

CS 234//334 Course Project: Innovative Mobile Computing Applications
Chien – Winter Quarter 2016
January 14, 2016

Key Project Deadlines

(Please read this entire document carefully for assignment descriptions)

- I. Project Team (2-3 students)+Platform+Idea, **due Friday, January 22**
- II. Project Ideas “Pitch”, **in-class, Tuesday, February 2 and Thursday February 4**
- III. Project Description, Plan, and Design (idea, usage, functional description, rough SW architecture, tools, schedule, development/test plan, demo), **Tuesday, February 9**
- IV. Project Presentations and Demos, Last week of classes, **March 8 or March 15 (finals week) (tbd)**
- V. Project Poster and Retrospective, **Wednesday, March 16**

Motivation and Focus

Mobile computing is driving a dramatic revolution in both new uses of computing in nearly every facet of our individual lives and across nearly all aspects of society – commerce, social, health, government, entertainment, research, and even higher education. In this class, you will have the opportunity to exercise your creativity and imagination, as well as technical skills in a course project. The challenge is to balance your creativity and insight for where all of this technology is going with what can be realistically achieved with current technology and infrastructure. And, to do all that within a 10-week quarter. Think creatively, plan carefully and cleverly, execute proactively to showcase your ideas!

This year we are focusing on two platforms, as presented in the first lecture. They are: 1) Unity/google cardboard virtual reality and 2) drones enabled by 3D sensing. Using these platforms, your objective is to conceive and invent, breaking new ground. We expect that projects will have varying depth across user experience, interaction design, mobile technology, sensing and inference/recognition, and application creativity. We support a variety of projects, but its critical that your project exercise and stretch your creativity – do something great!

Project Assignments Detail

I. Project Team+Platform+Idea: 2-3 students

- 1-pager, indicating name and emails for members (and a team name!)
- the hardware and if possible the software platform for your project
- the idea – described succinctly in a paragraph (similar to in-class examples)
- if you can’t get it down to just one idea, you can turn in several, but make sure they’re each described specifically

II. Project Ideas “Pitch”+Background, 5-minute in-class presentation,

- Purpose: Crystallize your idea, Articulate why its compelling, Why its possible
- Format: 4 slides (Team, Problem/Opportunity, Idea, Background, Why Possible), 5 minute presentation, class-wide feedback
- Detail

- Using ideas and design methods you've heard about in class, ideas generated from personal experience, published research (see below), or inspired by new technical capabilities, come up with an idea for a project.
- To focus the idea and shape possible realizations, answer critical questions about the project – what is the “big idea”? Why is it compelling? What is the core element of the new application? Why is it possible?
- Spend some time looking at what is “out there”, to be able to make the case for your invention convincingly. What has been done before in this area? What is novel about your project?
- These elements are the classical elements of explaining and communicating an idea in a technical setting

III. Project Description, Plan, and Design (idea, usage, functional description, rough SW architecture, tools, schedule, development/test plan, demo) , Friday, February 3

- Purpose: Nail down feasibility, Identify Key Challenges/Risks, Plan their Early Resolution, Plan time for Build/Eval/Rebuild
- Format: 1 page team & contact info, 2 pages motivation and 3 pages background/prior work, 3-5 pages detailed description of capabilities, software/system design, 1 page planned demonstration, 1 page supporting tools, plan, schedule, 1 page – anything else relevant
- Detail
 - Take your idea to the next level of specificity, make the design tangible, develop a clear design (path) to realization, apply rigorous assessment to the effort and challenges for each part.
 - What has been done in this area before? How will your work be different (a twist, different sensors, novel domain, etc.)
 - Question to consider include: Are there different ways to realize it? Is there a progression of levels of realization? (basic to elaborate) What are the critical technical factors to enable its success? Usability?
 - A second set of questions focus on the simplest realization and demonstration of the idea. What is a compelling demonstration of the idea? What are essential capabilities and technologies? In the class, what is your planned demonstration? Does it have all the essential qualities? Are there elements that can be emulated/faked/mockup if necessary for demo? (We'd only do this for things not KEY to demonstrate)
 - Put together a project plan – both to explore and test the implementation approach and key assumptions. A key strategy is to eliminate all of the technical risk and usage risk as soon as possible. The plan should include opportunities for checkpoint demos (integration of partial functionality) and design feedback (late stage, we'll try to setup project feedback meetings). The plan should also include a clear demonstration scenario; described specifically enough to connect directly with the planned software development and capabilities. Lay out the tools, plan and schedule, and anything else you think is important to communicate.

IV. Project Presentations and Demo

- Purpose: Showcase your project and demonstrate both that it works, but the mobile experience and interaction it enables. Demonstrations are a critical element of mobile experience, interactions, etc.
- Format: 10 minute pitch and demonstration, revised “pitch” slides, to include how it works, and the “demo” scenario – and what they should see work
- Detail: scheduled by signup

V. Project Poster and Retrospective

- Purpose: Create a compelling visual representation of your ideas/demo/application and reflect on/learn from your project experience
- Format:
 - o **Final Project Poster:** (1 large page) Using the Project demo presentation and a few key figures from your Final report, make a eye-catching, compelling poster (in format - 30” x 36”) which captures both the idea, your accomplishment, and what you learned. We’ll distribute a template for this, but you can elect a different format, provided you attribute your team and that the project is for this course! The posters should be submitted electronically in Powerpoint and PDF format. The strongest posters will be displayed in various department venues – web, in Ryerson, in other publicity.
 - o **Project Retrospective:** (2-3 pages) With the wisdom of hindsight, reflect on the conception, plan, and execution of your project. What did you learn about applying creativity and imagination in a technology project? What did you learn about android, sensing, mobile system technologies? Planning and executing a complex project? Working in teams? What would you do differently next time?