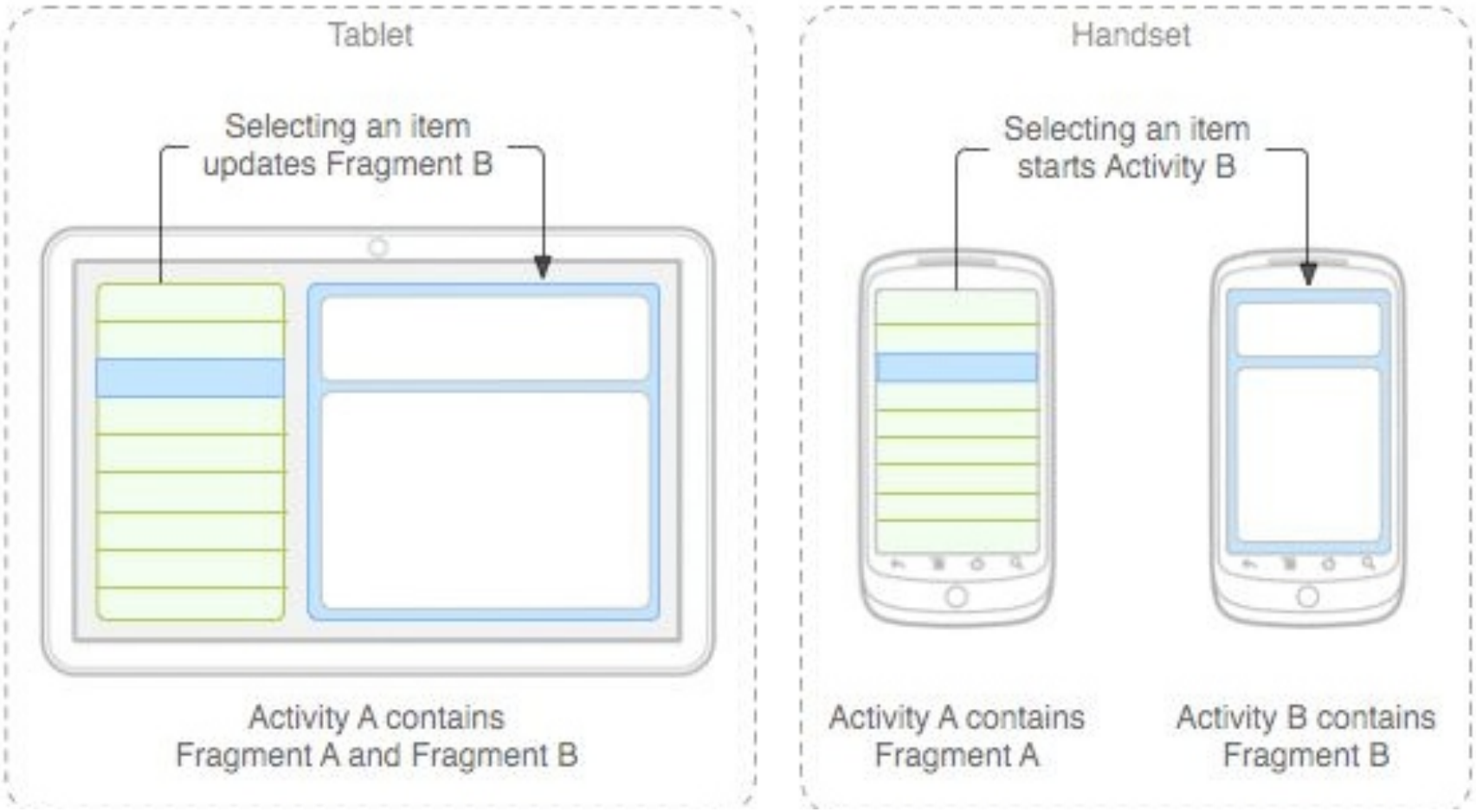
- So: get to work on it **Today** and make sure this course is for you.

Note & Demo

- 8/10 of grade is for functionality
- 2/10 of grade is for quality of User Interface/Experience

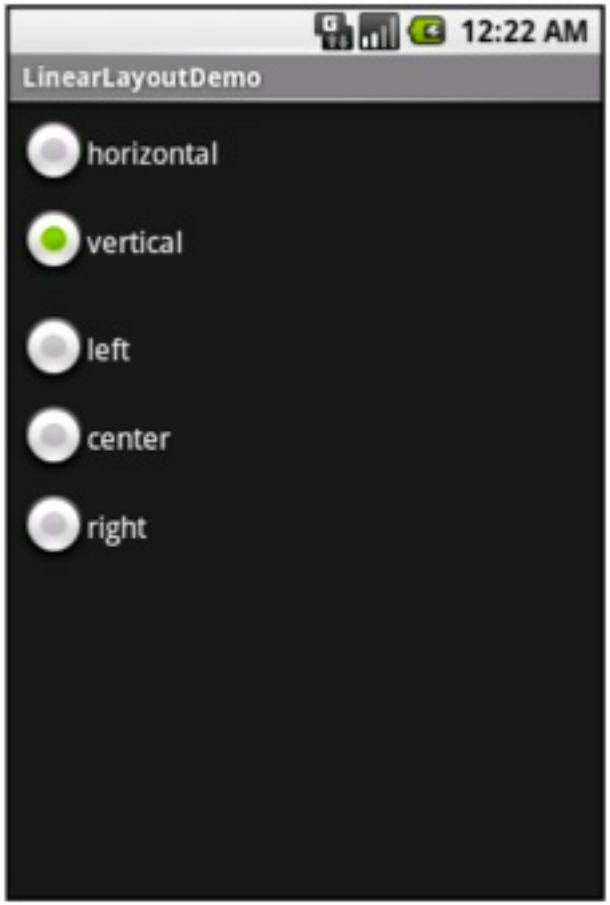
- Demo of previous year's P2 (Food, not movies)

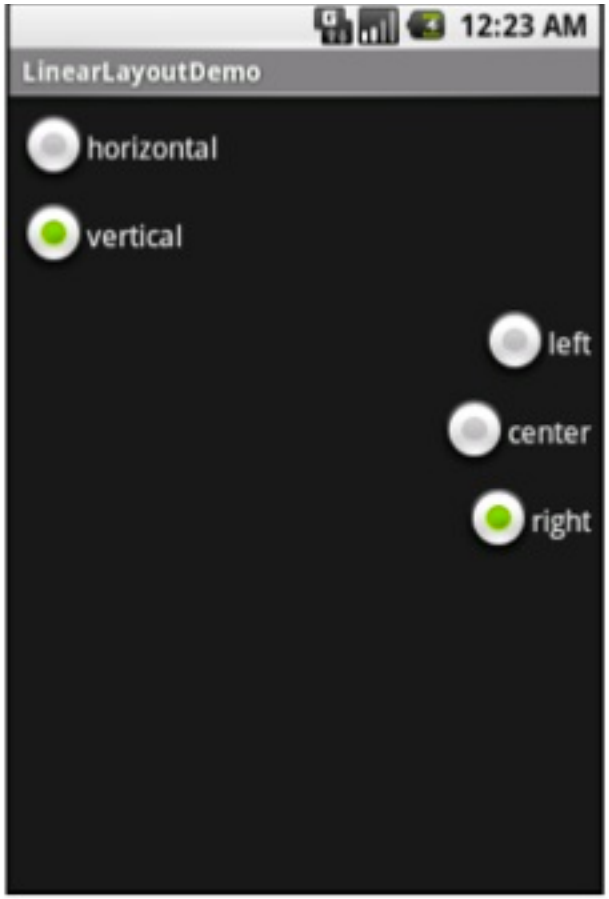
Fragments (for Android)



Containers

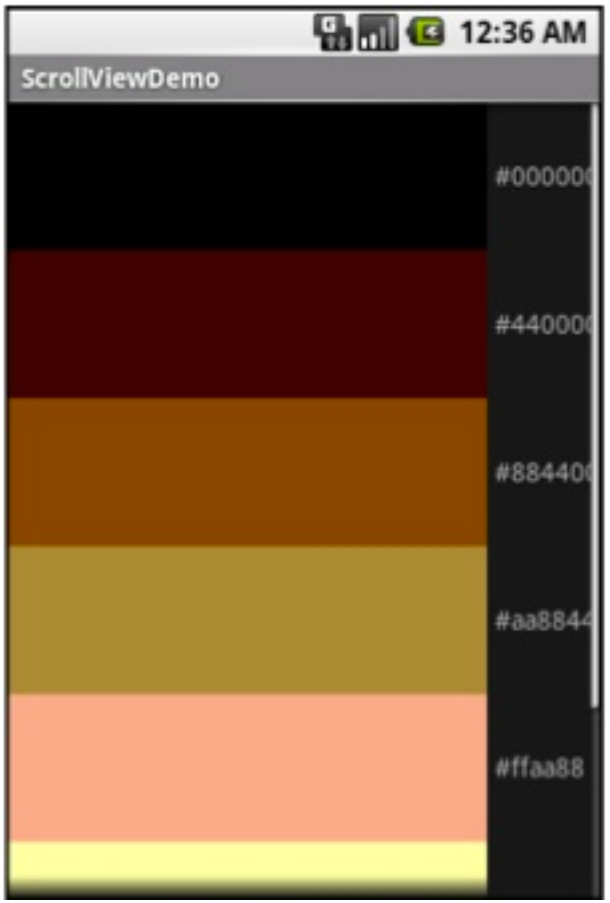
- How to use XML files to describe what you want to





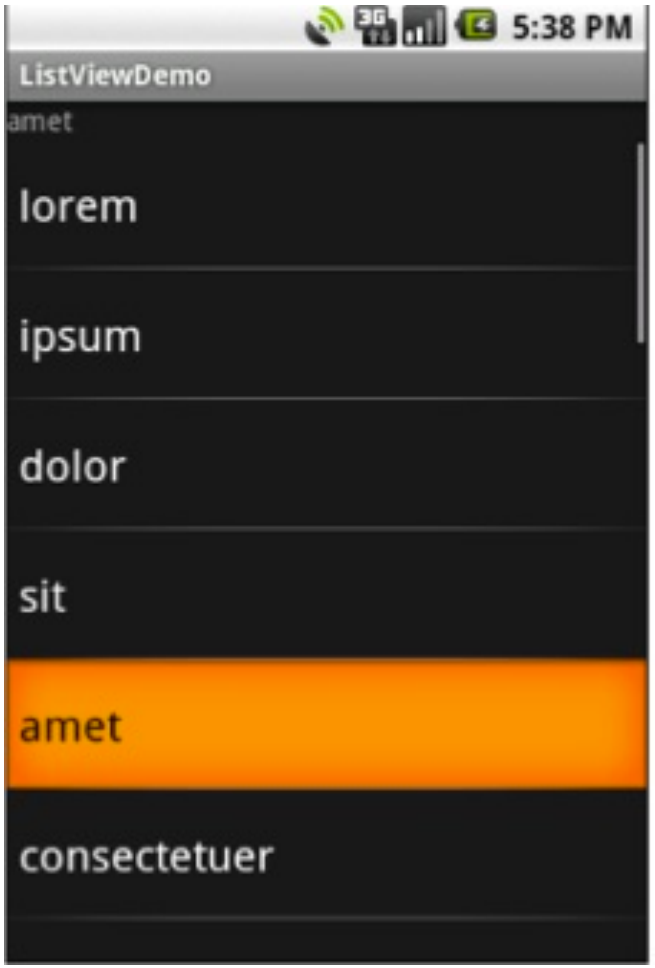
Containers

- Relative vs. Linear Layouts



Lists:

- Very commonly used in all applications
  - Different ways to select, fill in



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Files

- There are several places to put files
- Anything that you place in res/raw project folder is shipped with the application
  - Can read it as described in on page 387
  - Static files, application can't change
- Can read/write files using basic Java I/O
  - See example; note '**on resume**' is in mobile context
  - Limited size ~ 70 Mbyte total
- Larger files can go on SD card

iOS Developers

- Assignment points to relevant chapters from
  1. iPhone iOS 7 development book
  2. Swift iOS 9 book

- How many iOS people at this point?
- Opinions of Swift vs. Objective C?

Assignment S2 – for Specialists

Moqups Mockups

Available on Course Website

Design of Apps from UI Perspective

UI = User Interface

- i.e. how does it look to the human?

1. Learn **moqups** tool basics by going to website and reading help (look also for youtube instructional videos)
   - Demo: https://moqups.com

2. Learn some user/app visual 'design' basics:
   - Android:
   - Apple:

3. Conceive App that Uses Emotion Reco

- Given the following capability: software that can look at a *video*, identify the faces of the people in the video, and determine the *emotion* they display, one of
  - neutral
  - happy
  - sad
  - angry
  - fear
  - anticipation
  - surprise
- Given this, invent interesting app that makes uses it
  - Can't be the simply reporting of emotion

App Using Emotion Recognition

- Design the app, and mock it up using **moqups**
- Describe App (500 words, what & why)
- Also give 500 words on the design
- Describe the design principles you're using in the decisions you make to the design the app (from Part 2)

- **Due Next week, Monday Jan 25th at 6pm.**

Previous Projects and Applications

To Provide some context for your project and
to Help with Creative Process

EncountAR

Interacting with Museum Exhibits

Scott Pollock
Sheng Xu
Tony Zhou

April 2012

Museums & Art Gallerys

- Struggling to stay relevant
- Many being put online

- Scott's idea (from others): be able to interact with an exhibit
  - Leave 'postings' on the exhibit itself, in virtual world

AR = Augmented Reality

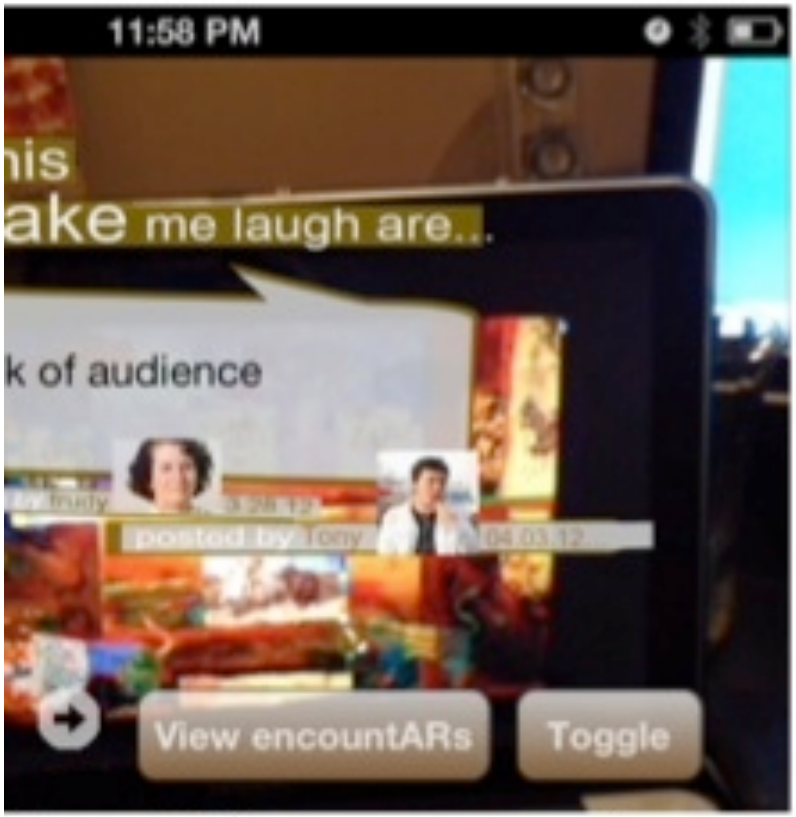
- View the world through the camera/screen
- Add in extra things on top

- Add picture from somewhere else?

For Example


encountAR
found
i
want to ask
the photographer who took these…
Why do we choose to ignore genocide?
posted by Anne
2.13.12
hung by Scott
2.13.12

User Annotation of Exhibits



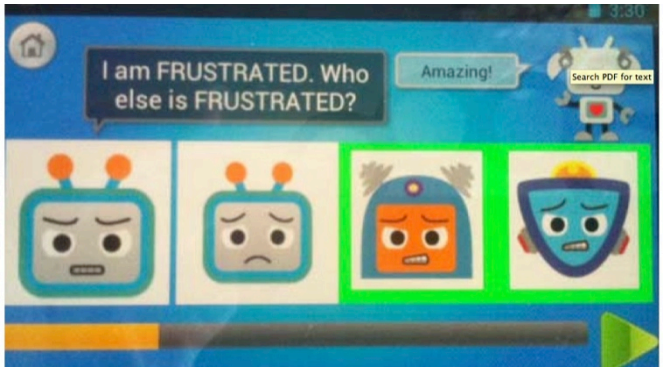
(LEFT) AUGMENTED REALITY VIEW, (RIGHT) ENCOUNTAR R

Discussions

(Left) EncountARs View, (Right) EncountAR Thread V

EYEdentify

Teaching Emotion Recognition to Autistic Children



Rebecca Dreezer
Cindy Lau
Alexandra Makos

April 2012

Goal

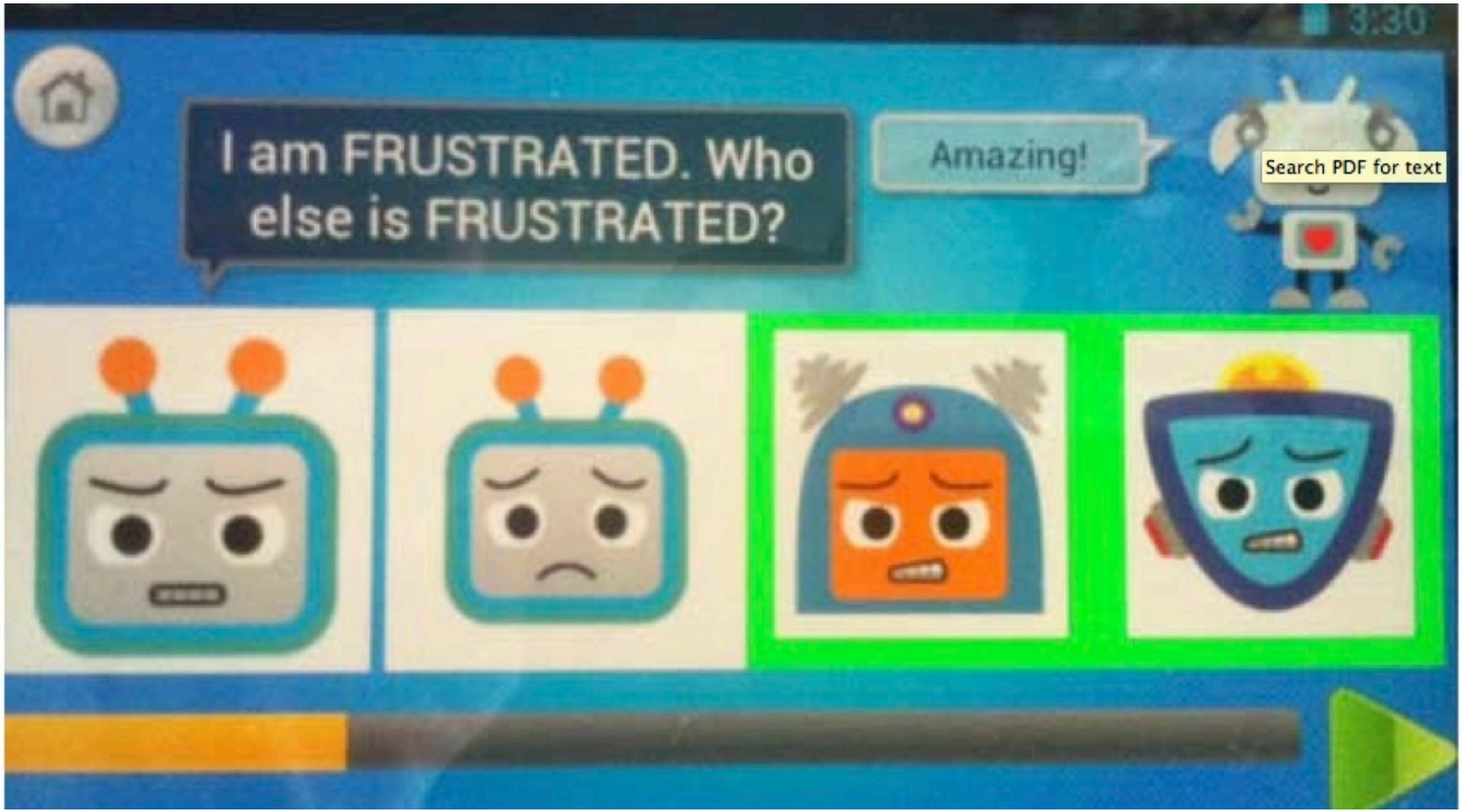
- App to help autistic kids learn to recognize 4 emotions:
  1. happiness
  2. sadness
  3. confusion
  4. frustration

- A simple matching game
  - With an engaging user experience

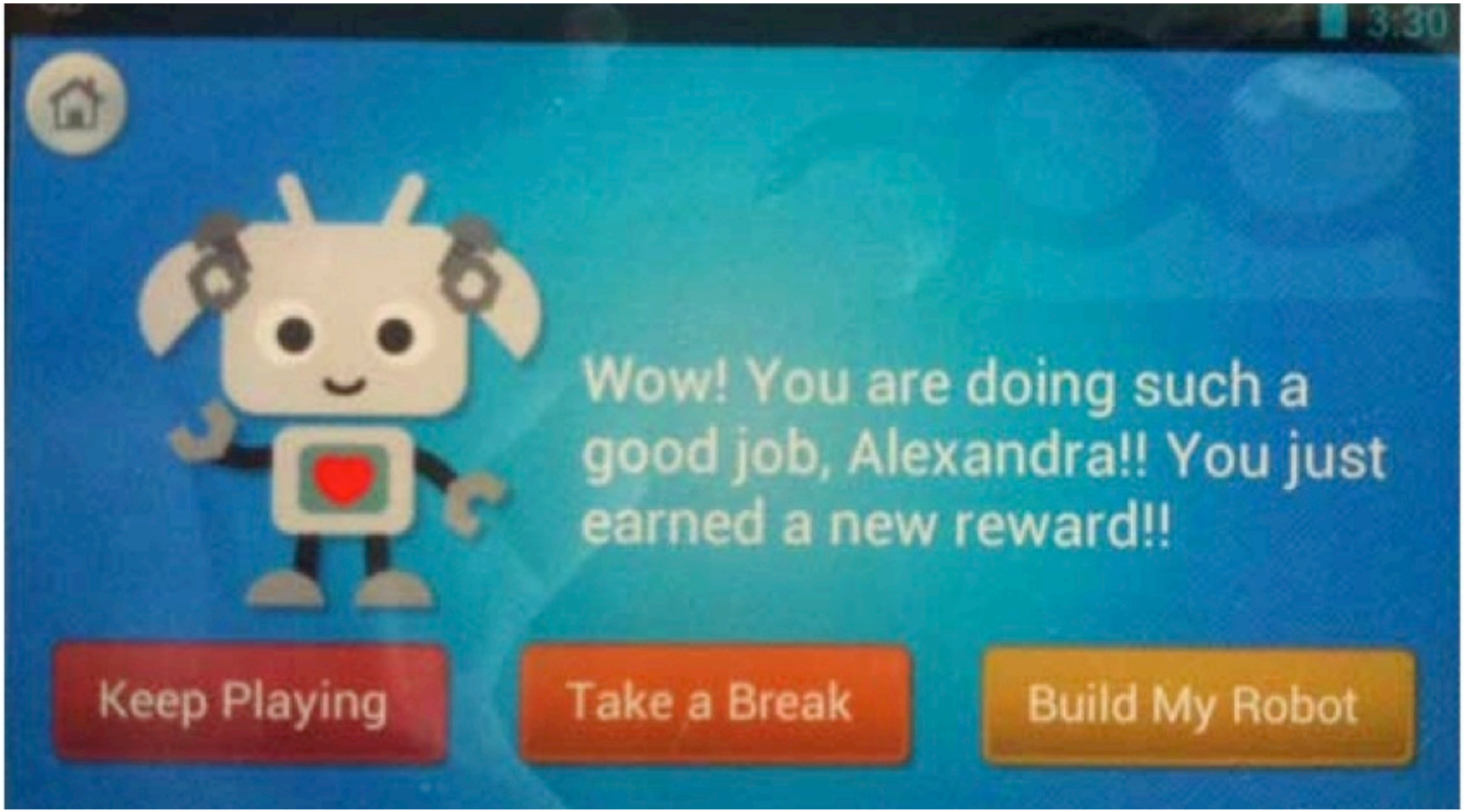
Based on Research

- Have 3 classes of “faces” that can be identified by players

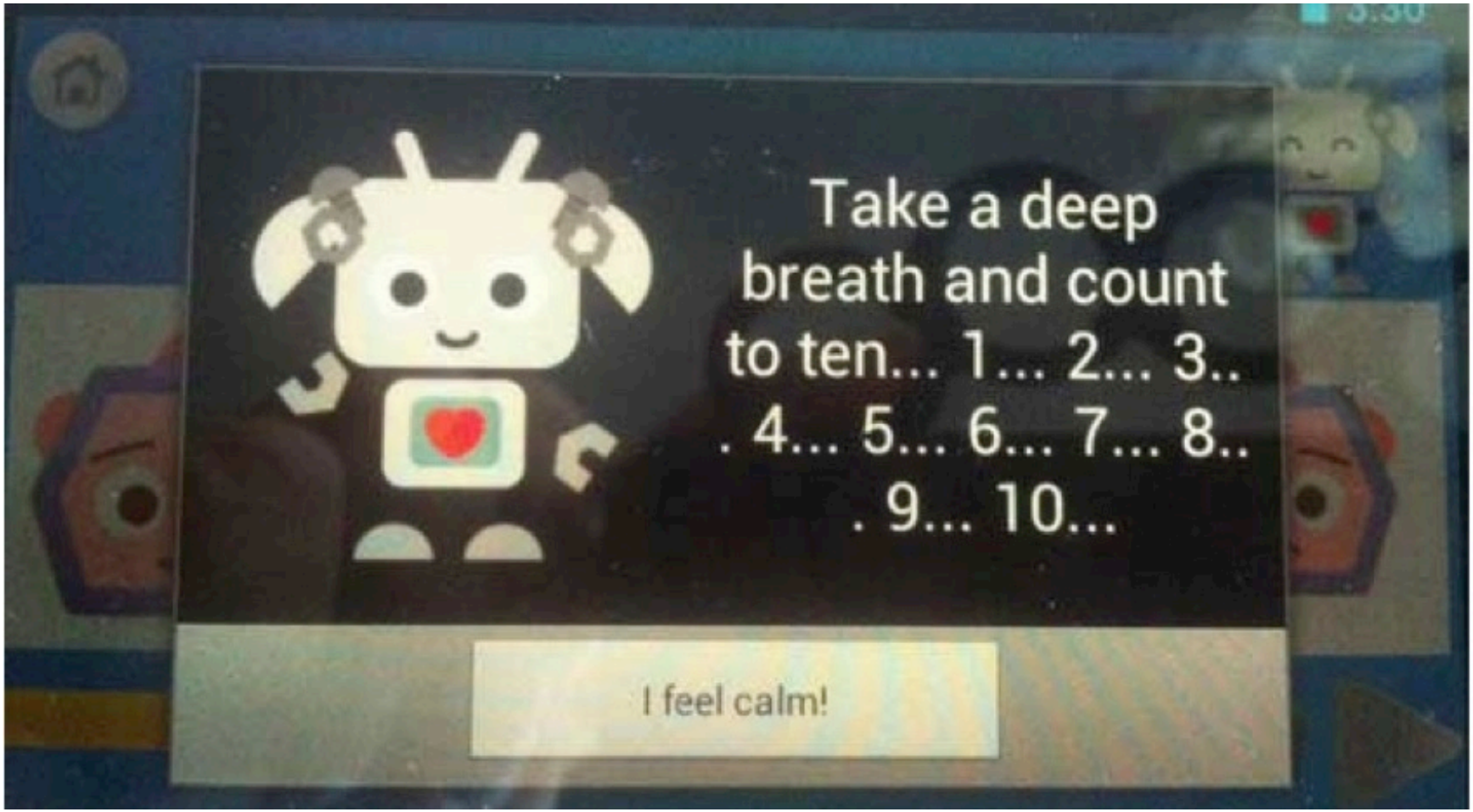
Games Screen



Choices


3:30
Wow! You are doing such a good job, Alexandra!! You just earned a new reward!!
Keep Playing
Take a Break
Build My Robot

Accelerometer Detected Frustration



Snap ‘N Dose

Safe Dosing of Children’s Medication

Pooja Viswanathan
David Xue
Niraj Mistry

April 2013

Motivation

Symptom

- **Fever**

Diagnosis

- Viral Illness

Treatment

- Supportive Care
- Hydration
- **Fever Control**
  - **Anti-pyretics**

	Acetaminophen	Ibuprofen
Dosage:	**15 mg/kg**	**10 mg/kg**
Frequency:	**4 hours**	**6 hours**

Strength:	**160 mg/5 ml**	**100 mg/5 ml**	**200 mg/5 ml**

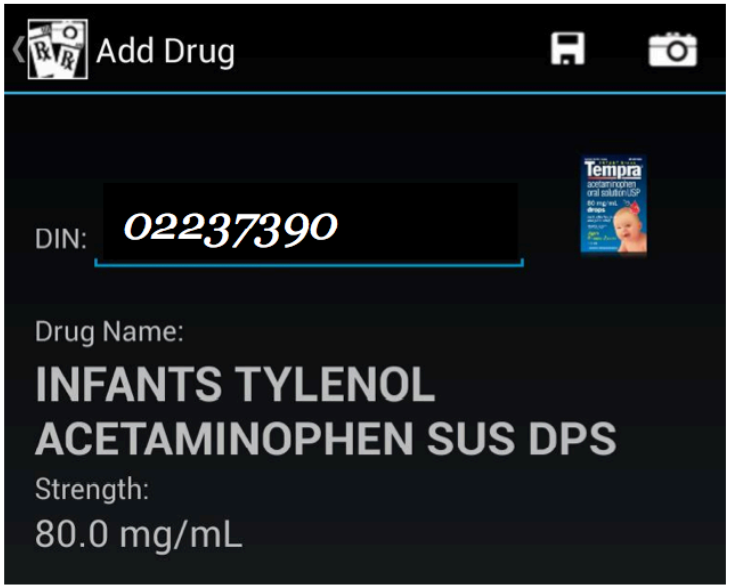
Brands **Flavours** **Labeling** **Volumes**

Ineffective underdosing & Unintentional overdosing

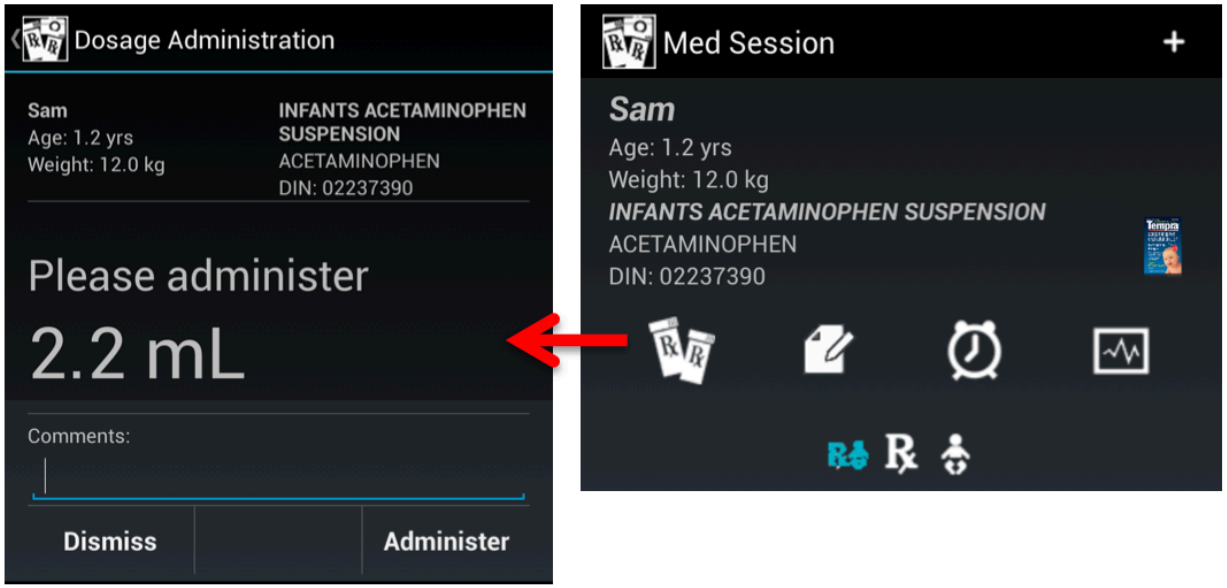
Snap ‘n Dose

- Goal: To design a mobile application that will increase caregivers’ ability to appropriately dose common over-the-counter liquid medications to children by allowing caregivers to:
  - record child **profiles**
  - add and maintain a drug **inventory**
  - calculate and administer the appropriate **dose** of medication
  - **track** & set **reminders** for medication administration & symptoms

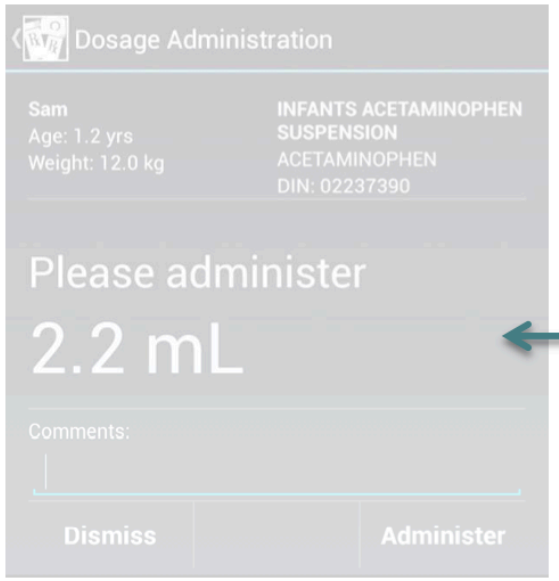
Design Overview

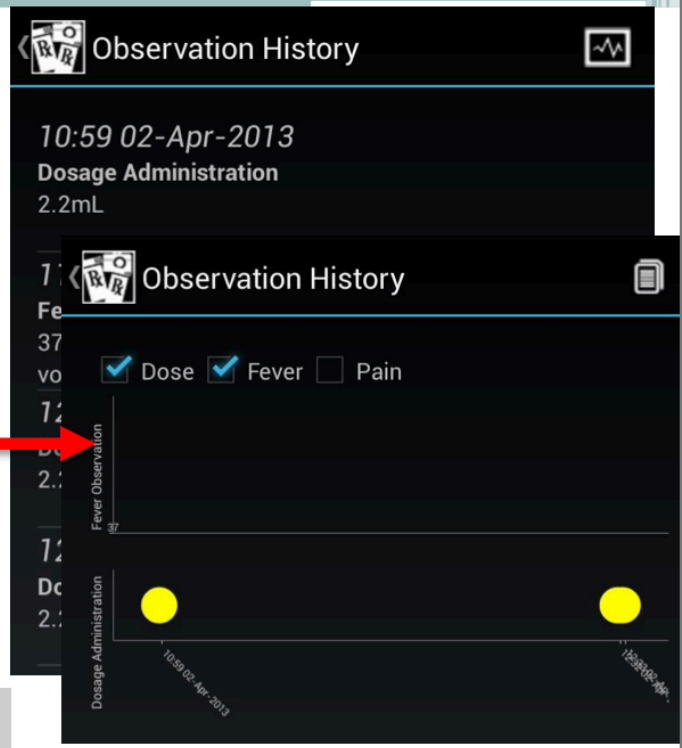


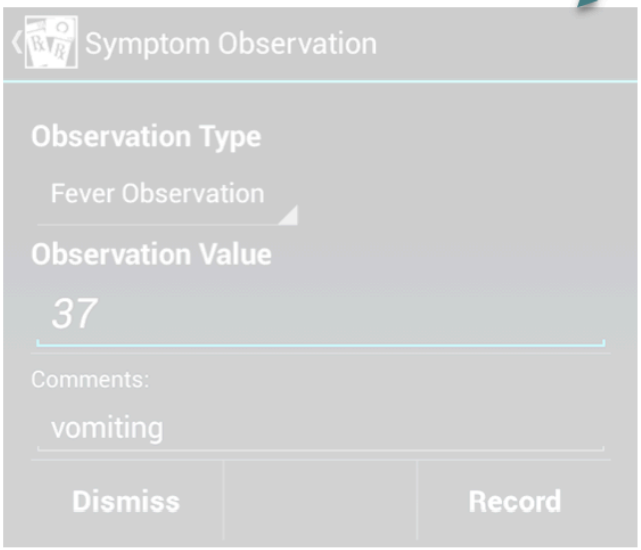
Design Overview

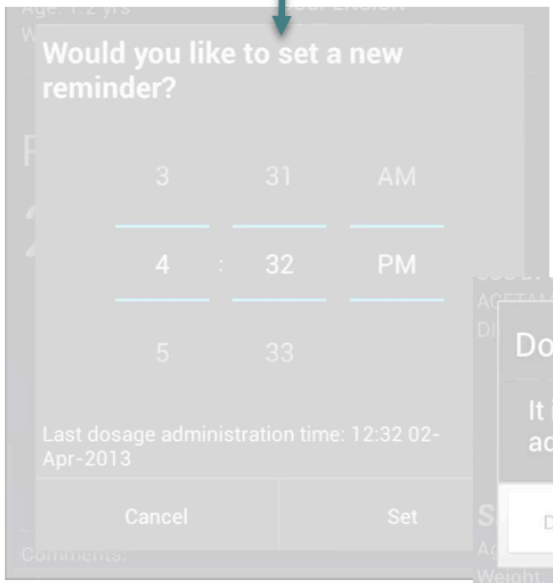


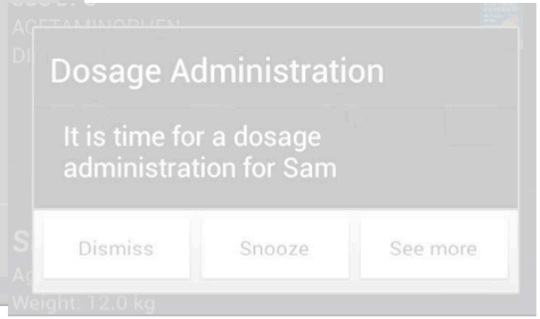
Design Overview











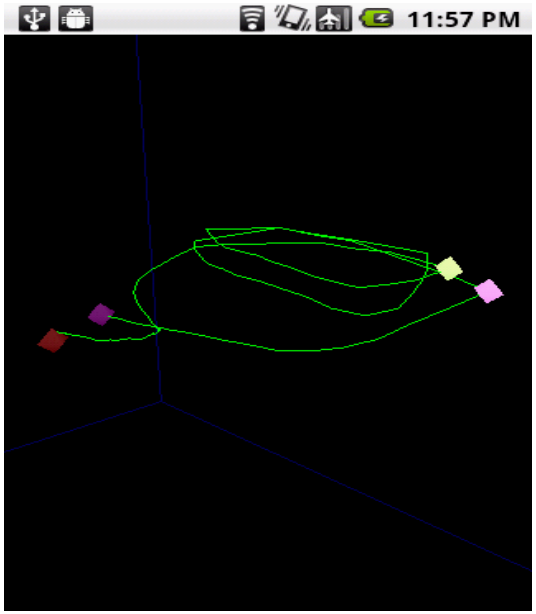
ECE 1778
Aerospace Sensor Suite

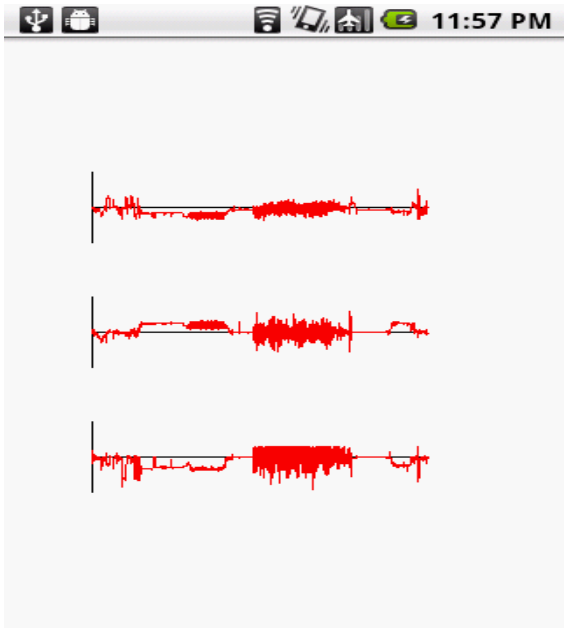
Jin Choi
Mathew Leonard
Vincent Tarantini

April 2011

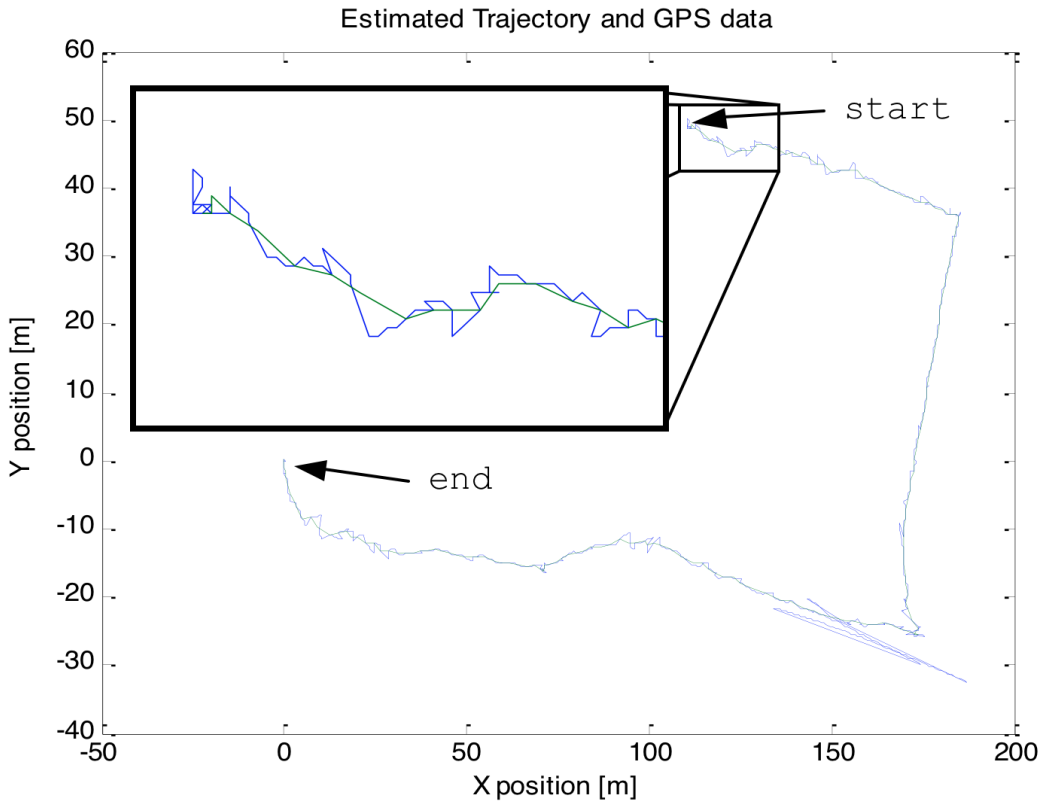
Aerospace Sensor Suite

- Sensor Suite: use phone to track the flight of small (or large airplanes)
  - Record the path of the radio-controller flyer in 3D and 2D



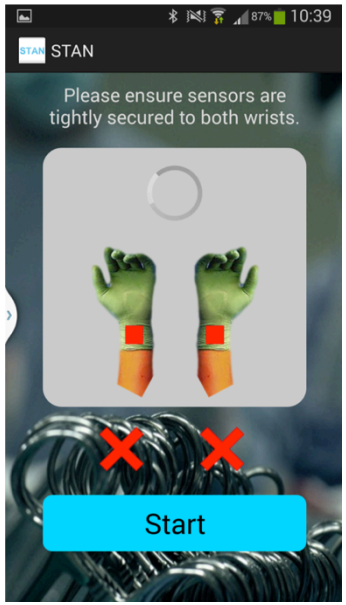


Estimated Position using State Estimator



State estimator solution and GPS recorded trajectory overlaid

Surgical Trainer and Navigator (STAN)

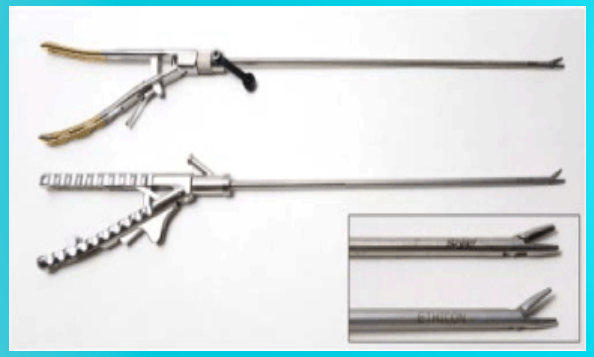


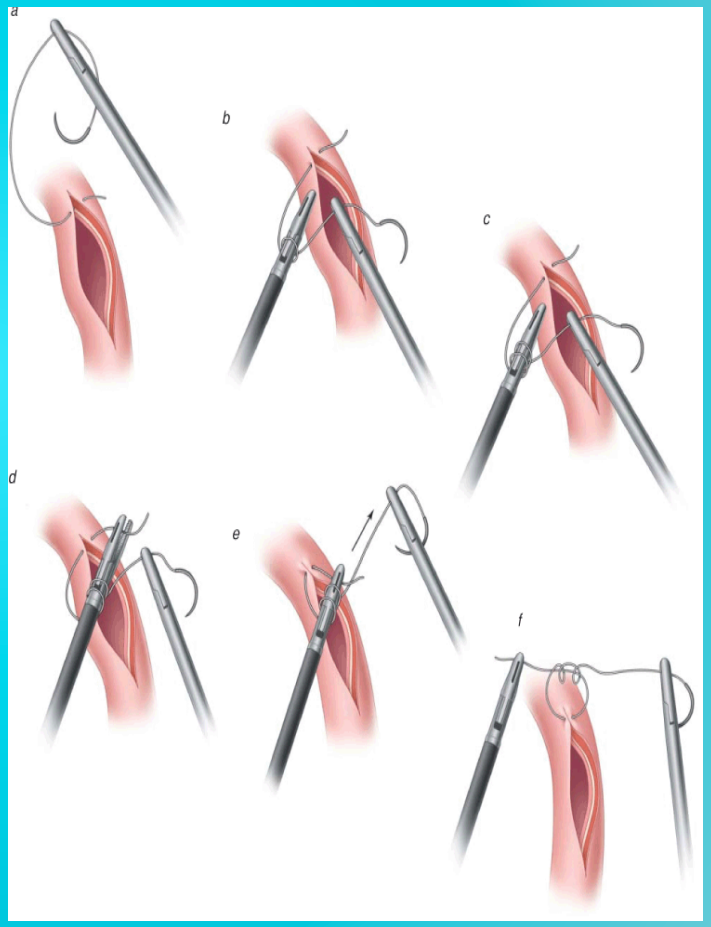
Dorotea Mutabdzic
Rorik Henderson
Kyle Tsang

April 2014

Learning to operate is like…

Until…





Currently technical performance is…

1 Below expectations

2

3 Meets expectations

4

5 Exceeds expectations

But:

Association for Surgical Education

Intraoperative assessment of technical skills on live patients using economy of hand motion: establishing learning curves of surgical competence

Ethan D. Grober, M.D. Med.*, Matthew
Mohammed Mahdi, Vanessa Bacal

The American Journal of Surgery 184 (2002) 70–73
Scientific paper

The relationship between motion analysis and surgical technical assessments

Vivek Datta, B.Sc. M.B.B.S.*, Avr
Ara

Surg Endosc (2013) 27:1468–1477
DOI 10.1007/s00464-012-2631-7

REVIEWS

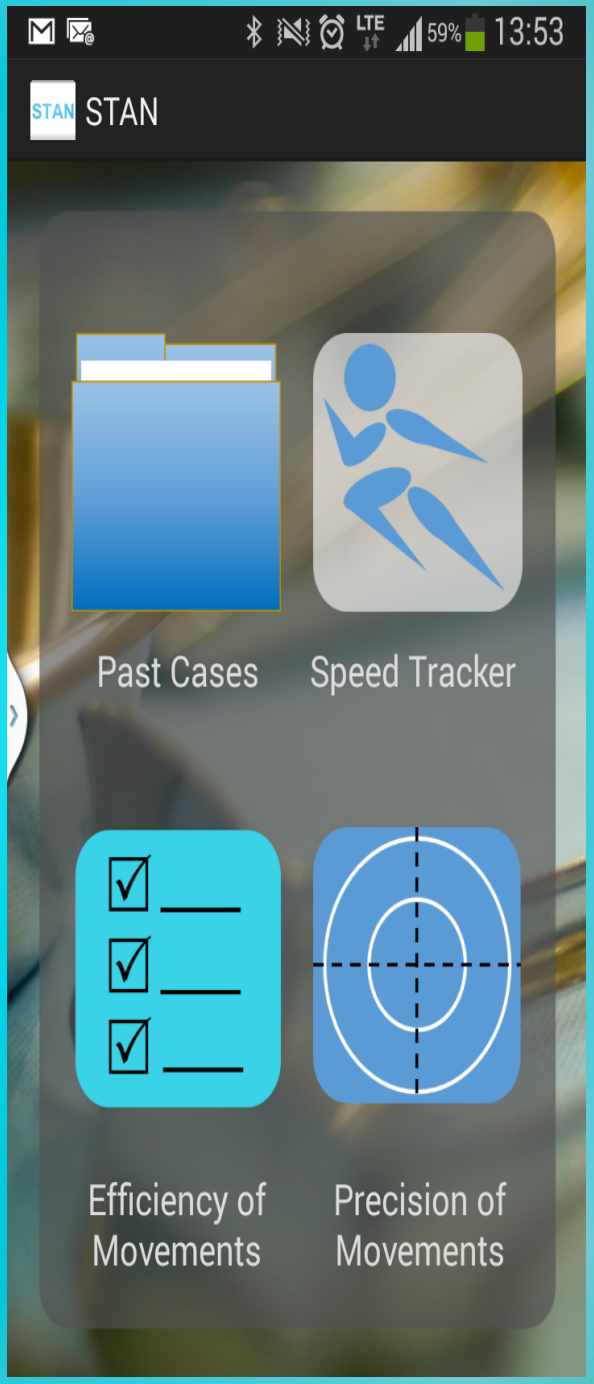
Is motion analysis a valid tool for assessing laparoscopic skill?

John D. Mason · James Ansell · Neil Warren · Jared Torkington

STAN

Tracks surgeons' hand movements

To Improve technical performance



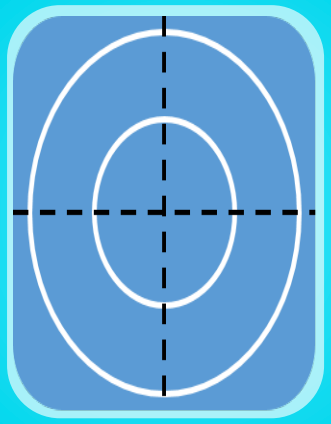
How does it improve performance?

Bluetooth sensors attached to surgeon's wrists

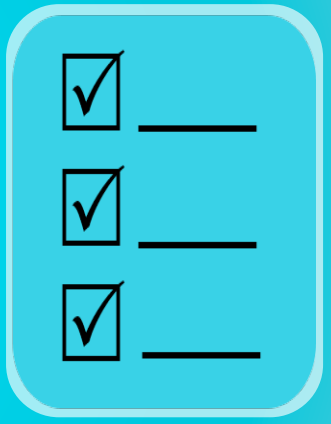
Track 3-axis accelerometer data to give feedback on speed, precision, and efficiency of movement

How does it give feedback?

Speed derived from time

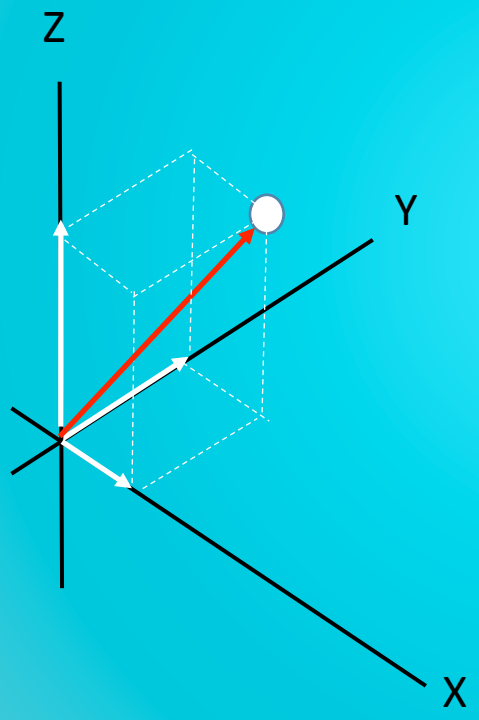


Precision derived from changes in acceleration



Efficiency derived from number of movements

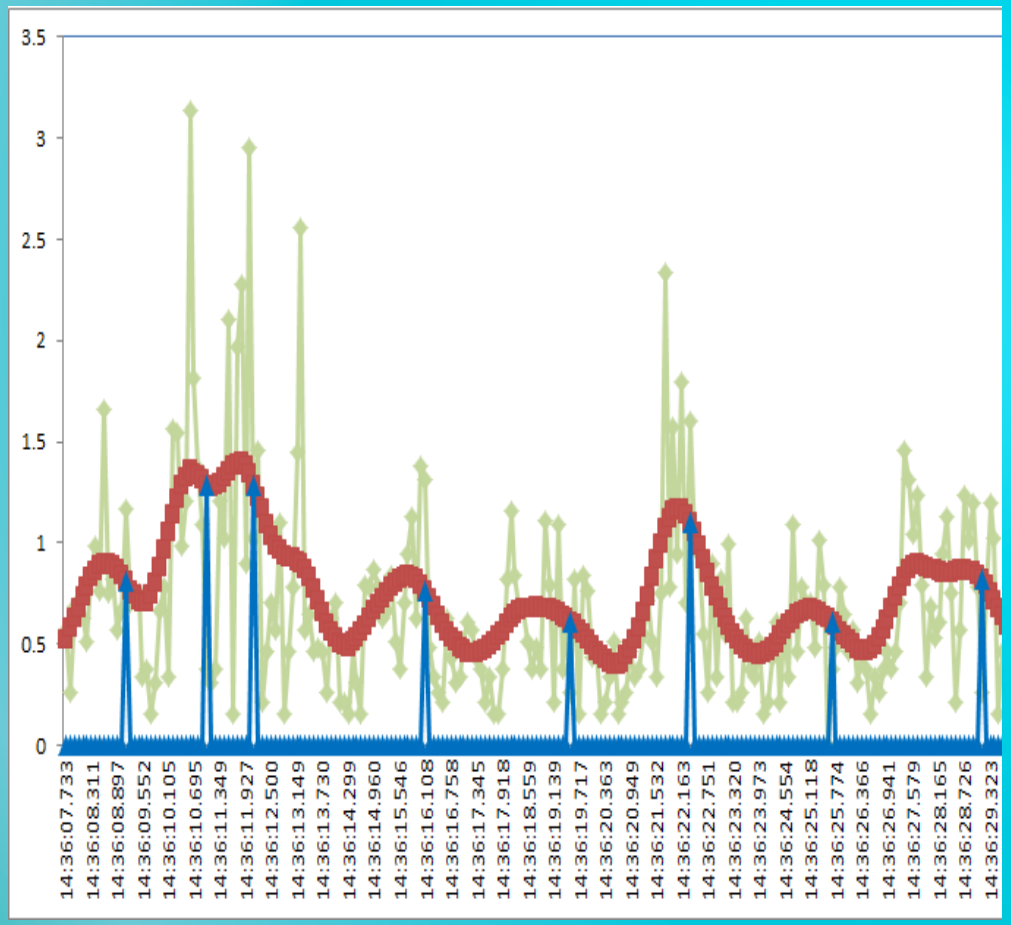
Precision



"Precision"

- controlled movements
- changes in acceleration

Efficiency



"Movement"

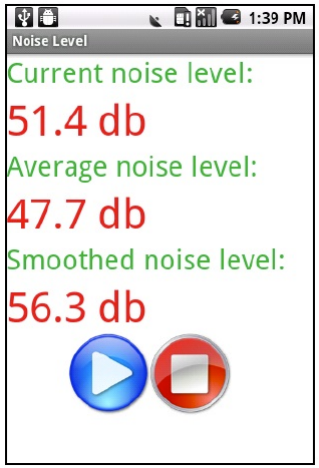
- Cluster of accelerations

Performance Categories

Category-Specific Tips

Junior level speed - “Try picking up the next peg with your free hand while putting down the previous one”

ECE 1778
WhimPer – A Noise Mapping App



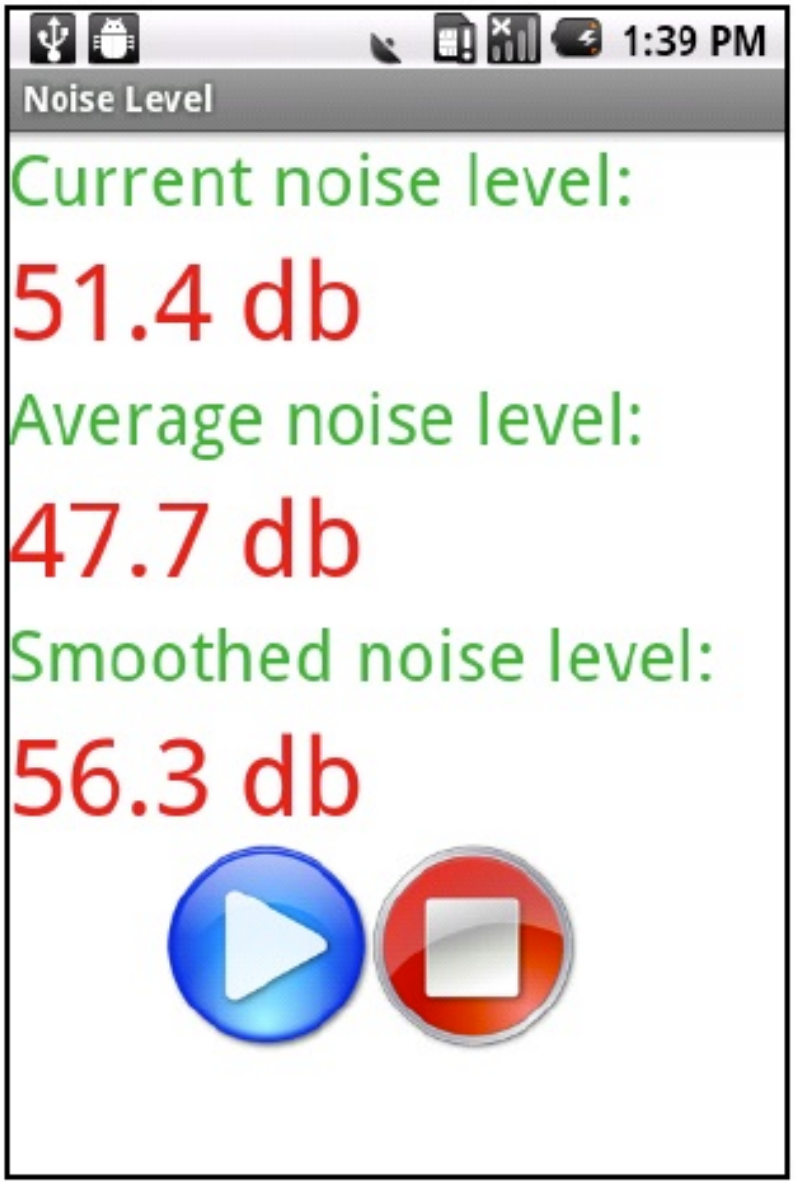
Yeliny Bonilla
Ali Sabti
Sajad Shirali-Shareza

April 2011

Whimper – Noise Mapping

- The issue: the world is full of noise, and noise pollution can reduce hearing
- The goal: create an app that can measure the noise at each location the phone ‘walks’ through
- Use this to create a Noise Map
  - Assuming more than one person uses it – crowd sourcing – a map of a city can be easily created.

Live Measurement Screen



Daily Noise Measurement v. Time

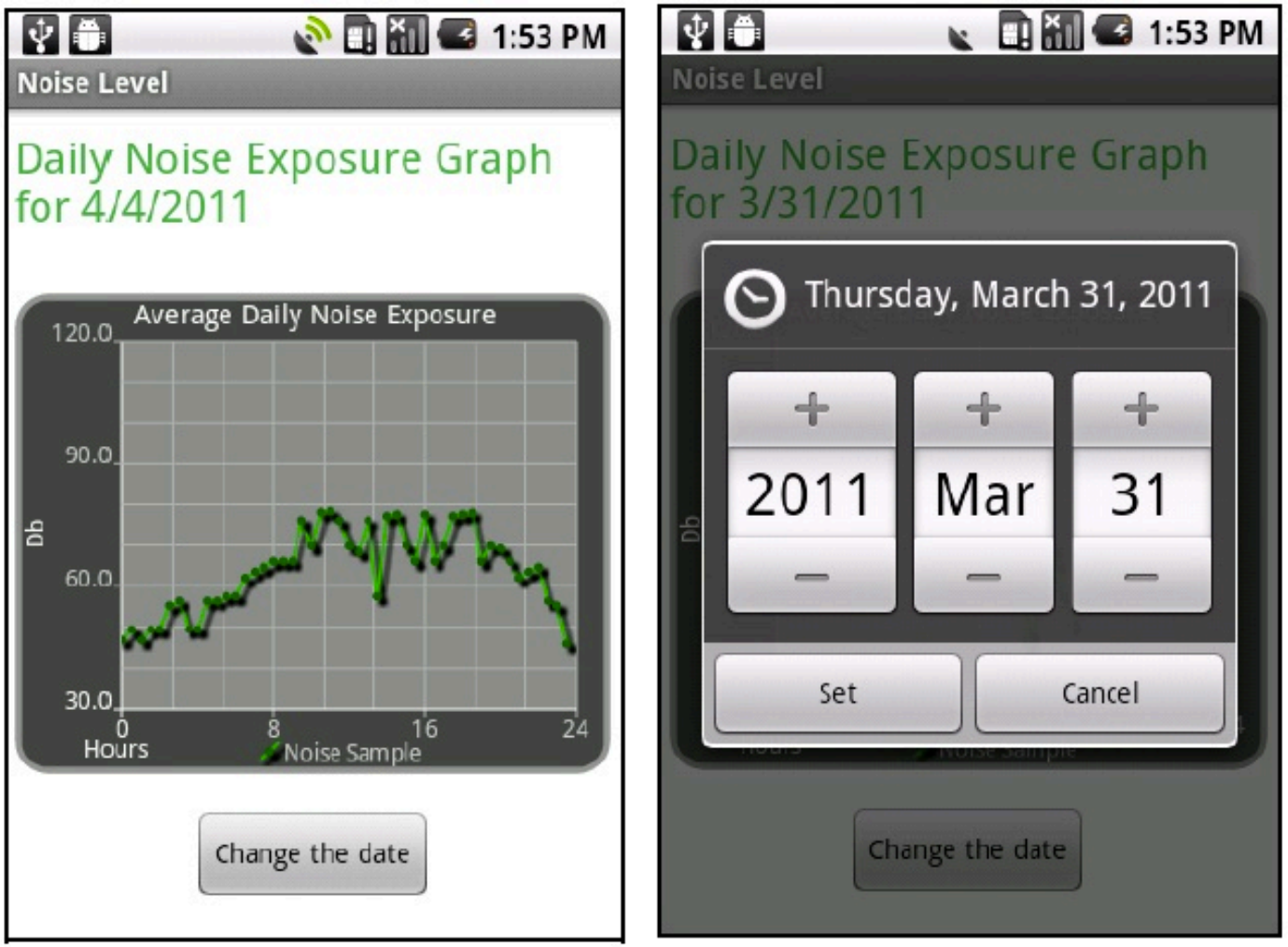


Figure 4. Noise exposure feature of the WhIMPeR application. The figure on the rights shows the ability to change the date for which the data is displayed

Noise Map

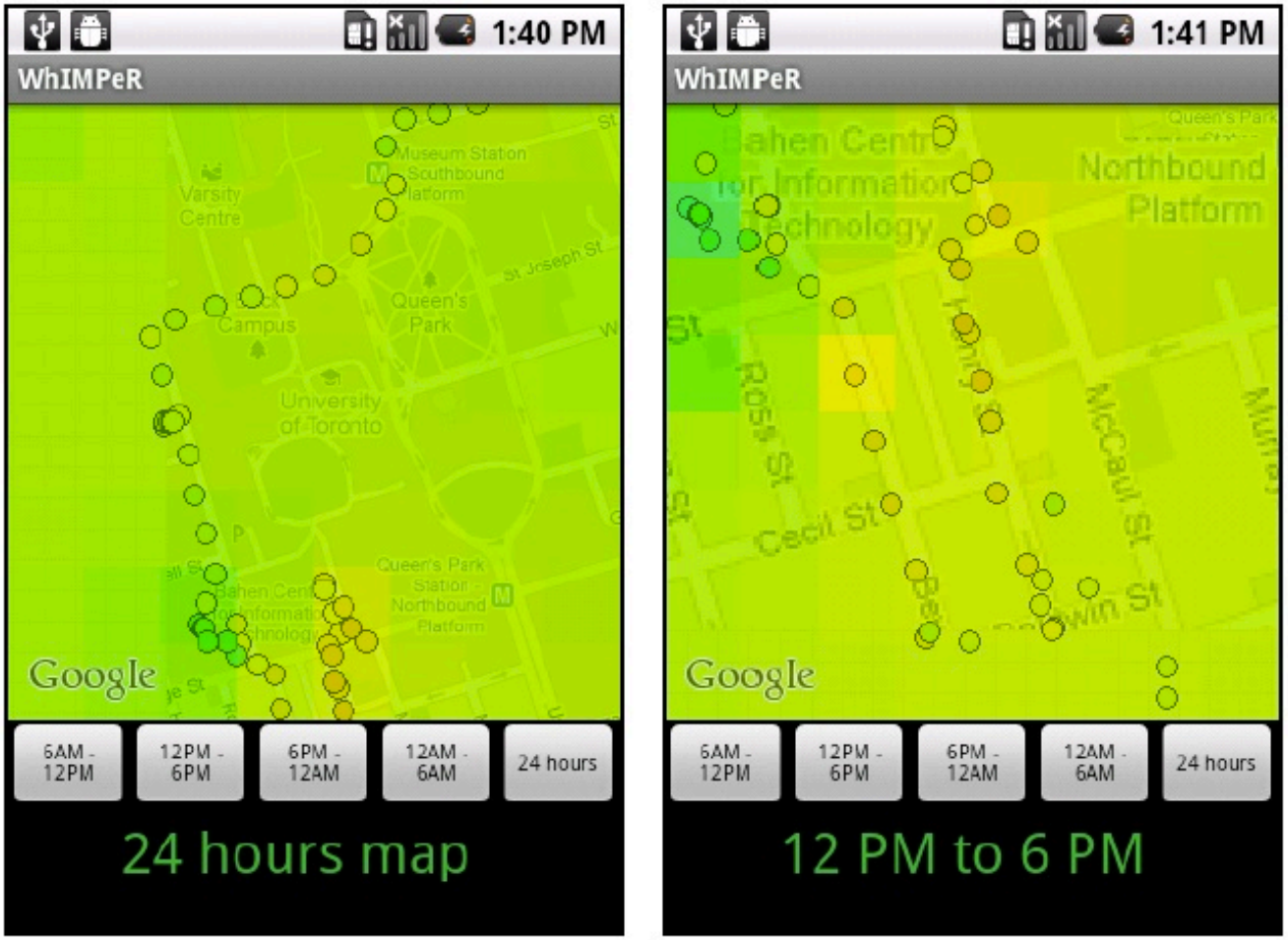
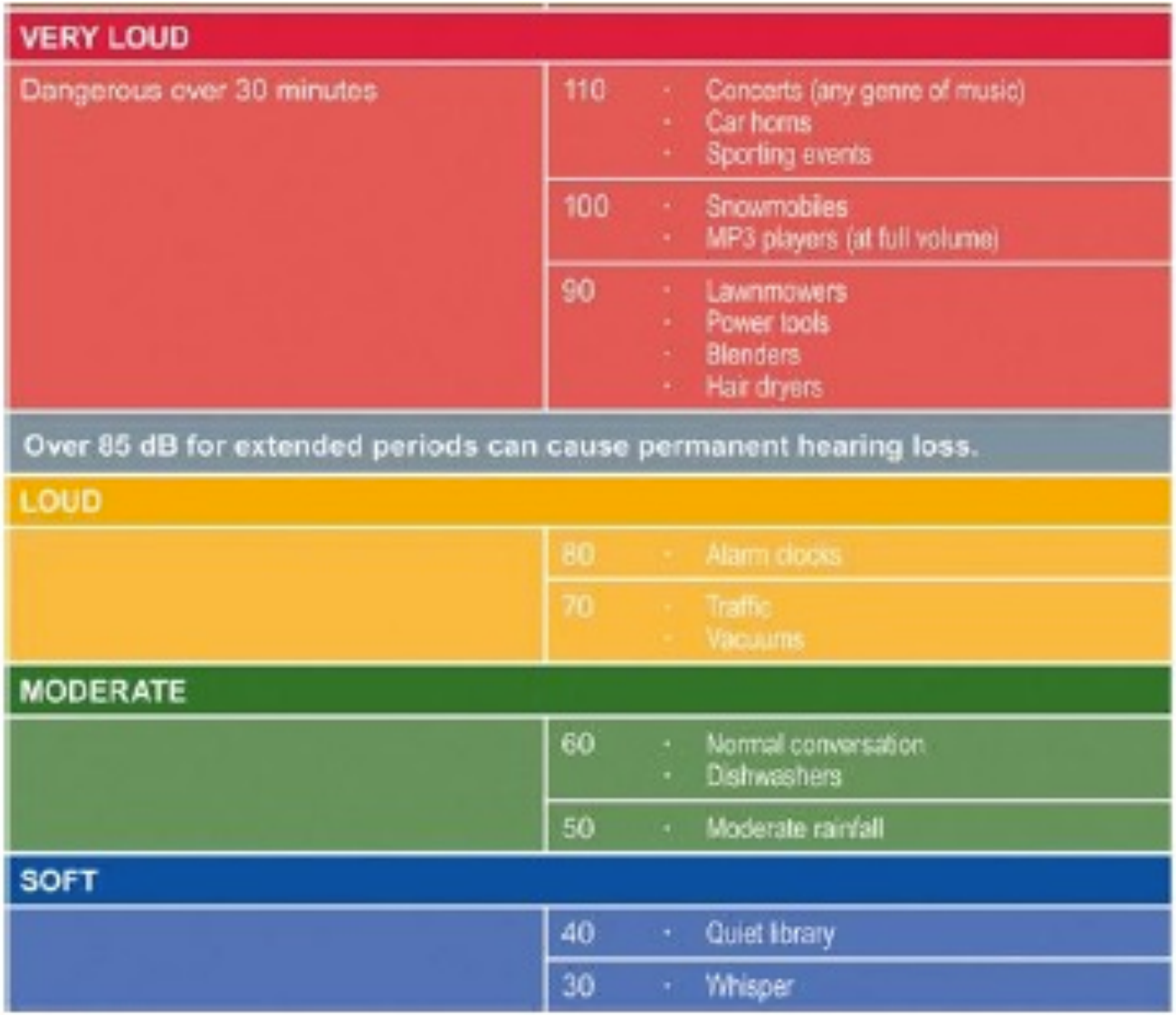
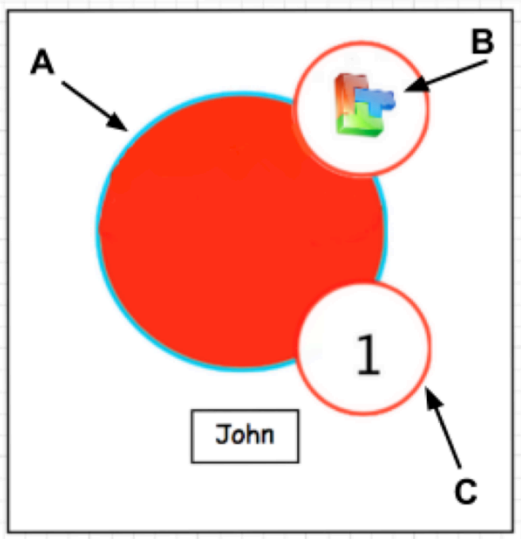


Figure 5. Noise map showing selected points of the noise data as well as a noise intensity overlay. The figure on the right shows the feature of time interval selection.

Noise Colour Code for Map



ECE 1778
Baton – Helping Teacher-Student Communication

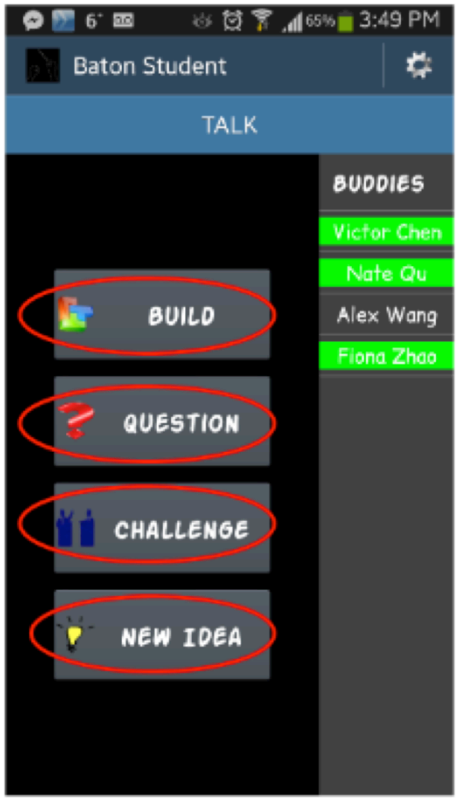


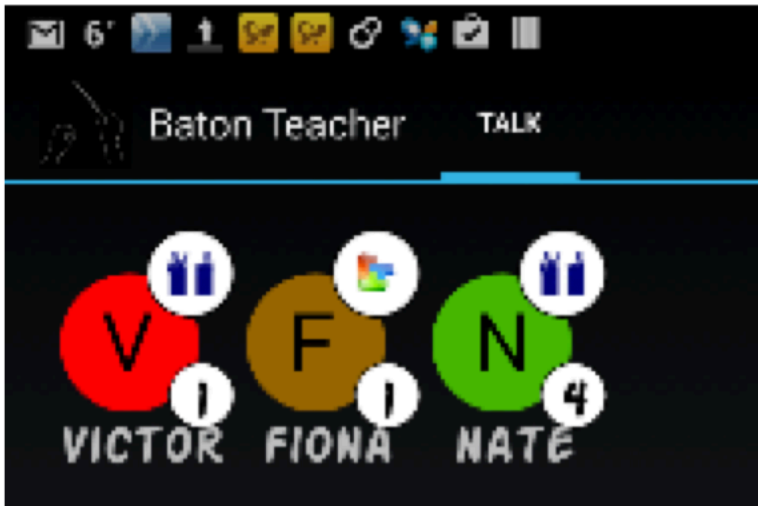
Zak Teitel
Victor Li Chen
Fiona Yi Zhao

April 2014

Putting Up Your Hand In Class

- Doesn't give the teacher much information about what you want to contribute to a fluid discussion
- What if the teacher could know more about your intent?



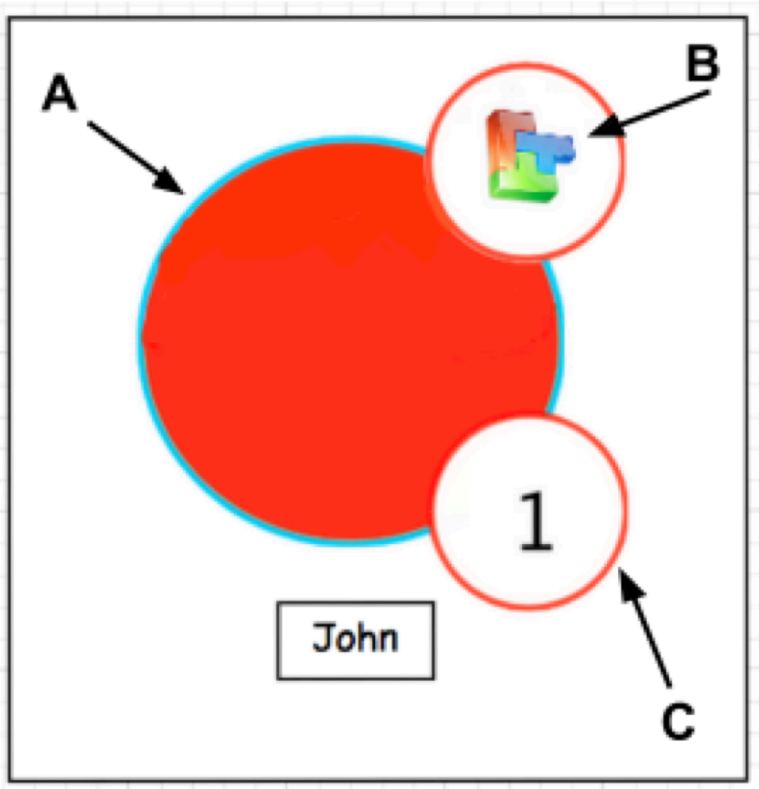


Information for Teacher

A. Main bubble offers a visualization of student wait-time. Student icons start green and the longer a student waits to participate, the redder their icon gets. You can see in image 3.1 that John has been waiting for quite some time. In user consultations, teachers indicated they wanted ambient awareness of wait-time via colour as giving them exact time measurements via a clock or stopwatch would have been “too much” to handle.

B. The upper bubble offers a visualization of “participation intent”.

C. The lower bubble lets teachers know how many times a particular student has participated in class.



3.1 Student Icon Breakdown

ECE1778
Winter 2014
Professor Rose

Creative Applications for Mobile Devices

April 9, 2014

UNIVERSITY OF TORONTO
FACULTY OF APPLIED SCIENCE & ENGINEERING

This Was a Great Project

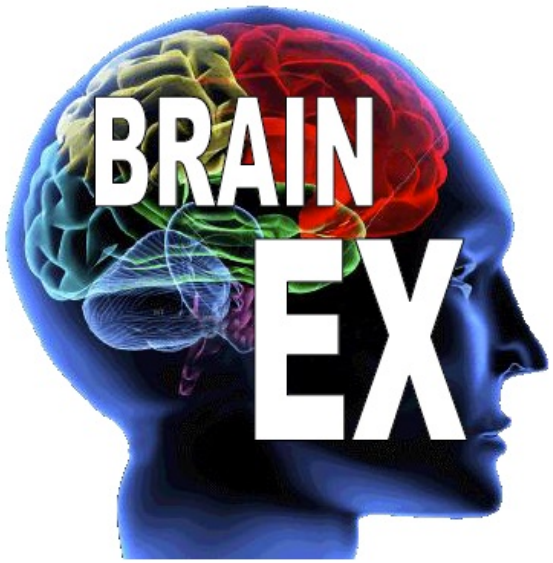
- Well described, novel
- Sufficiently Technical
- And a very interesting App

But….

- it didn't start out that way
- Zak, at the beginning, had no idea what was possible, and began with far more complex ideas
- The ideas didn't make a lot of sense at the beginning
- Through dialogue with programmers and us (myself, TAs) converged to something that worked very well

Key: creativity is messy; requires communication, evolution, iteration; kindness, reflection, then action

ECE 1778
BrainEx – Exercise for your Brain



Jinyoung Kim

Rowa Karkokli+

April 2011

Dementia & Brain Exercise

- Dementia is a cognitive disorder resulting in loss of memory, changes in personality, and loss of social ability.
- Prevention is the key since most types of dementia are permanent and cannot be cured.
- Research suggests brain exercise and activities that stimulate the brain may delay memory declines and can also reduce one's risk of getting dementia and related symptoms.
- The BrainEx application is designed for this specific purpose.

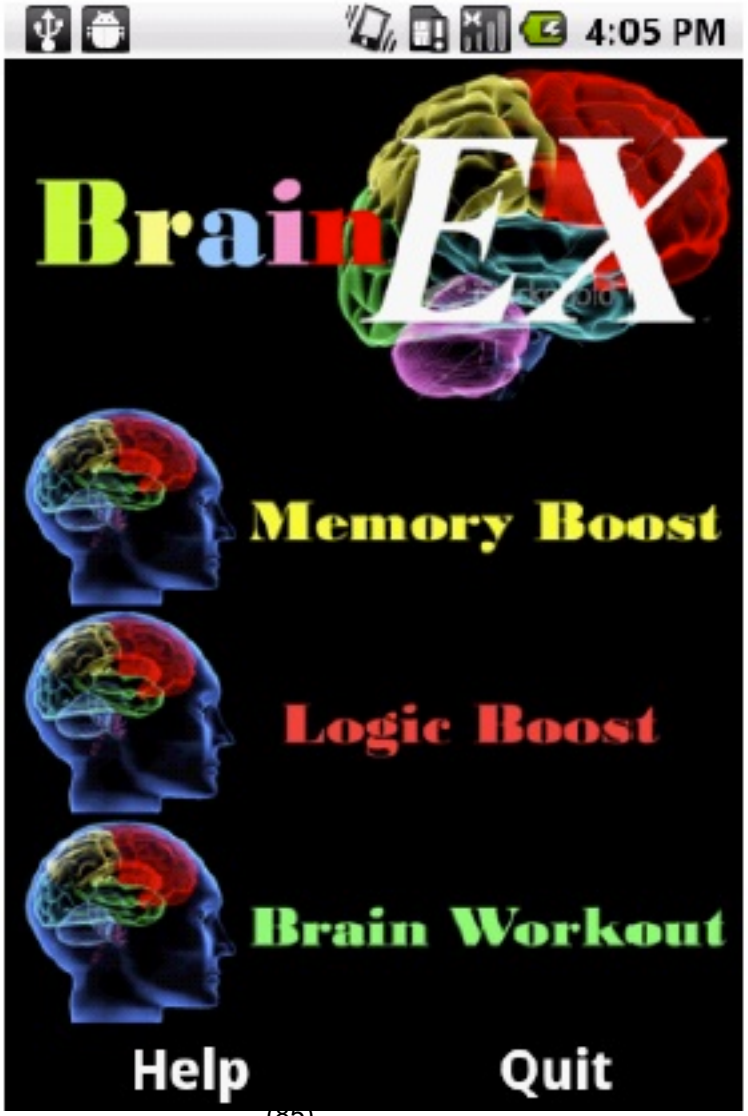
The Games

- Three games that stimulate the brain in different ways
  - allowing the user to choose a game of their interest.

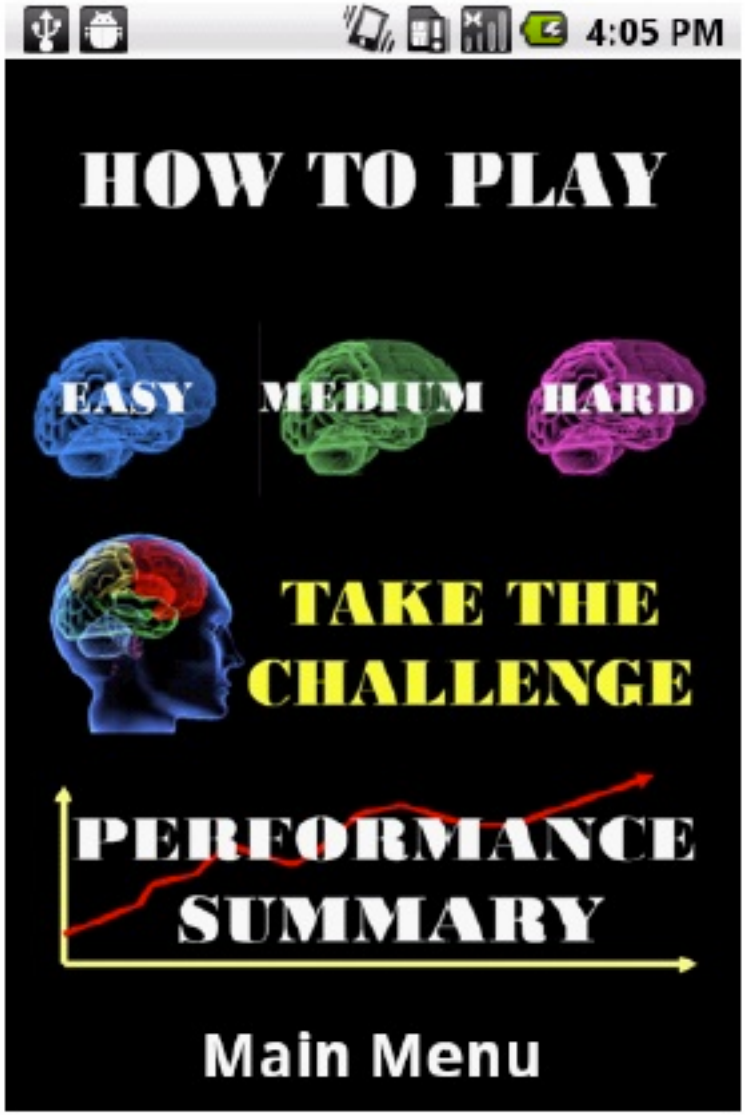
1. Game 1: designed to stimulate the user's memory,
2. Game 2: target the user's problem solving skills,
3. Game 3: targeting both memory and problem solving skills.

- Each game assesses the user's performance and speed and advances the game to increase the stimulation of the brain.

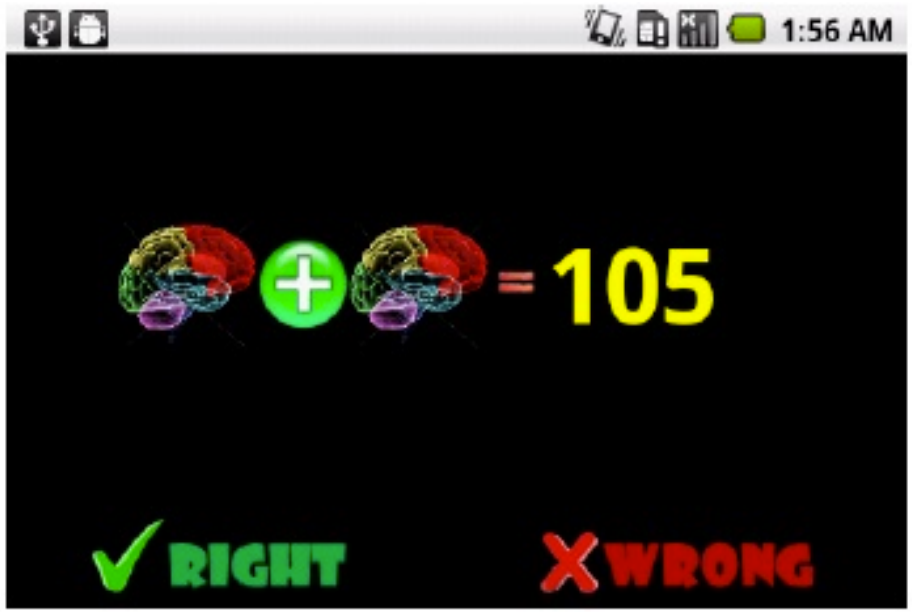
Starting Screen – Choose Game

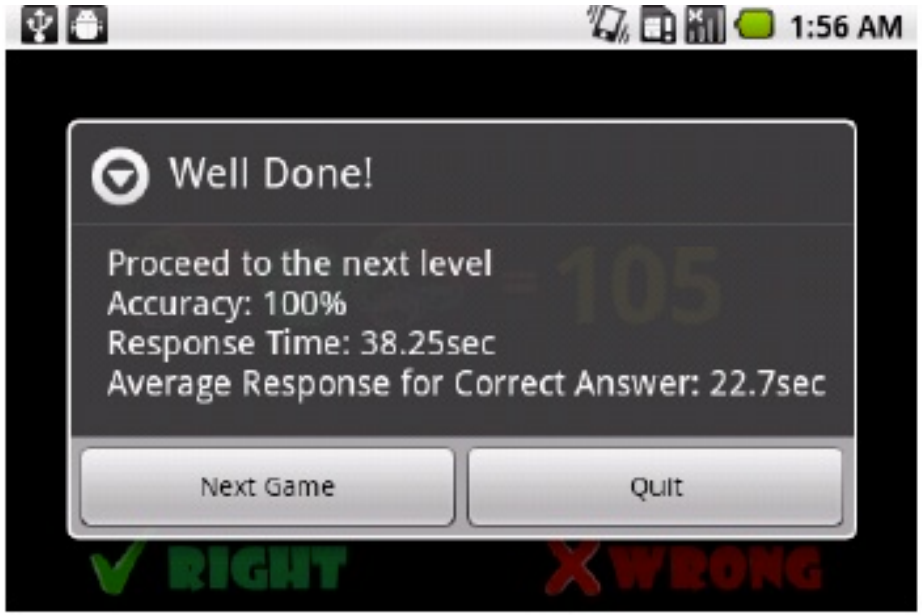


How To Play


4:05 PM
HOW TO PLAY
EASY
MEDIUM
HARD
TAKE THE CHALLENGE
PERFORMANCE SUMMARY
Main Menu

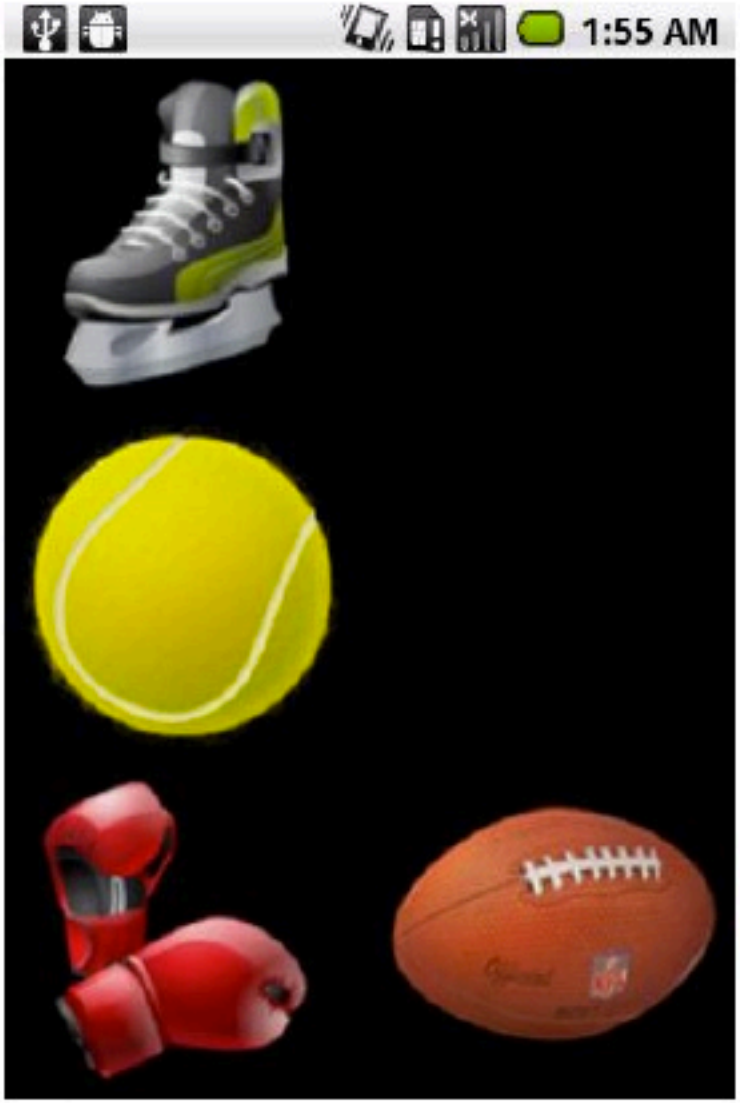
The Result

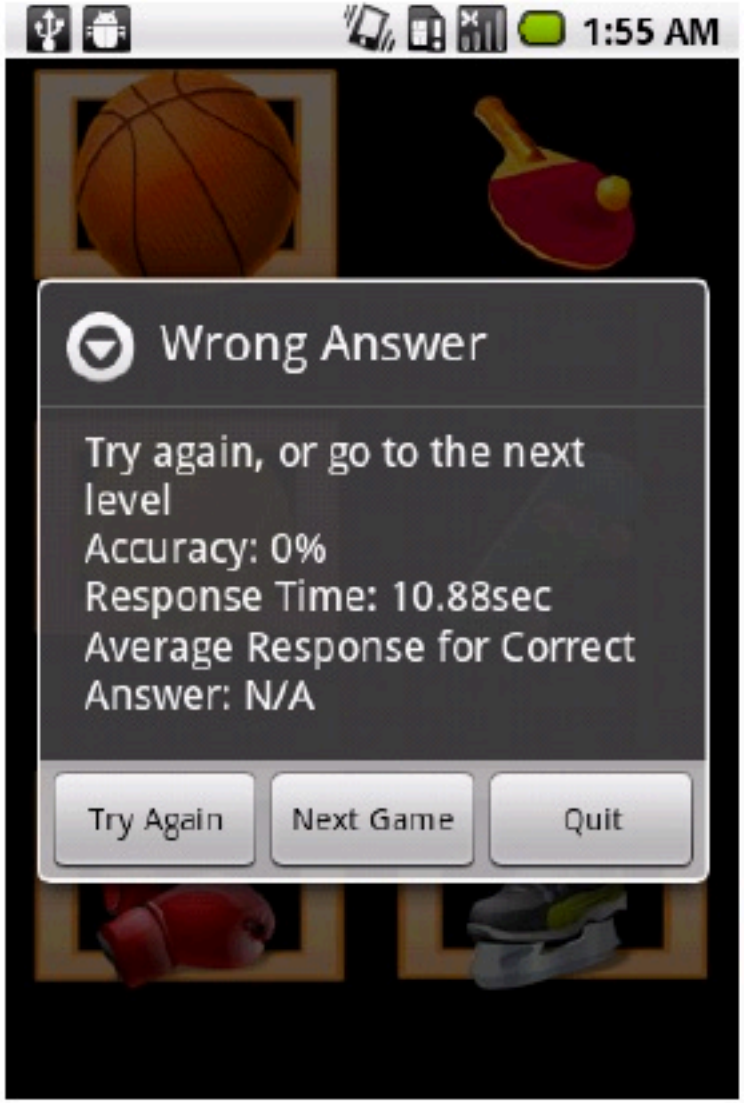

1:56 AM
=105
RIGHT
WRONG


1:56 AM
Well Done!
Proceed to the next level
Accuracy: 100%
Response Time: 38.25sec
Average Response for Correct Answer: 22.7sec
Next Game
Quit
RIGHT
WRONG

Number Calculation

Sport/Pictures





Summary of Results

APPnea: Sleep Apnea Detection

Phil Lam
Regina Leung
Thuva Sivayogan

April 2012

What is Sleep Apnea

- Sleep apnea is a common (and under-diagnosed) sleep disorder
  - characterized by periods of interrupted or shallow breathing during sleep

- Affects the quality of life of individuals
  - extreme fatigue and poor concentration
  - may also lead to other serious medical conditions
    - cardio/cerebrovascular problems with mortality rates as high as 35%.

Sleep Apnea, continued

- Key issues in Apnea detection and treatment:

1. Limited availability & high cost of clinical sleep Apnea detection method:
   - patient must spend a night under observation by technician and clinician in a “sleep lab.”
2. lab test is performed in foreign environments with multiple electrodes attached to the individual
   - may induce stress & cause inaccurate results.
3. CPAP (Continuously Positive Airway Pressure) is a commonly prescribed treatment for sleep apnea, but offers low rates of patient compliance. This is primarily due to the fact that the required mask over the nose and mouth is uncomfortable.

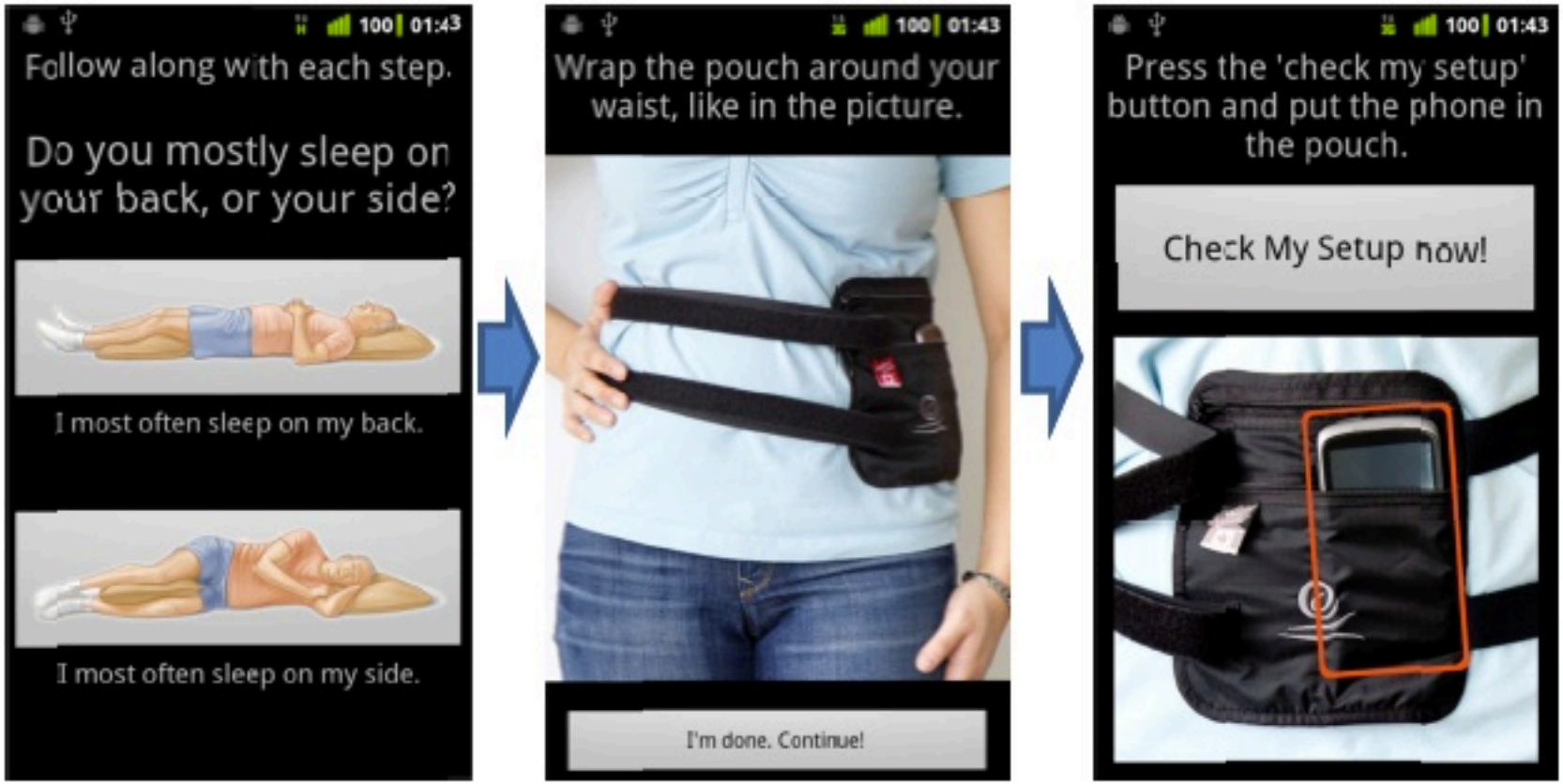
The App

- APPnea operates by detecting the rate of respiration with the phone's accelerometer.
- This is accomplished by using a pouch to attach the phone to the user's chest.
- Signal processing algorithms involving a combination of time domain and frequency domain techniques are used for the detection of apnea events.
- The number of sleep apnea events per night are recorded, saved in a log, and displayed back to the user in the form of a histogram for daily sleep apnea monitoring.

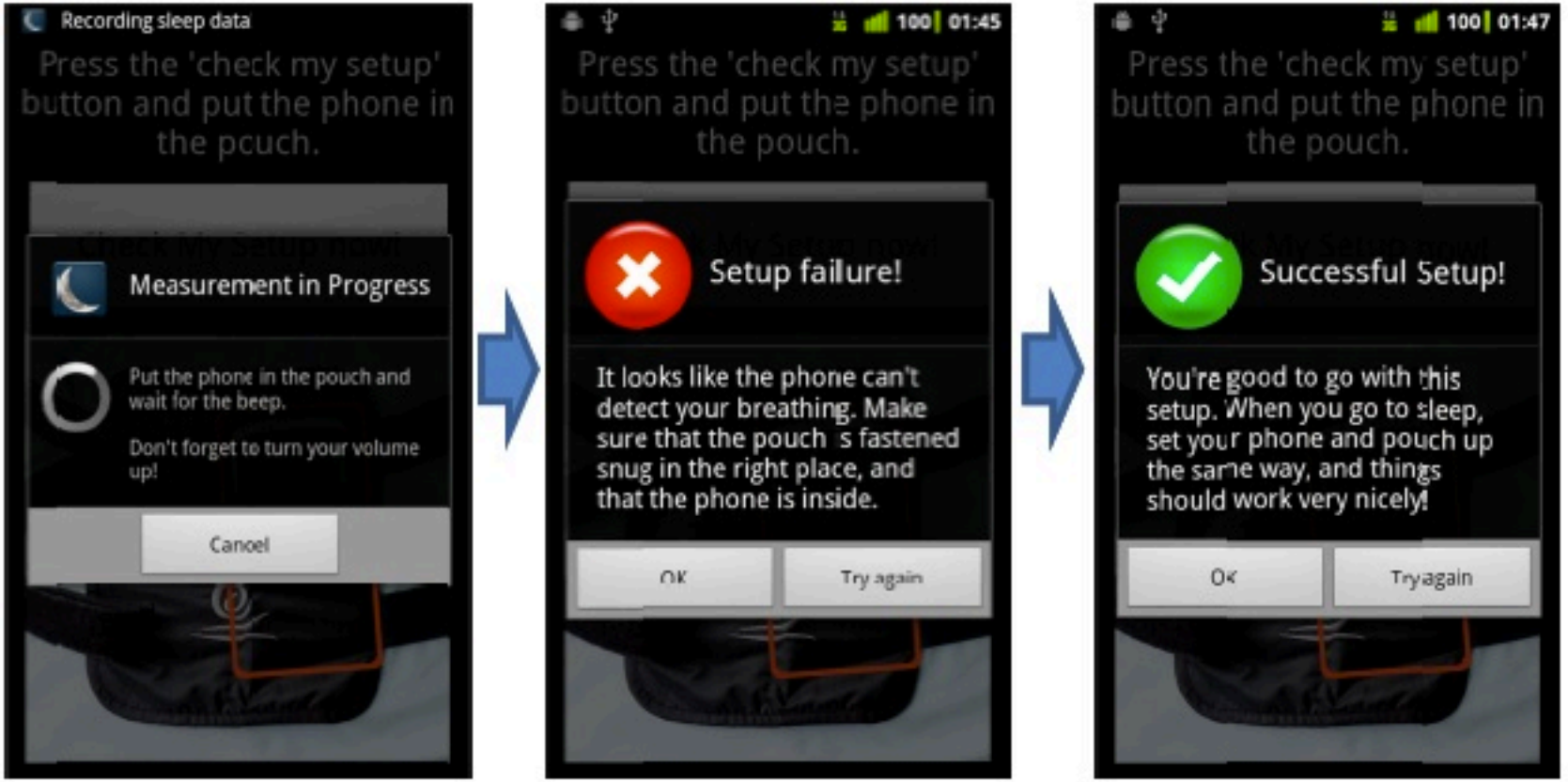
Detecting an Apnea Event

- Apnea: person stops breathing while sleeping
  - Assume this means the chest stops moving
- Strap phone to chest, and use accelerometer to calculate pitch and roll with respect to gravity
- Search for periods of no movement, ranging from 10 seconds to 2 minutes
  - Followed by 2 minutes of breathing

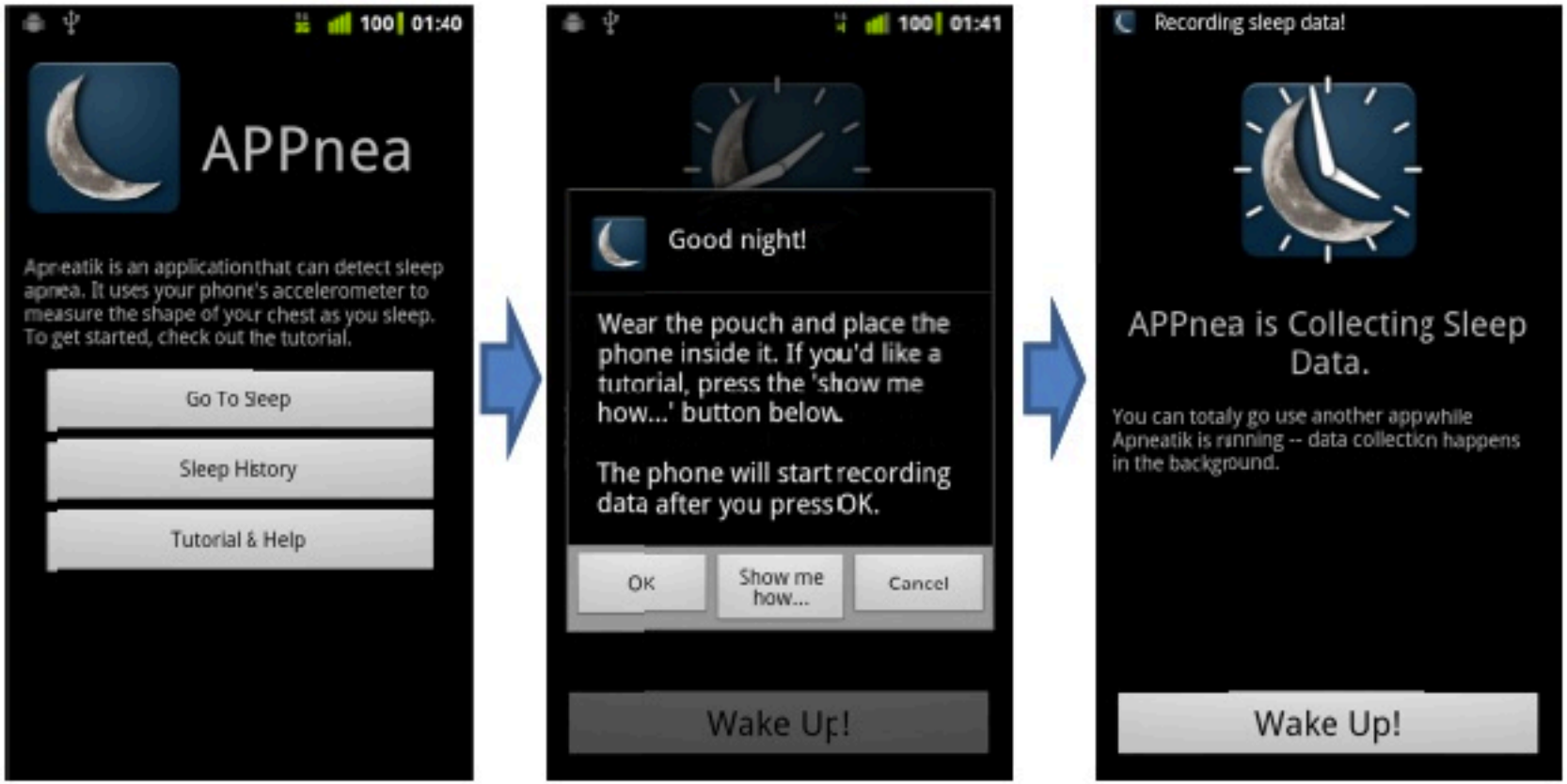
User Tutorial



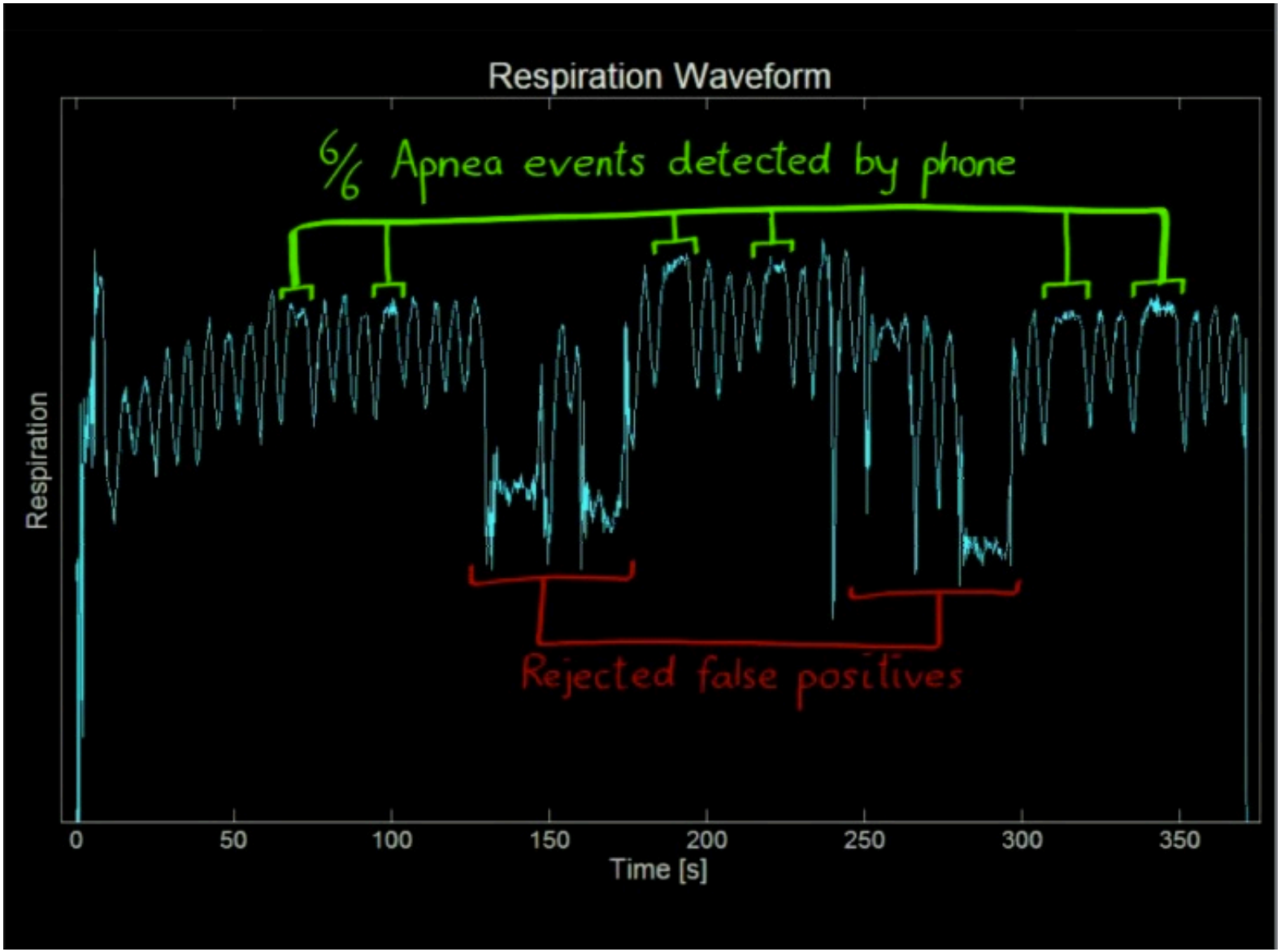
User Tutorial, cont'd



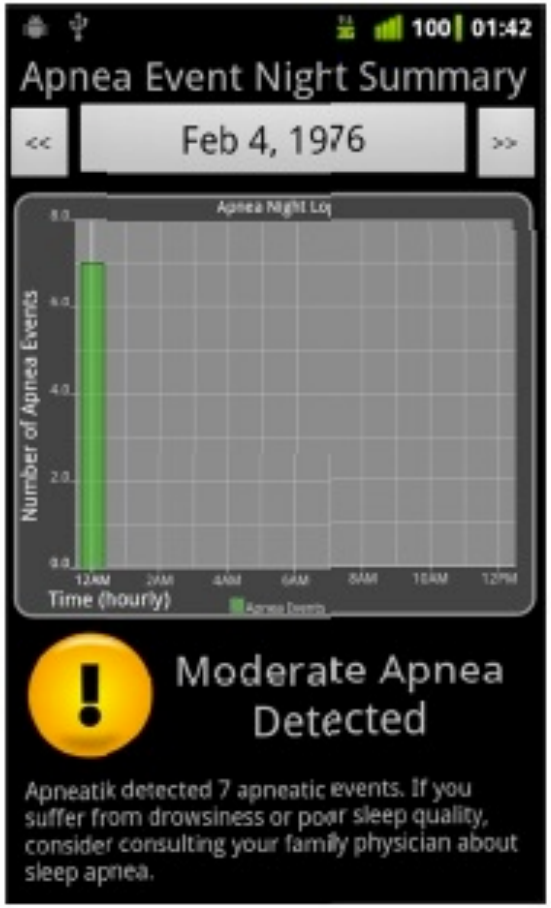
App Controls

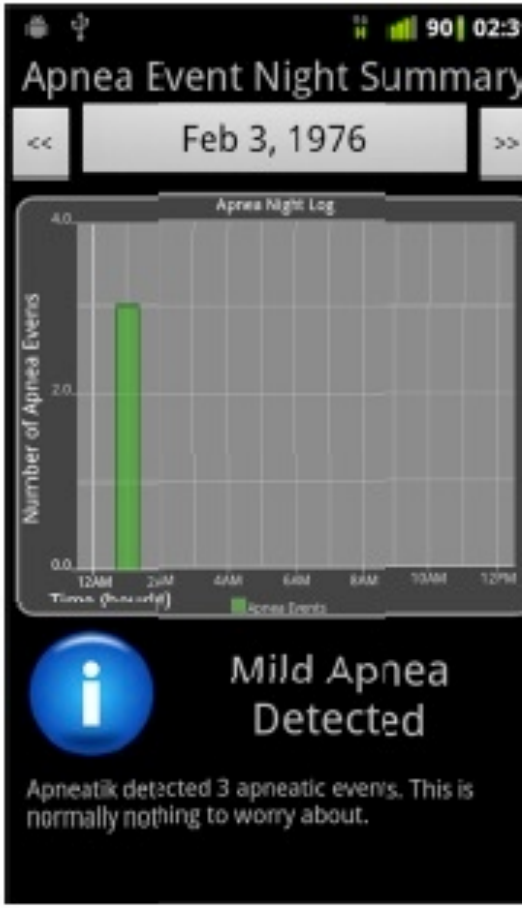


Example Collected Data



Output From App





Surgical Black Box

Reviewing Surgery & Detecting Errors

Ted Avery
Jill Cates
Eddie He

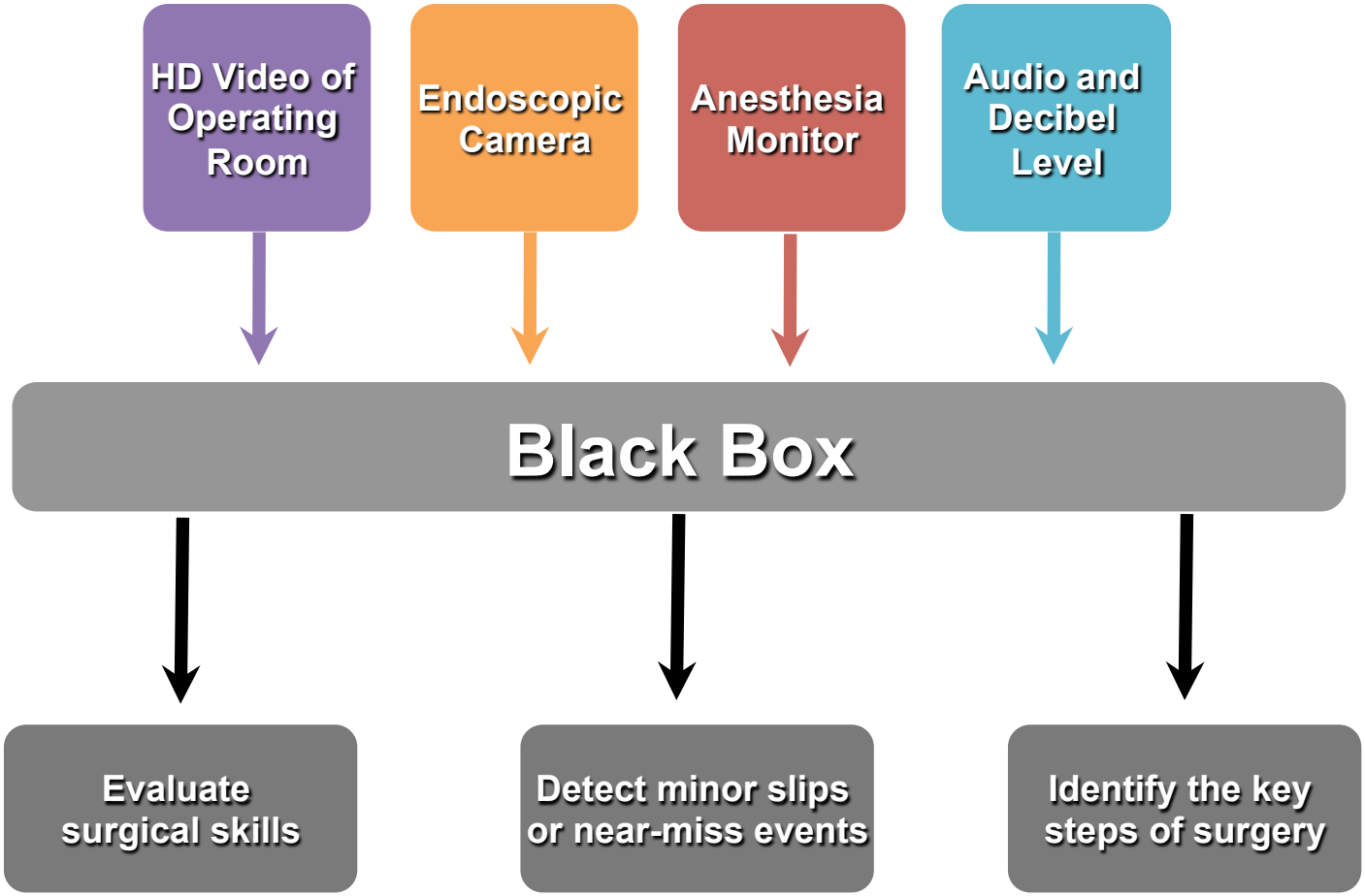
April 2012

Surgical Errors

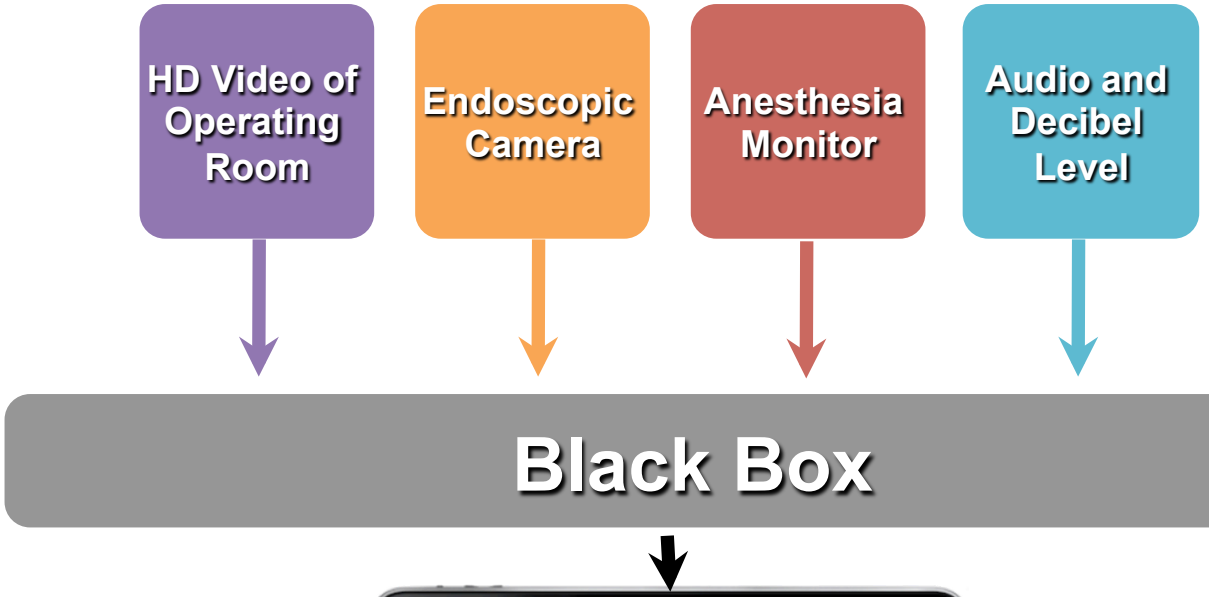
- In 2004, it was estimated that 9,000 to 24,000 Canadians die each year as a result of preventable medical errors
- Studies have shown that at least half of all surgical complications are avoidable

Baker GR et al. *CMAJ* 2004:170:1678-85 ; Haynes et al. *NEJM* 2009:360:491-9.

System


HD Video of Operating Room
Endoscopic Camera
Anesthesia Monitor
Audio and Decibel Level
Black Box
Evaluate surgical skills
Detect minor slips or near-miss events
Identify the key steps of surgery

Interim Goal

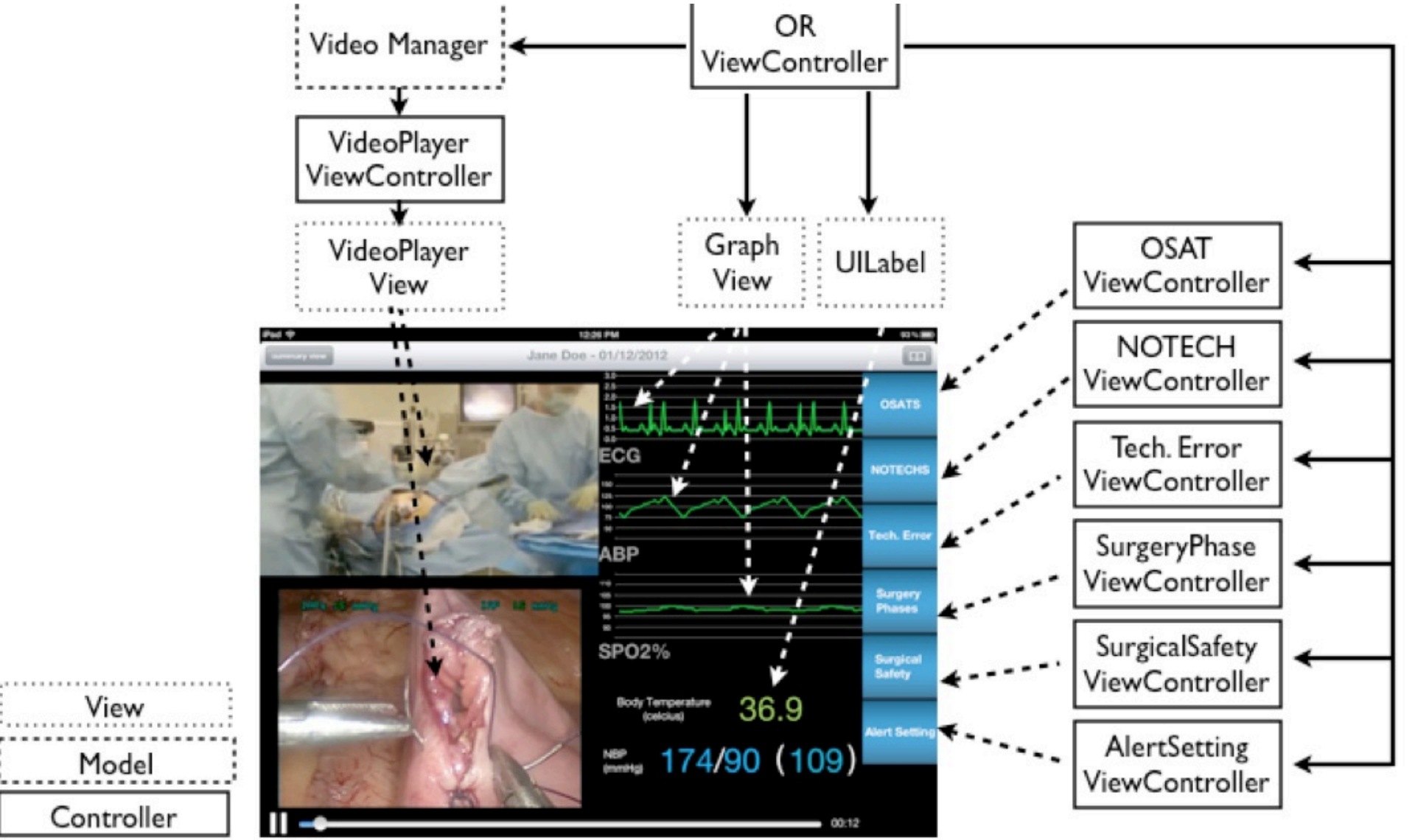


Live Mode
real-time streaming
to a remote location

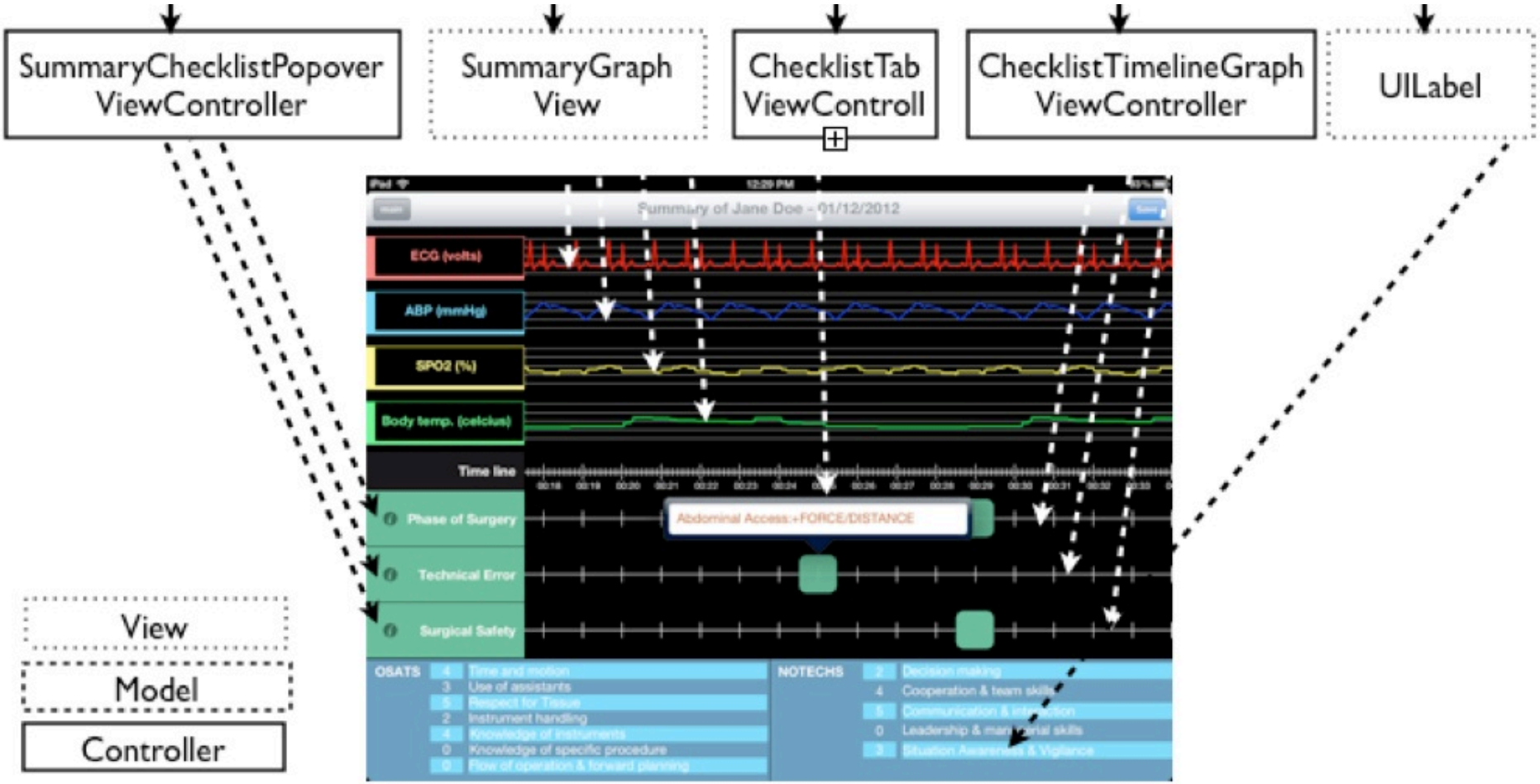
for ECE1778

Review Mode
post-operative analysis of a surgical procedure

Endoscopic Video and Data Views



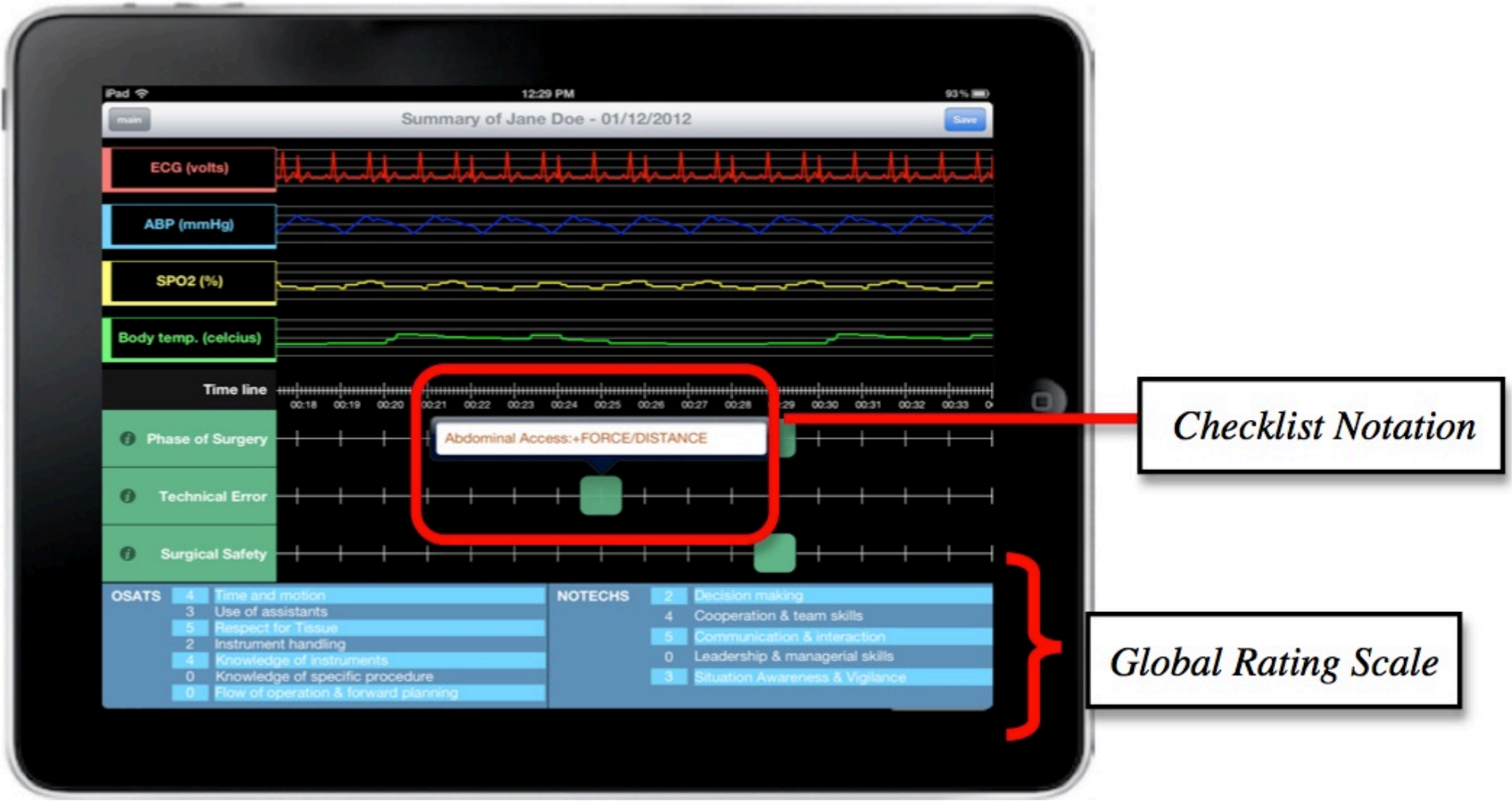
Data Time Line



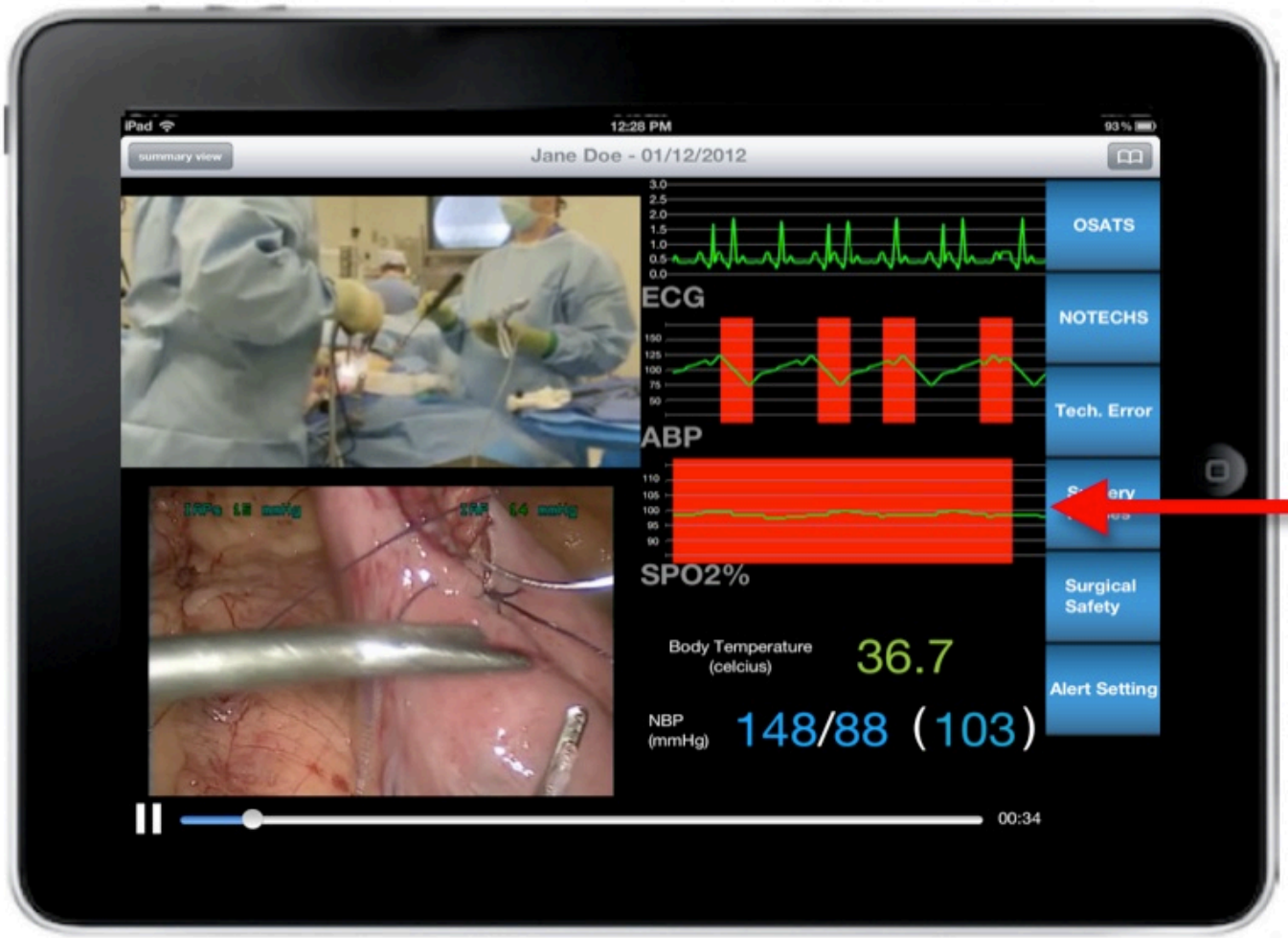
Annotation

Toolbar contains checklists and global rating scales (NOTECHS, OSATS)

Annotation – found mistakes!



Alerts



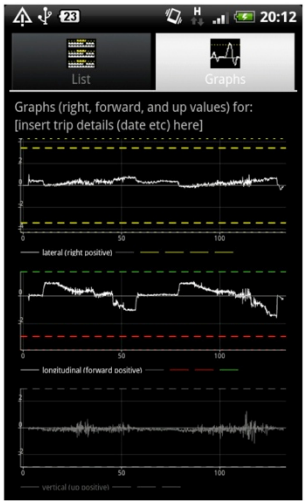
Alert: Arterial blood pressure (ABP) values have exceeded the threshold levels.

Testing with Surgeons

- Tested the app with 2 surgeons at St. Michael's Hospital
- 10-minute segment of a laparoscopic gastric bypass procedure
- Each surgeon produced similar annotations

DriveMod

Driver Behaviour Modification and Data Collection



Frances Awachie
Adrian Matheson
Matthew Thorpe

April 2012

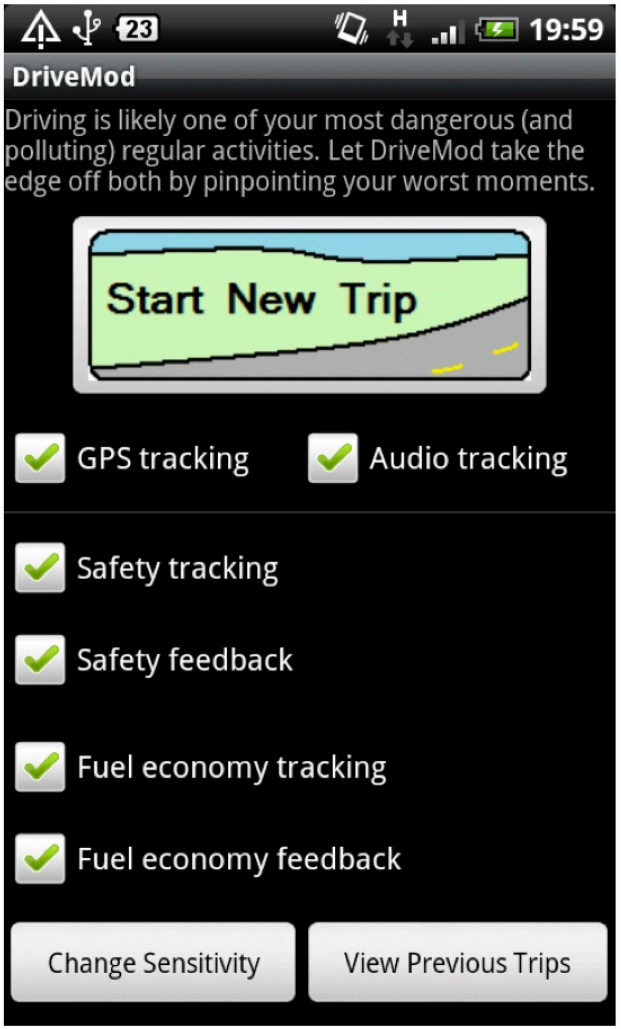
Bad Driving Kills People

- 1.2 million people per year killed globally (UN, 2004)
  - every tenth bed in hospitals is occupied by a victim of a motor vehicle collisions (UN, 2004)

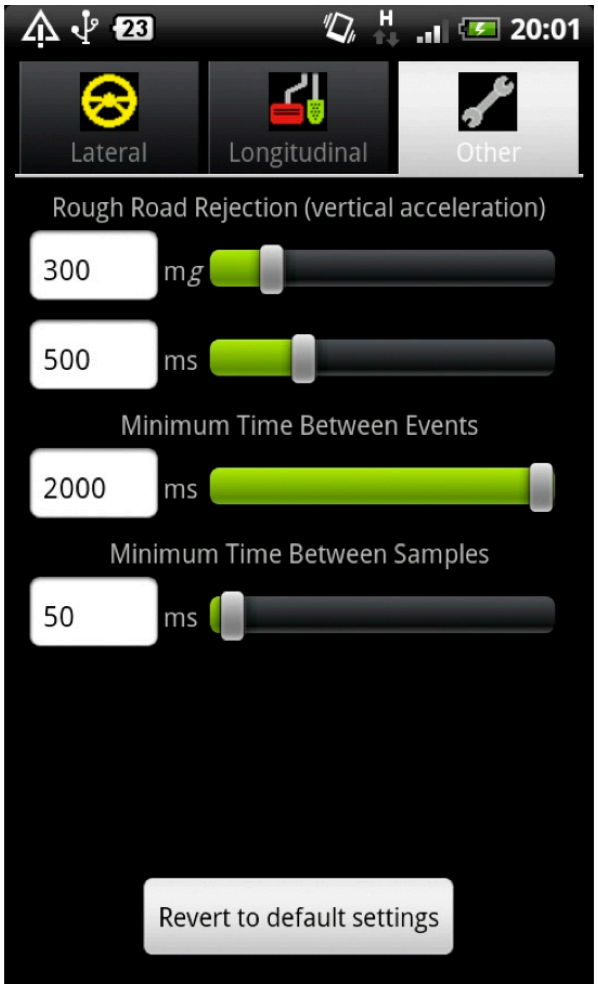
- 2,500 in Canada
- 34,000 in USA

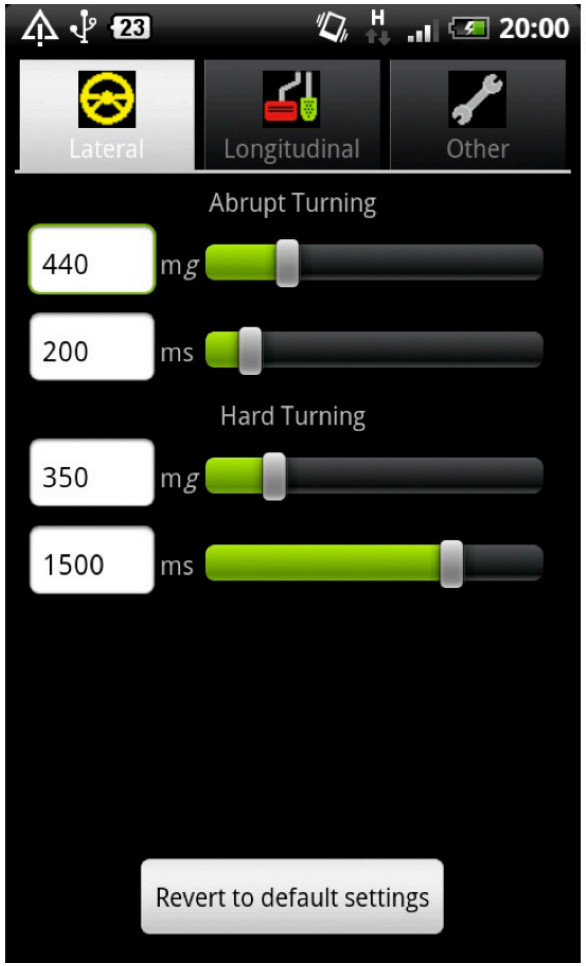
DriveMod Detects Bad Driving Events

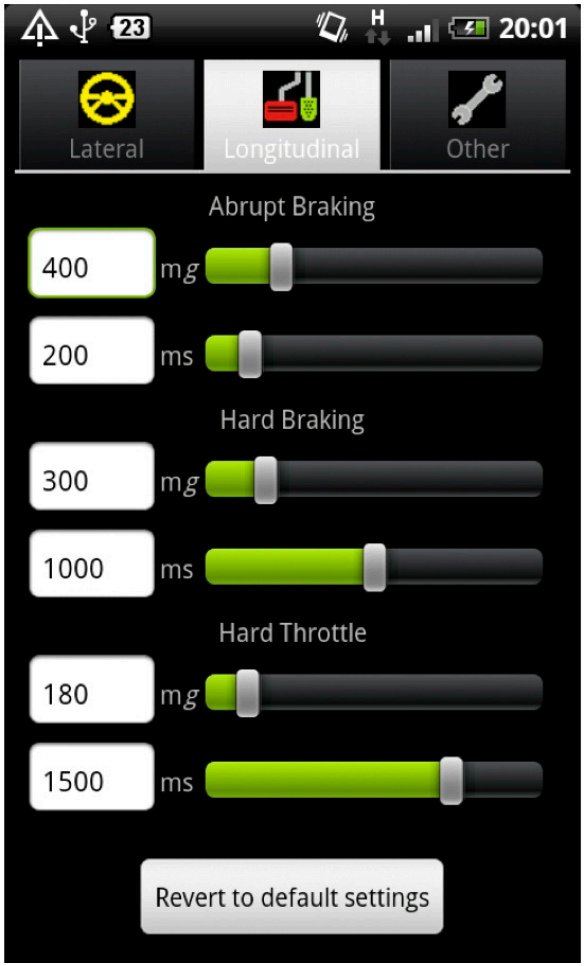
- Steering
  - Abrupt
  - Hard
- Braking
  - Abrupt
  - Hard
- Throttle
  - Hard



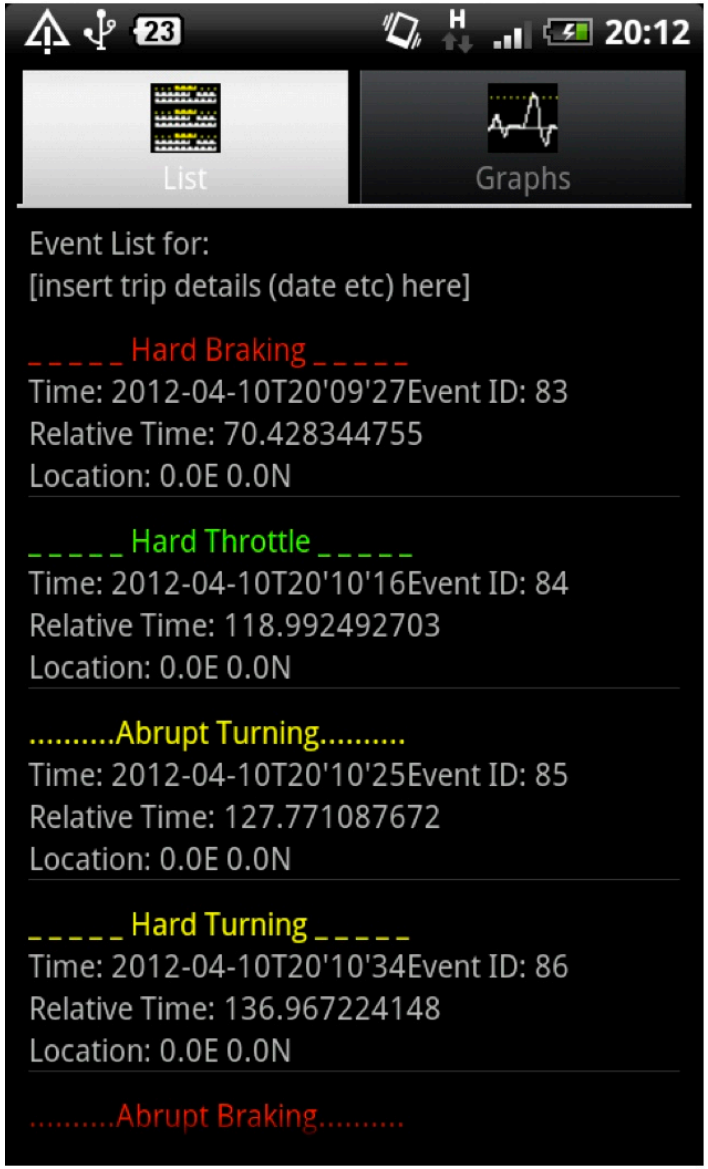
Set Thresholds to Detect Events

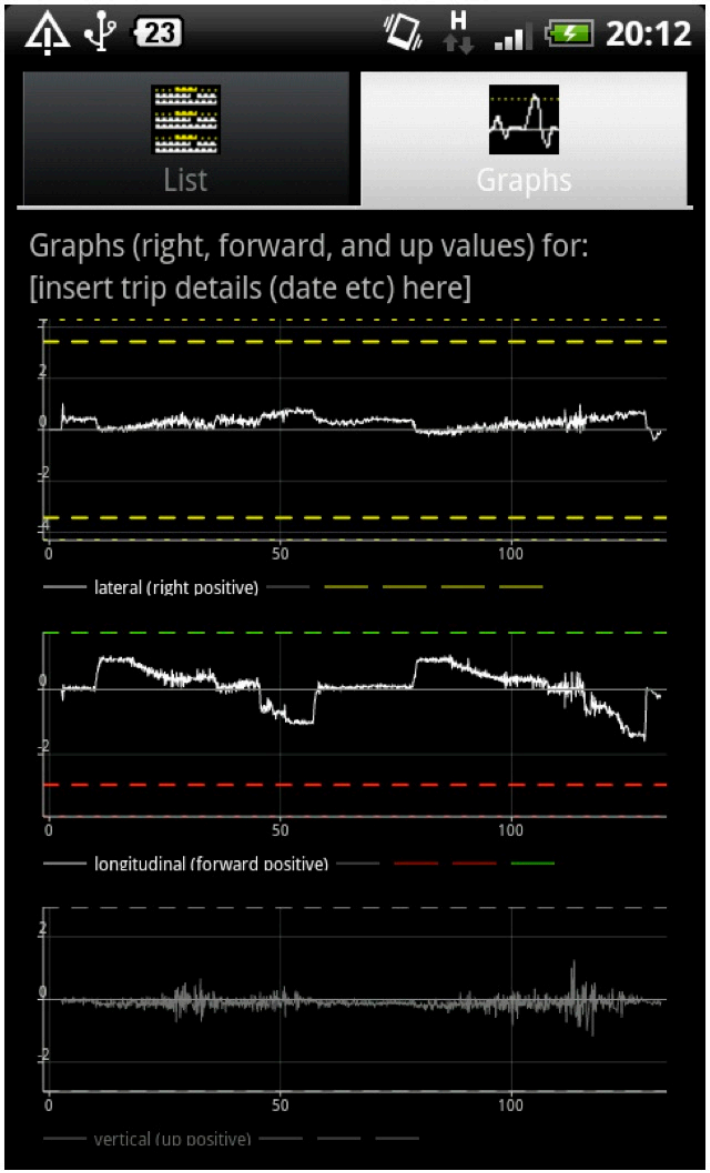






After Driving – See What Happened!





My App: TeamChooser

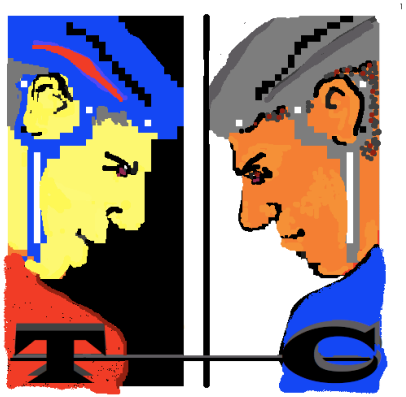
Solving a Problem in Pick-up Team Sports

The Problem

- In pick-up team sports games, we like to have fun
- It is good if the teams are ‘even’ so that the game is fair
- Someone usually has to pick the teams
  - That is hard to do well
  - People get mad at that person when the game is uneven
- Random teams can be bad
- Using Team Captains to select
  - means someone is selected last ☹

The Solution: TeamChooser

- Wouldn't it be great if an App made the teams?
  - No one to yell at
  - Possibly give better teams



- Who needs this?

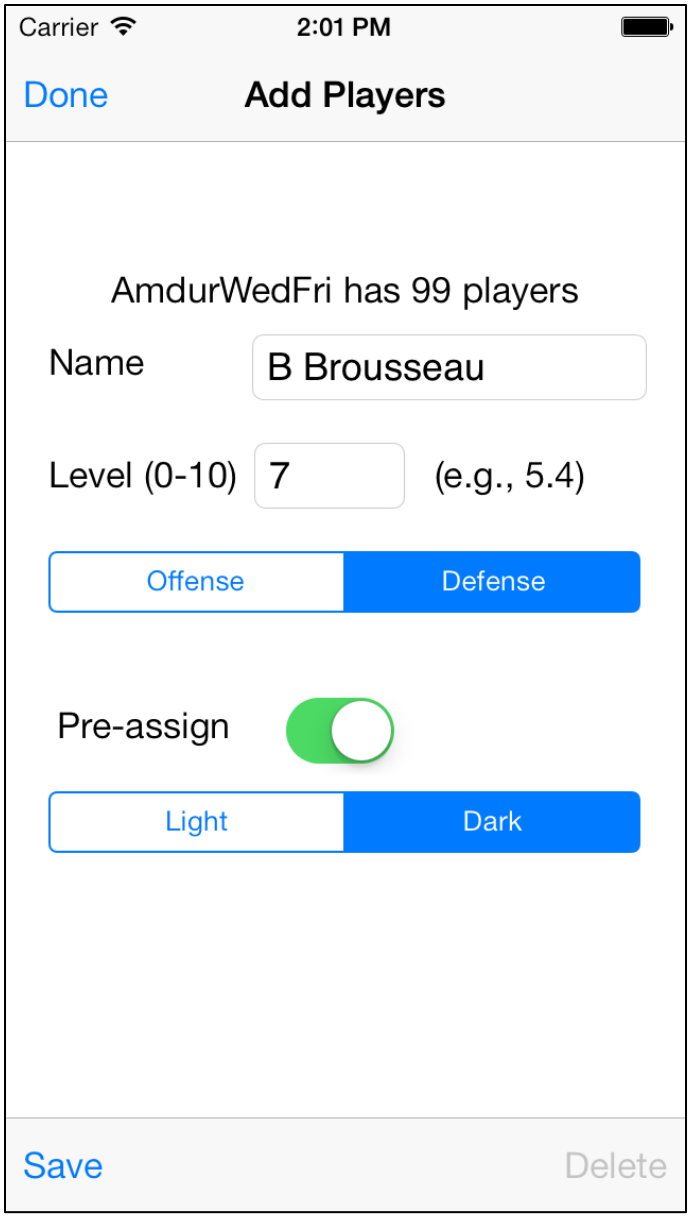
- Every pick-up hockey, soccer, basketball game around!

TeamChooser: How It Works

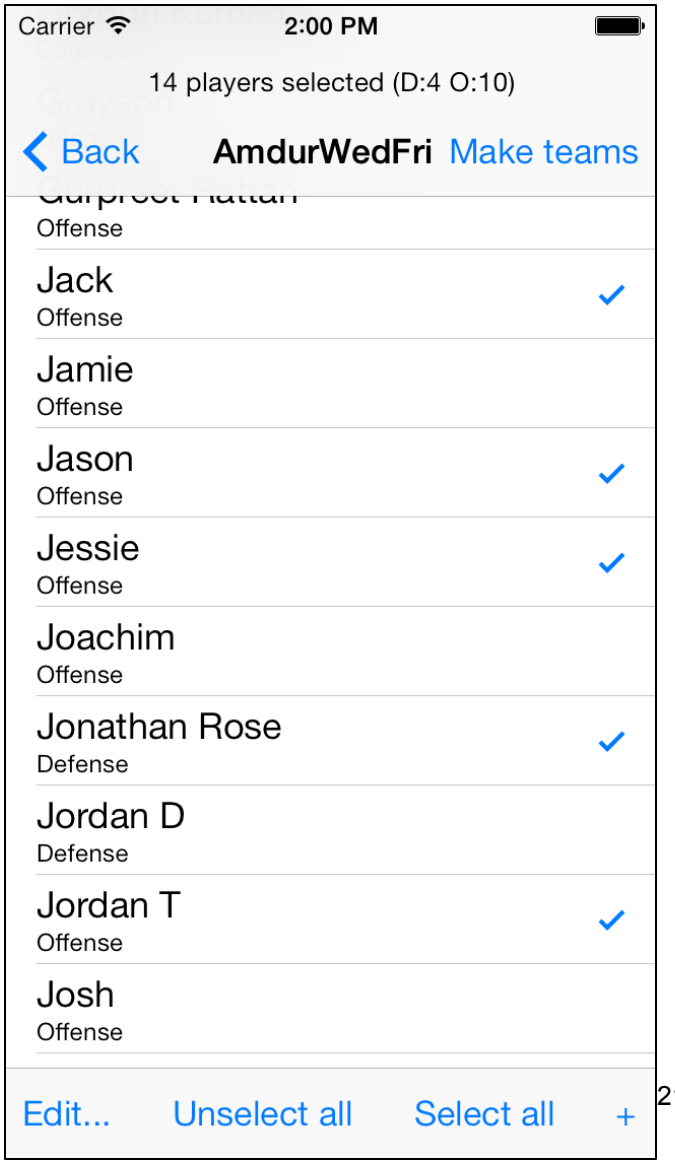
- Enter every user in advance of game day
  - Player's name
  - Preferred position (offence or defense)
  - **A rating, from 1-10, as to how effective player is**
    - Rating is the trickiest part
    - Key: keep ratings secret from all but a few
    - (apps **are** personal)

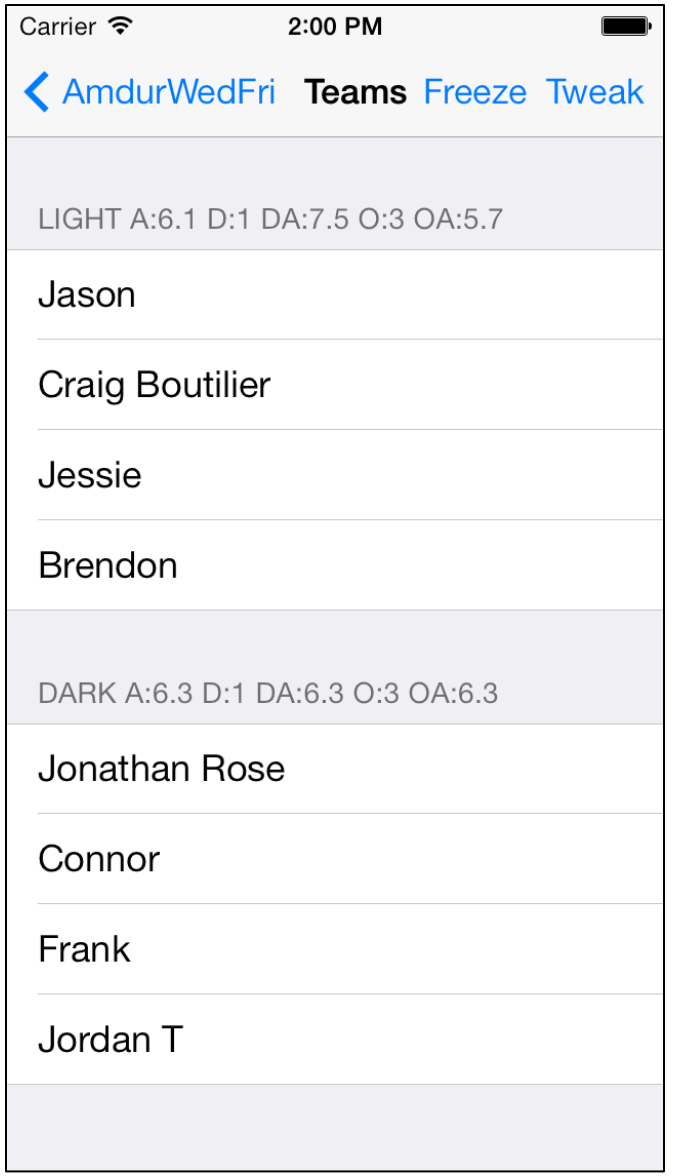
- On game day – select all players present
- Push 'Make Teams'
  - And voila, two evenly matched teams

Entering Players



Selecting Present & Making Teams





21)

Team Selection Method

- Orginal method, used over the years
  - Sort in order
  - Top goes to team A
  - Next 2 to team B
  - Next 2 to team A …
- More complex when dealing with pre-assigns, or making incremental changes to teams when someone shows up late; new release including special ‘odd man’ algorithm
- Many discussions from CS and ECE Professors over algorithms in hockey game
- New method developed recently – search through more possibilities with a cost function

Does it Work?

- Yes!

- I've been using it with friends in roughly 400 hockey games and it has often done a good job.
  - We've tweaked it's algorithms here and there
  - Added some features
  - Occasionally very unbalanced games, bad luck?

- The rating of players gives rise to some unusual issues, sometimes funny, sometimes not.
  - Apps are **personal**

On iPhone App Store Since May 2010

TeamChooser

View More By This Developer

By NP Press

Open iTunes to buy and download apps.

View In iTunes

$0.99

Category: Sports
Updated: Jan 03, 2014
Version: 1.6
Size: 2.5 MB
Language: English
Seller: Jonathan Rose
© 2010 Jonathan Rose and Paul Eisen
Rated 4+

Compatibility: Requires iOS 7.0 or later. Compatible with iPhone, iPad, and iPod touch. This app is optimized for iPhone

Description

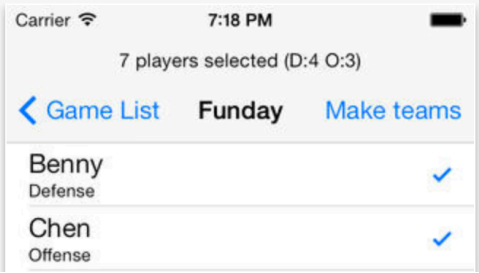
Do you play friendly pickup sports, like hockey, soccer or basketball? Would you like help splitting up the players to balance the teams so that everyone enjoys the game? Then TeamChooser is the app for you! TeamChooser will work for pretty much any two-team game you can think of: rugby scrimmages, volleyball, baseball, and flag football.

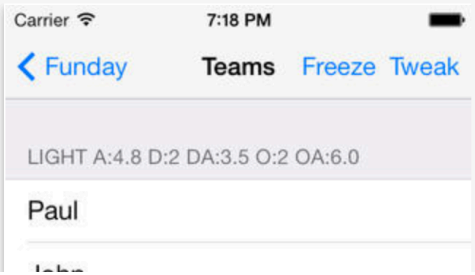
NP Press Web Site ▸ TeamChooser Support ▸ ...More

What's New in Version 1.6

Porting to, and bug fixes for iOS 7
Added measurement of offense/defense balance

iPhone Screenshots





- 1.8K Downloads
- Mostly in US/ Canada, but a few in UK, Ireland, Japan, Norway, Romania, Portugal, Australia, Denmark, Finland

Improvements Needed

- **Really** needs a backing website
  - To support a business model of advertising, promotions related to sports
- Much discussion about using results of games to determine better ratings
  - Rating players is the most difficult part of using
- Don't really have time to support
  - Did, this year, work on improved algorithms
  - Added Late Arrival Feature (good!)
  - Not sure new algorithm gives better result

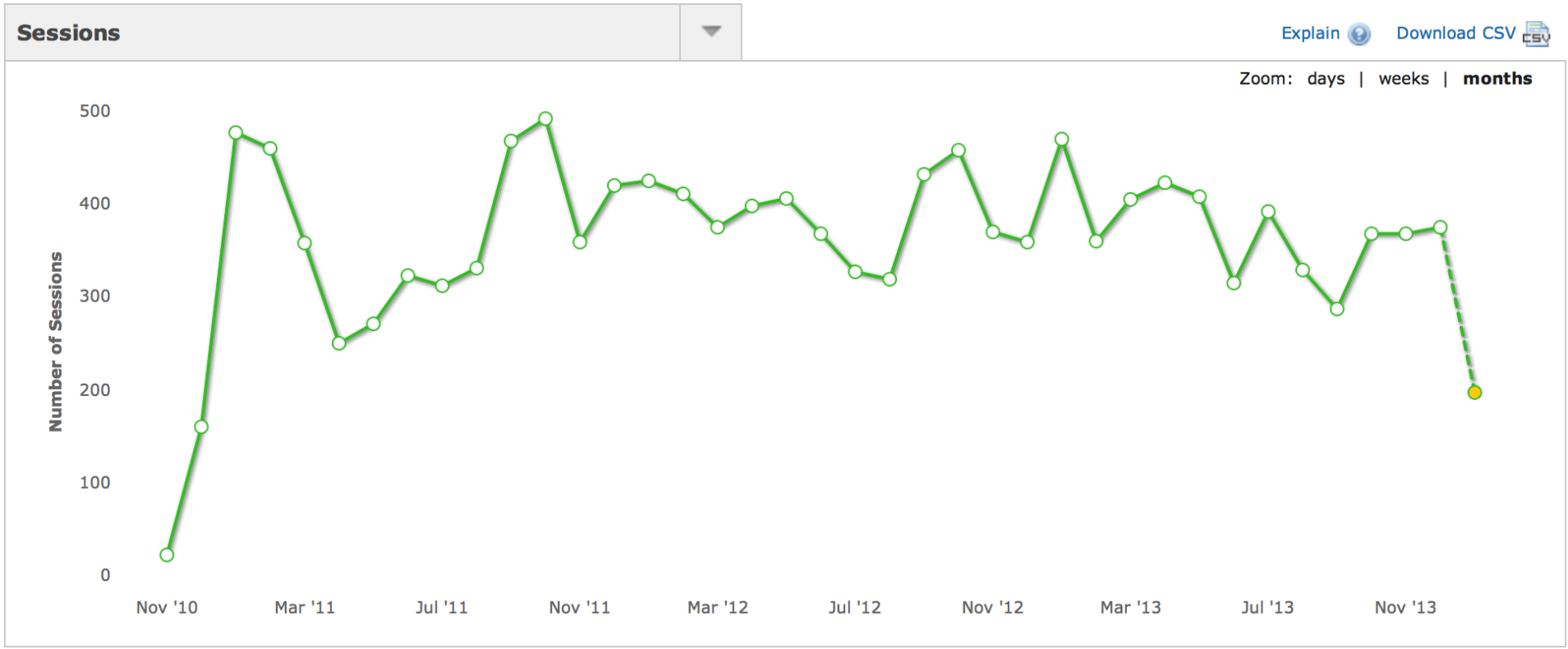
Is Anyone Using it Who Bought It?

- Instrumented Using Flurry.com
  - Analytics for iPhone, Blackberry and Android
  - Very easy to insert into any app

- Reports:
  - # of users sessions, amount of time spent on app
  - Specific pages/events, as you wish from each user
  - Location of user, if already use GPS (no other ID).
  - **Anything I wish to report!**

- Flurry also gives guess as to age & gender of users!

Sample Flurry Reports



Event Logs

- Dashboards
- Usage
- Audience
- User Acquisition
- **Events**
  - Event Summary
  - User Paths
  - **Event Logs**
  - Funnels
  - **Search Event Name:** *type to search...*
- Errors NEW
- Technical
- Manage

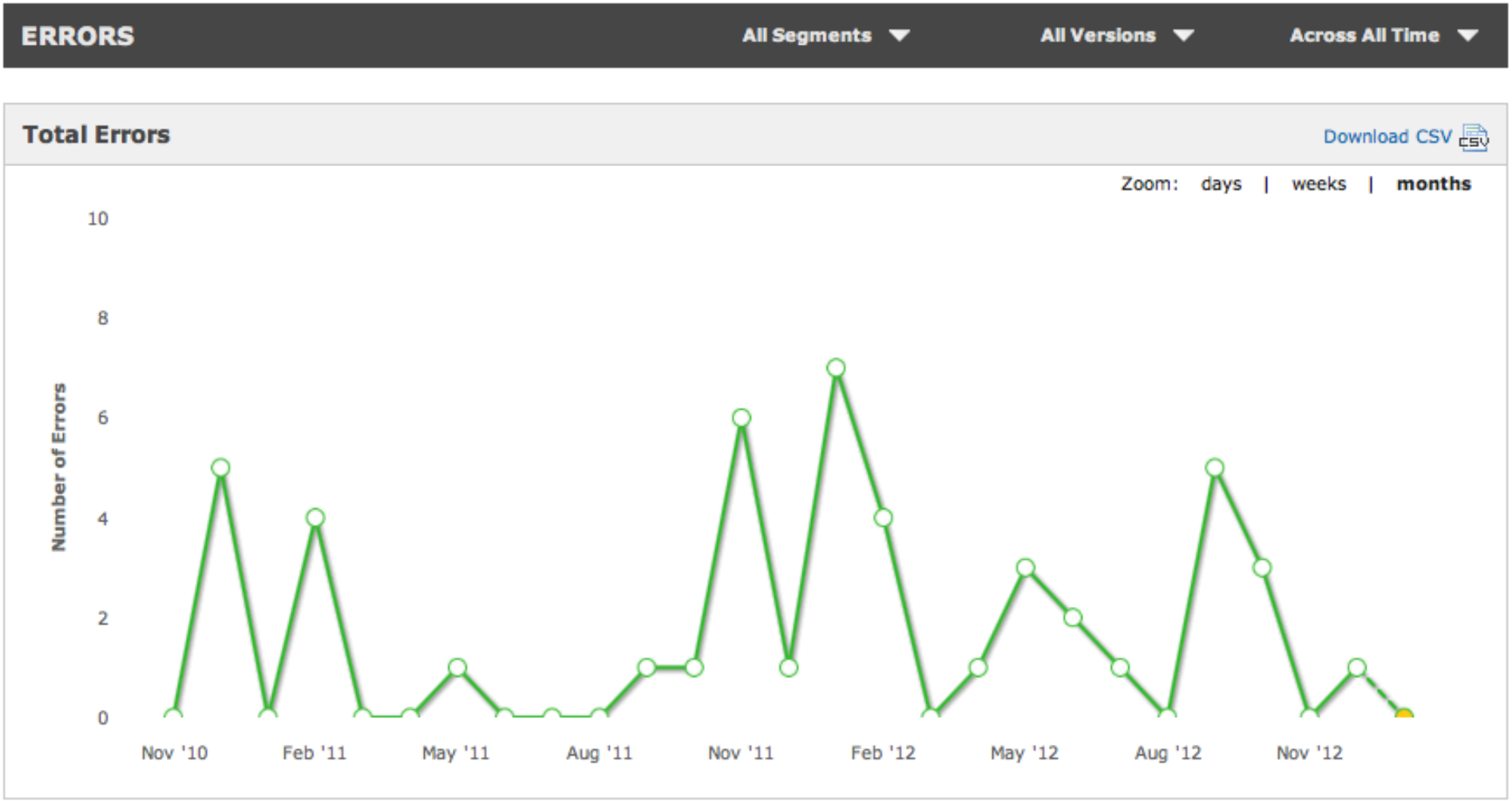
EVENT LOGS

Global Event Logs

Page 1

Session Time	Version	Details
01/19/14 21:02:57 EST	1.6 (iPhone)	Apple iPhone 4s
1) **Teams Made**		
01/19/14 12:27:20 EST	1.6 (iPhone)	Apple iPad 2
1) **Adding Players Mode**		
2) **New Player Added**		
01/19/14 12:24:27 EST	1.6 (iPhone)	Apple iPad 2
1) **Teams Made**		
01/18/14 15:54:27 EST	1.6 (iPhone)	Apple iPad 2
1) **Teams Made**		
01/18/14 15:54:11 EST	1.6 (iPhone)	Apple iPad 2
1) **Teams Made**		
01/17/14 16:03:22 EST	1.6 (iPhone)	Apple iPhone 4 (GSM)
1) **Teams Made**		
2) **Teams Made**		
01/17/14 15:58:44 EST	1.6 (iPhone)	Apple iPhone 4 (GSM)
1) **Adding Players Mode**		
2) **New Player Added**		
3) **Teams Made**		
01/16/14 16:14:47 EST	1.6 (iPhone)	Apple iPhone 5 (CDMA)
1) **Teams Made**		

Errors (uncaught exceptions)



Geography

GEOGRAPHIC VIEW — All Segments — Across All Time

Total Sessions — Explain — Download CSV

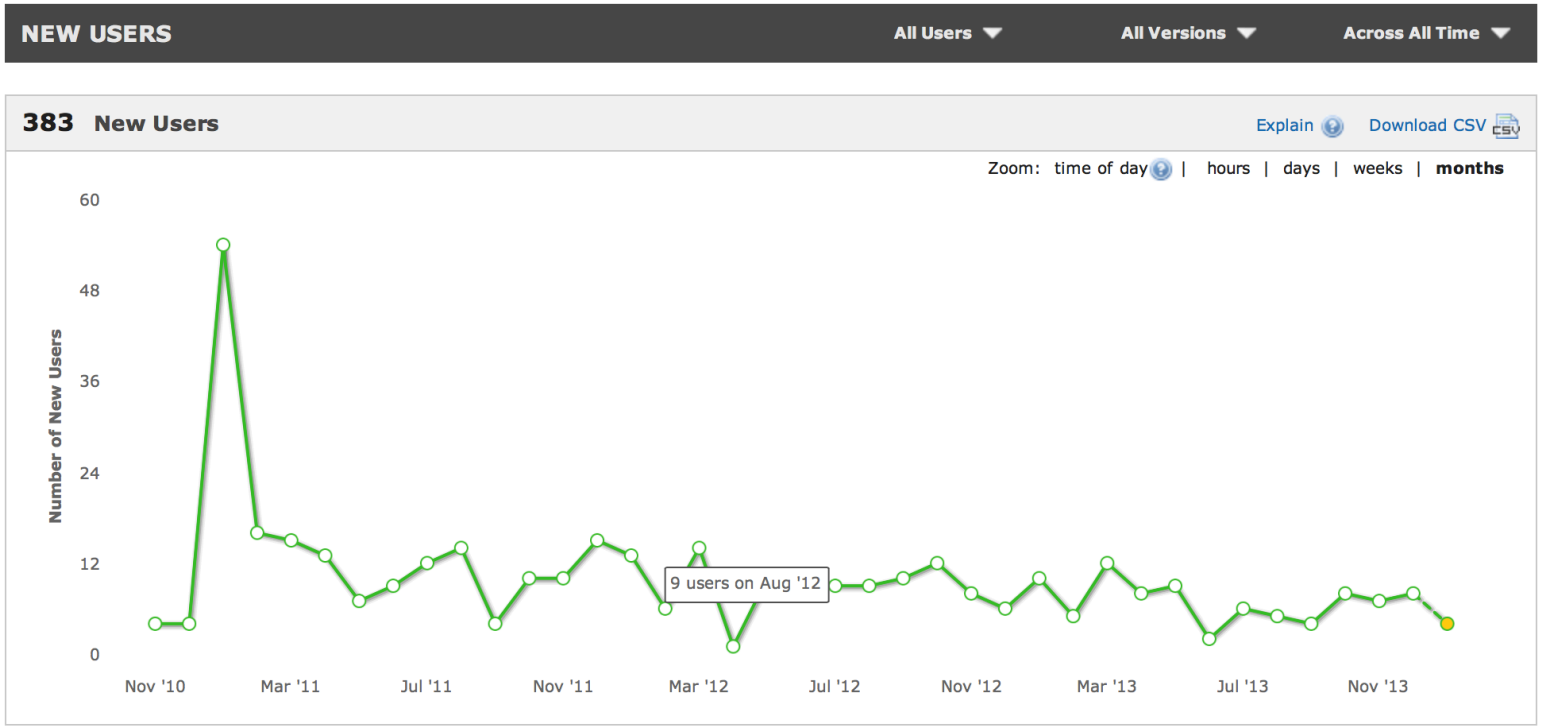
Detailed View — Explain — Download CSV

Region	Sessions	% of Sessions
North America	7,238	76.0%
Europe	2,184	22.9%
South America	42	0.4%
Oceania	26	0.3%
Africa	26	0.3%
Asia	7	<0.1%
Middle East	1	<0.1%
Central America	1	<0.1%

New Users

All Applications › TeamChooser › Analytics

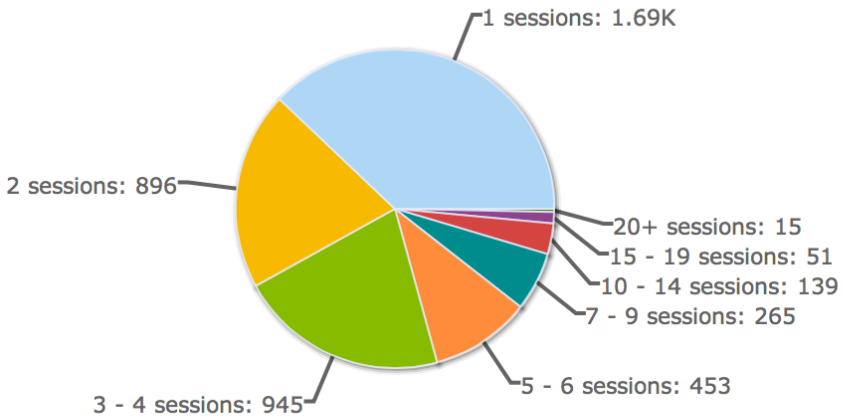
- Dashboards
- Usage
  - New Users
  - Active Users
  - Sessions
  - Session Length B
  - Frequency of Use B
  - Lifecycle
  - Recent Users B
  - Top Versions
  - Page Views
- Audience
- User Acquisition



Frequency of Use

FREQUENCY OF USE | All Users | All Versions | Across All Time

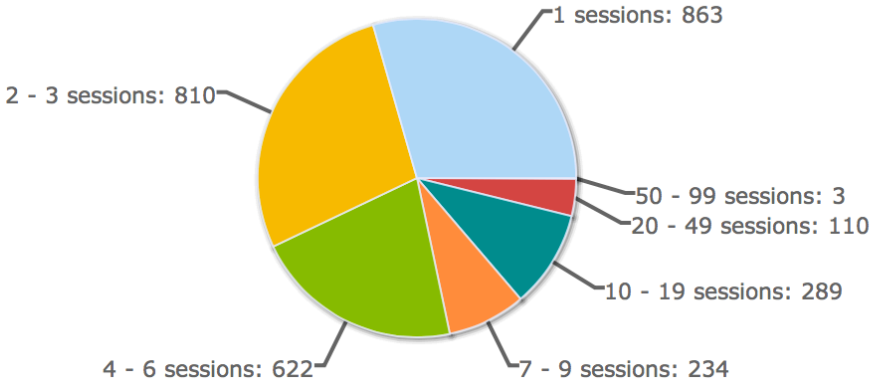
Session Frequency Per Period | Explain | Download CSV



Daily

Median:
2.6 sessions / day

Benchmark:
Sports
1.7 sessions / day

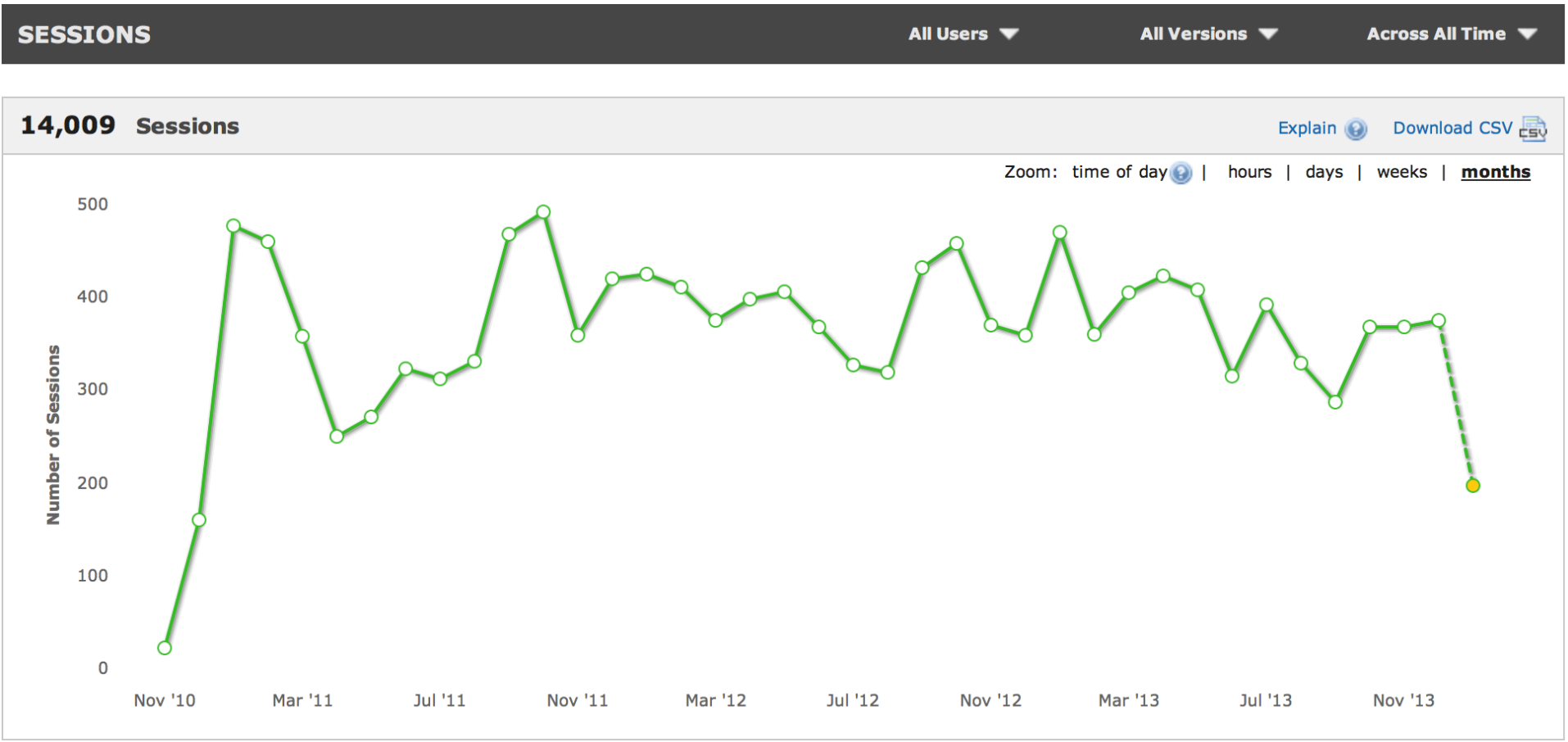


Weekly

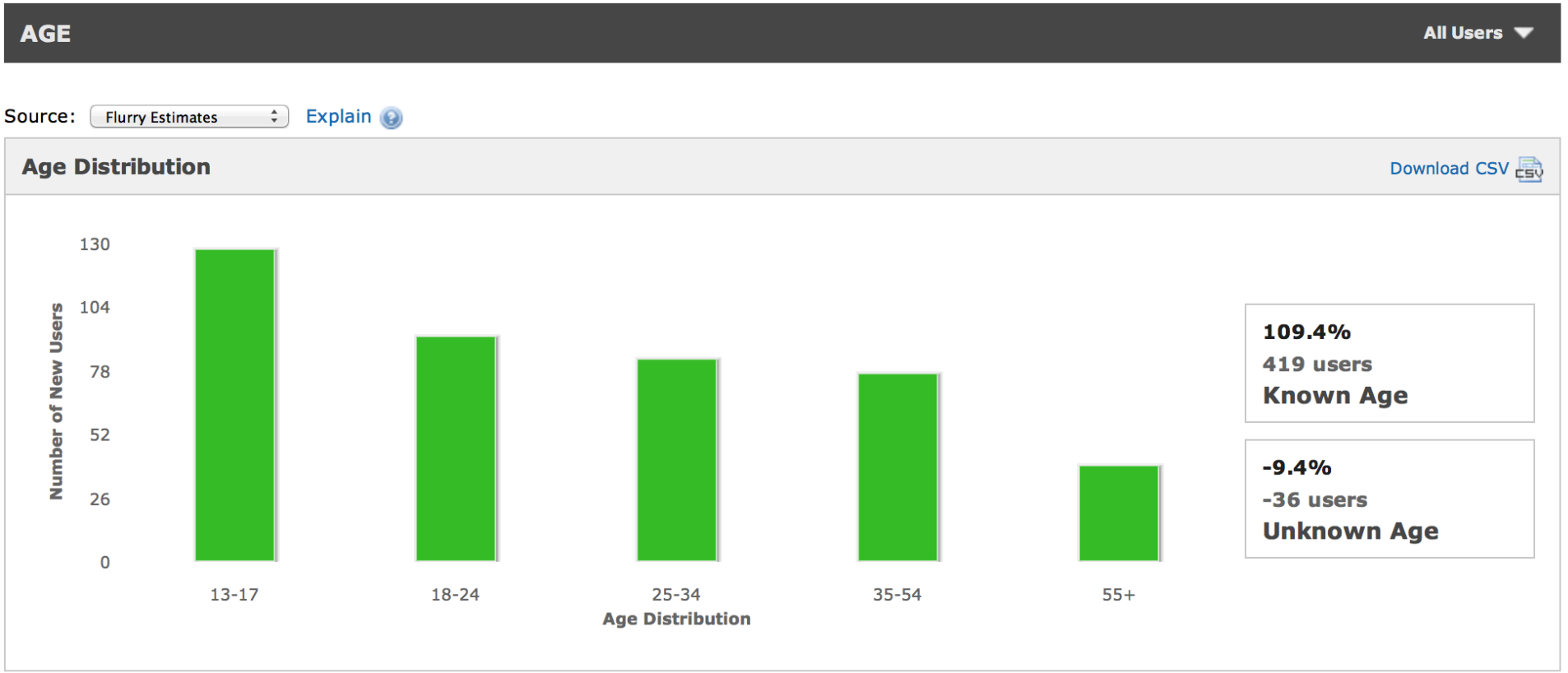
Median:
3.5 sessions / week

Benchmark:
Sports
1.9 sessions / week

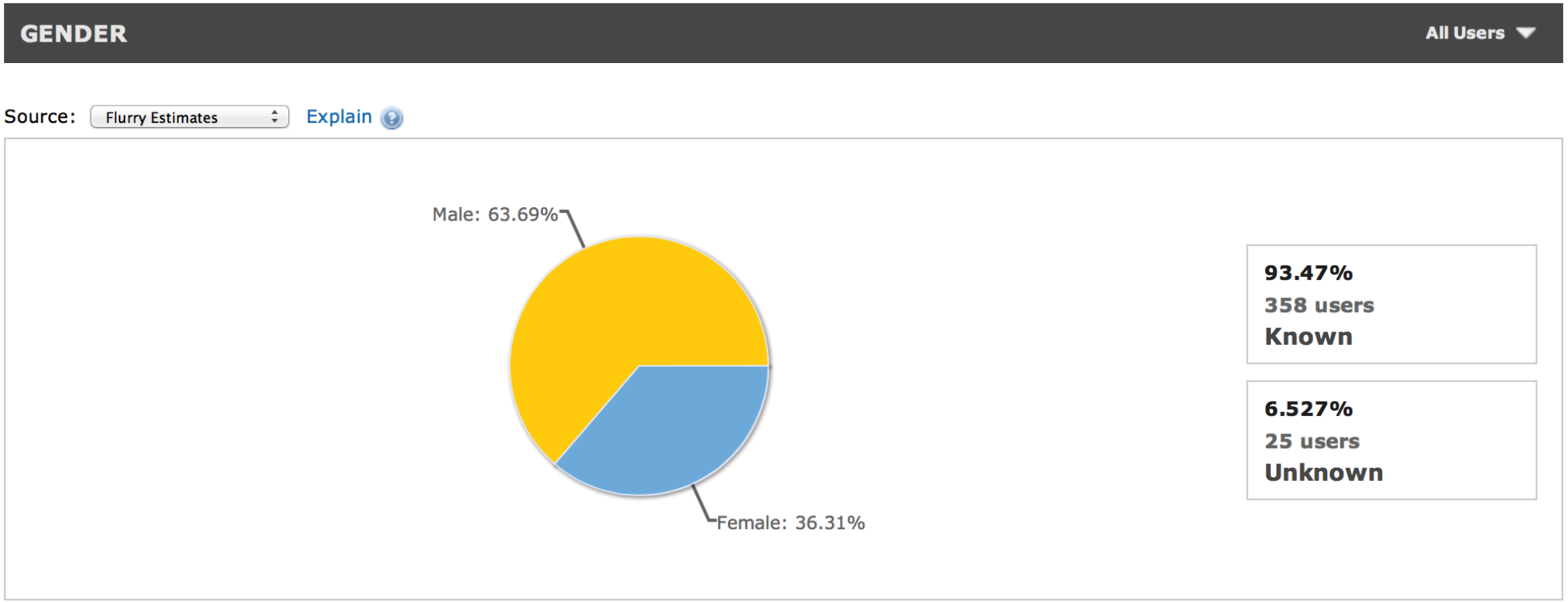
Sessions


SESSIONS
All Users
All Versions
Across All Time
14,009 Sessions
Explain
Download CSV
Zoom: time of day | hours | days | weeks | months
Number of Sessions
500
400
300
200
100
0
Nov '10
Mar '11
Jul '11
Nov '11
Mar '12
Jul '12
Nov '12
Mar '13
Jul '13
Nov '13

Age Estimates!



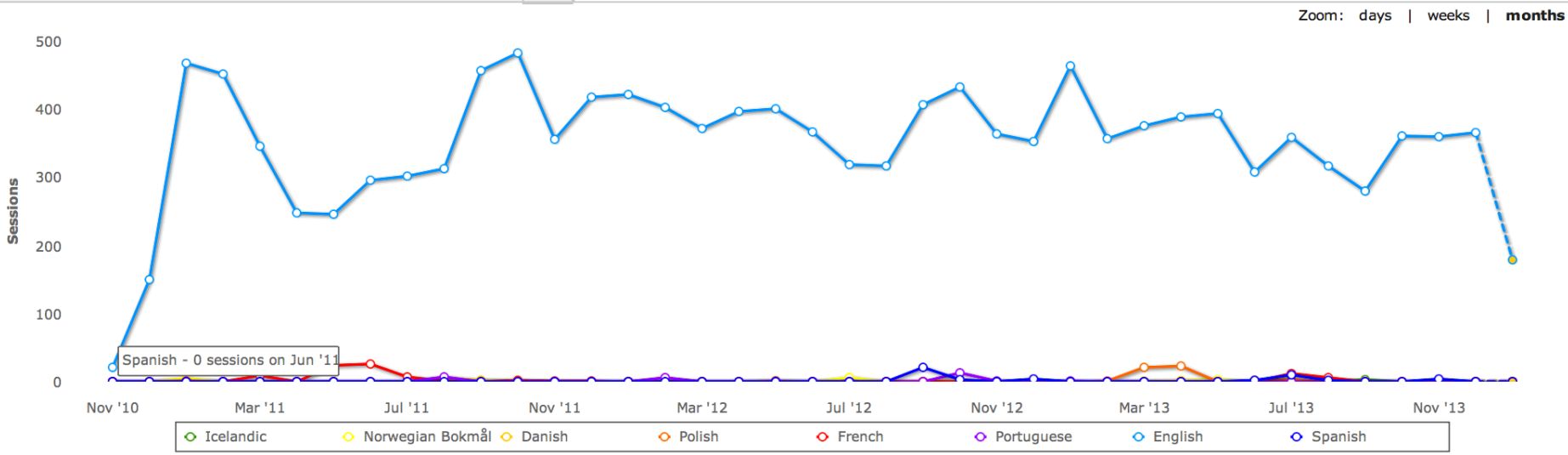
Gender Guess!



Languages

Top 8 Languages — All Users — Across All Time

Sessions — Explain — Download CSV



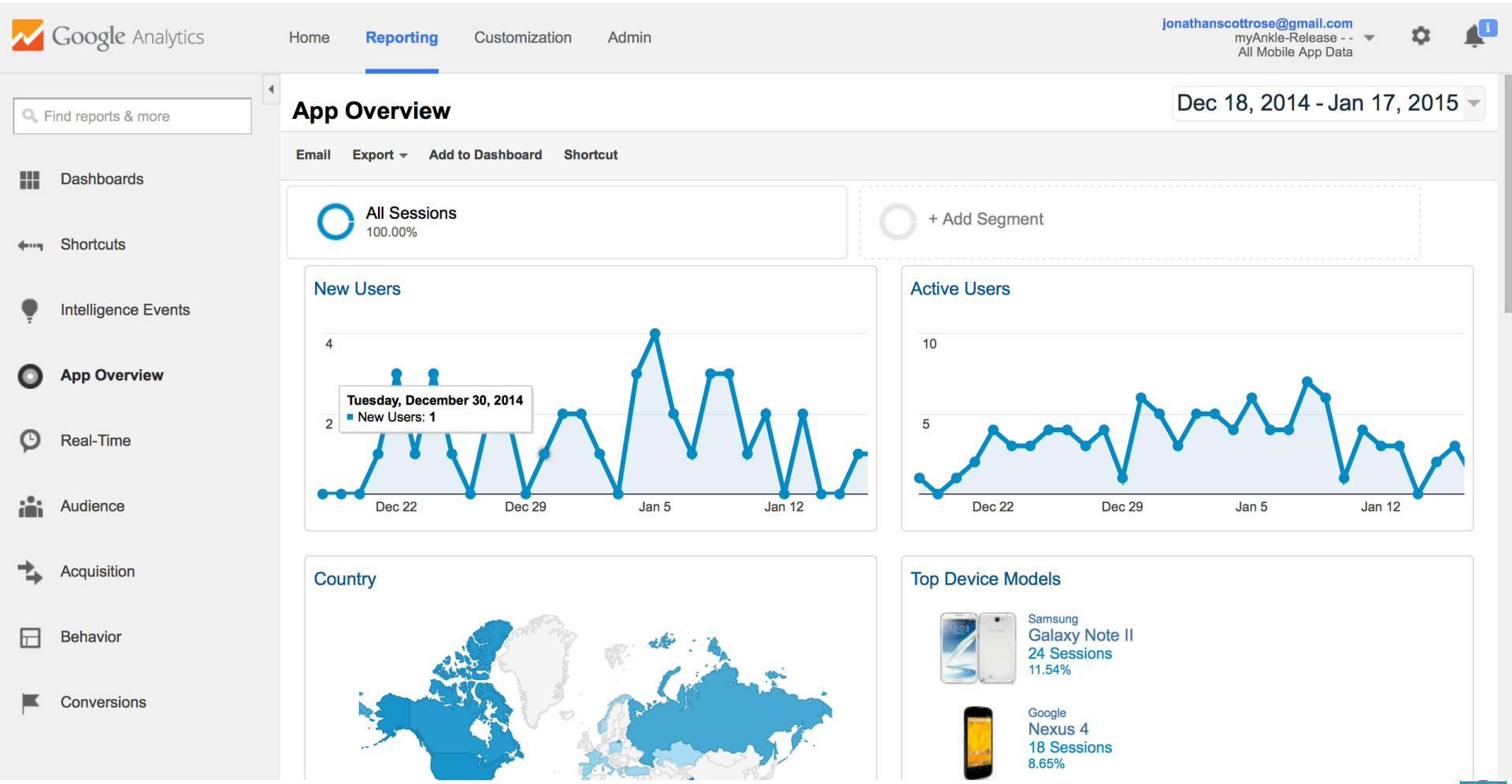
Detailed View — Explain — Download CSV

Language	Sessions	% of Sessions
English	13,621	98.2%
French	90	0.6%
Polish	50	0.4%
Spanish	46	0.3%
Norwegian Bokmål	30	0.2%
Portuguese	29	0.2%
Danish	4	<0.1%

Lots More

- See www.flurry.com

Google Analytics is Similar – MyAnkle



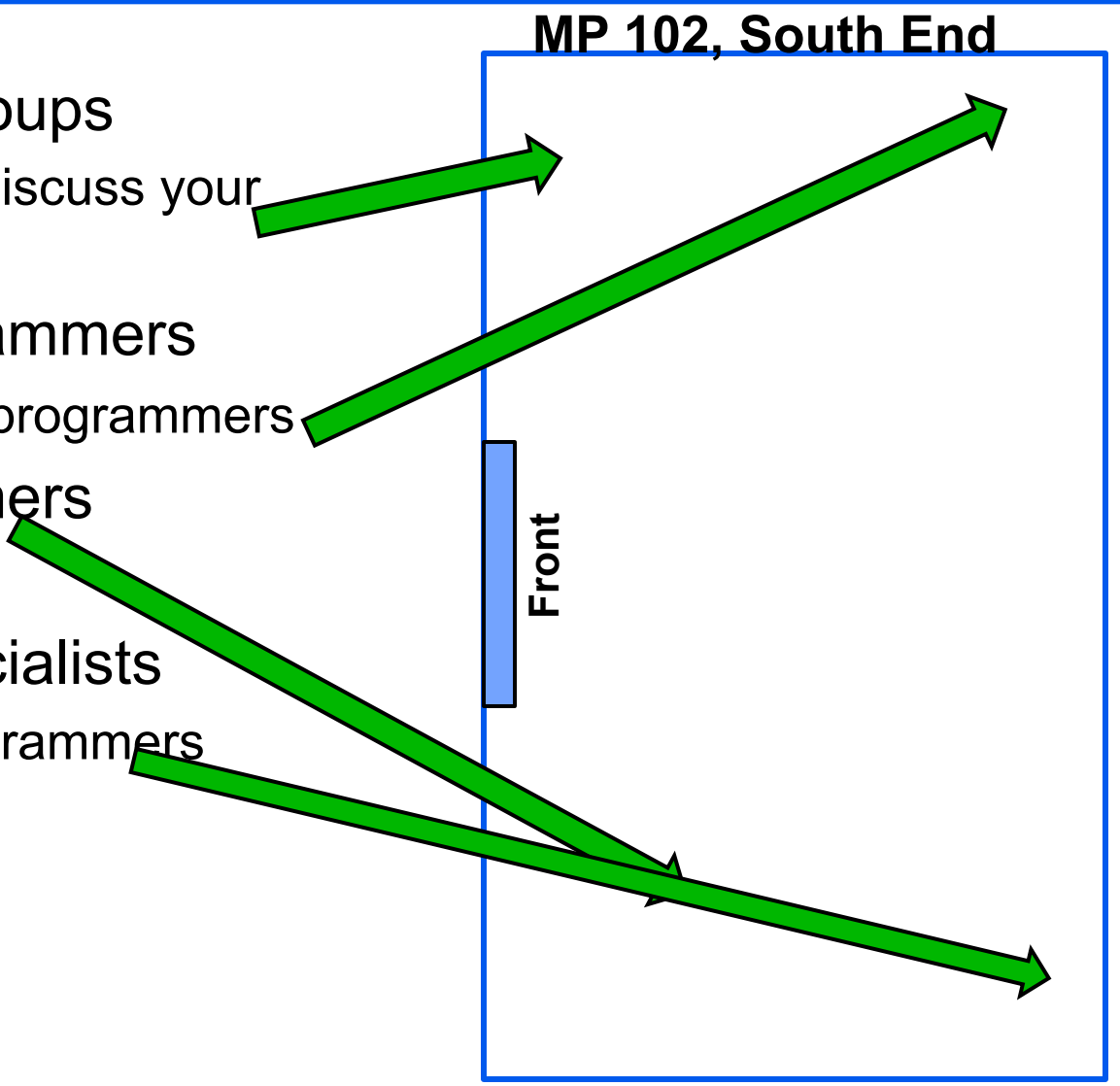
Now: Group Forming Time

First: Three More Specialists

- Who Have Not Yet Spoken in class
  - Cecelia Marshall (external Specialist)
  - Katarina Gram (graduate student)
  - Professor Moshe Eizenman (external Specialist)

Four Kinds of People Now

1. Already in full Groups
   - Take this time to discuss your topics
2. Un-paired Programmers
   - Form groups of 2 programmers
3. Paired Programmers
   - Need Specialist
4. Un-grouped Specialists
   - Need paired programmers



Tonight's Group Forming Location

- Tuesday January 19th
- 6:30pm-8:00pm (in addition to the class that day)
- Galbraith Building, Room 221
  - 35 St. George Street
  - Will help make matches.