ECE 1778:
Creative Applications for Mobile Devices

Lecture 6

October 21, 2016

Today

1. Assignments P4 and S4
2. Logistics
3. Proposal/Plan Presentations, continued

Assignments P4 and S4

Assignment P4

- Threads, Databases and Face Detection
  - Based on Assignment 3 – importing pictures from DCIM file
  - Must use separate thread to import pictures into **local** database
    - First just 1 extra thread
    - Then a selectable amount more threads
  - Using the cross-platform **Realm** database
  - Must use Android/iOS built-in face detectors to find faces in pictures
  - When displaying pictures, but correct-sized box around any face
- Due in 3 weeks – Thursday Nov 3rd at 6pm.

Video Demo of P4

Can be found here:

https://drive.google.com/file/d/0B4IUVtTor8XHaHVqRXpkazdVSzA/view?usp=sharing

Assignment S4: Creativity, Sensors and You

- Key outcome of this course is to have Specialists always thinking of ways to use this new Canvas that is a mobile device **and** to evaluate their ideas

- Goal of this assignment is to have you come up with creative apps in your field that make use of the sensors available today, and some from the future
  - And to do a first-level of critical evaluation of the idea

Recall, Mobile devices are:

- Powerful computers, capable of:
  - Optimization
  - Signal Processing
  - Data searching and sorting
- Networked well to the Internet
- Capable of several kinds of ‘output’
  - Screen
  - Sound
  - Vibration
  - Light

Be Creative!

- Part 1
  - Reprise & augment the description of your field, like that in S1
- Part 2
  - Given these sensors:
    1. Accelerometer
    2. Gyroscope
    3. Barometer
    4. Camera
    5. Light Sensor
    6. Proximity Detector
    7. Humidity Sensor

S4, Part 2, continued

1. **Invent** a Novel app that makes use of these sensors, **in your field**
   - Novel = no direct hit as an app from a Google search to detect if there is a mobile app that already does this.
2. **Evaluate** your idea, by imagining the use of the app and thinking through its strengths & weaknesses
   - use the evaluation criteria from your field
   - can only be subjective at this point
   - Also give some sense of the amount of the processing you're asking for – with some help from partners
   - e.g. Imagine/video processing is hard because it has to look at many things (many pixels/frame, many frames/sec)

S4 Part 3

Consider the future, many more cool sensors invented:

1. 3D Sensing e.g. XYZ sensor – see video.
2. An ultrasound sensor that can image inside a body.
3. A mind activity sensor, that tells you how active the brain is from 0 (meaning deep sleep) to 10 (wide awake and running for your life)
4. A Blood Pressure Sensor
5. An eye tracker, that tells you, every tenth of a second, where on a screen a user is looking at the screen.

- Invent a nother Novel app in your field & analyze
- Due in 3 weeks – Thursday, Nov 3rd at 6pm

Assignments

- S3 and P3 were due yesterday
- S4 and P4 are due November 3

Project Time Line

Project Stages 16f

1. Forming Groups
2. Project Approval-in-Principle
3. Project Proposal/Plan
   - Written one done
4. Proposal & Plan Presentations
   - Continuing Today
5. Lecture on User Experience & Presentations October 28
6. Spiral 2 & Spiral 4 Presentations
   - 2: November 4/11 4: November 18/25
   - **Spiral 2 Slides due November 3rd at 6pm**.
7. Final Presentations
   - Weeks of December 2/9
8. Final Report Due December 14th

Soon: Begin Work in Earnest on Projects

- Execute the plans presented this week
- Get the first working version going! (Spiral 1)
- Be ready for Spiral 2 presentation November 4/11.

Spiral 2 Presentations: Nov 4 and 11

Four slides with content due Nov 3rd at 6pm, by email to me, same as proposal slides

1. A quick reminder of the overall goal and function (2 slides)
   - Being sure to provide enough context
2. **Demo** of Spiral 2 – live! Projected! (1 slide)
3. State the Spiral 4 goal (what you'll have working to demo next) (1 slide)

- Time Limit again 6 minutes, 5 minutes for questions

Android Technology Plan

- Projecting Android->Screen has always been a challenge
- iphone->screen works well with cable; possibly Apple TV
- This year, we'd like to try something new:
  - Every Android team will be given 1 Android Nexus 6P
  - You must make your demo work on that device.
  - You must also take good care of that device and return it at the end of the course.

- See TA Dan DiMatteo to obtain one

Project Plan Presentations

Recall Structure

- **6 Minute Time Limit**
  - I will start timer that makes annoying sound when done, and expect you to be finished within 10 seconds after that.
- 5 Minutes for Questions

Proposal/Plan Presentation Contents

The Essence of the Proposal/Plan submitted last week, and perhaps modified since:

1. Goal (What & Why)
2. Give Mock-ups of What User Will See
3. Top-level Block Diagram of Code briefly explained
4. Statement of Risks/Issues
5. **Spiral 1 and 2 targets**
6. Specialist Statement
   - 1 minute, for Specialist to say what their contribution will be

Peer Reviews

- Don’t Forget! You should have received your assignment of a group to Peer Review

1. State the goal of the project in your own words
2. Which parts of the proposal did you understand, and what parts could be more clear? Why?
3. What was the best thing about the proposal?
4. What one thing could be improved the most?

- Due Monday at 6pm
- Upload on Portal

Thursday Presentations

#	Project
1	Correctly
2	Trip Story
3	Ups and Downs
4	HIIT It!
5	Intelliwork
6	Patio

Friday Presentations

#	Project
7	YouVote
8	UofT and Me
9	Cognitive Game
10	Timbre Tuner
12	Habit Buddy
13	Treasure Run