[CoE203] Design Project for IT Convergence Fall 2016
"IT + Health Innovation"

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Course Overview
This project course aims at providing hands-on experiences of IT convergence system design and cultivating students' capabilities of critical/creative thinking and technical communications. The instructors will review prerequisite courses and then provide a brief summary of design project areas. Under the guidance of instructors, a team of students with diverse majors will choose convergence topics and cooperatively design innovative IT convergence systems. In this year, we focus on how we can use IT technologies to design innovation health care services. Teams will learn about various IT technologies related to enabling recent health care innovations (e.g., health/bio sensors and healthcare services).

Textbook:
- Rapid Contextual Design, Karen Holtzblatt, Morgan Kaufmann
- Running Lean: Iterate from Plan A to a Plan That Works (2E), Ash Maurya, O'Reilly

Grading Policy
- Teamwork/Participation: 10%
- Quiz: 20%
- Final Report: 20%
- Final Prototype: 30%
- Final Presentation: 20%

Convergence Project Areas:
- Automobiles: autonomous vehicles, context-aware intelligent vehicles, in-vehicle entrainment systems, vehicular networking
- Health/medical Systems: personal health monitoring, medical information systems, mobile health applications
- Culture/Arts: digital media arts, computer-based music technology, aesthetics in the digital age
- Education: social learning, collective intelligence based learning, online learning, content management systems
- Energy/Environment/Sustainability: smart grids, renewable energy, green IT, energy conservation, sustainable IT convergence system design
- Mechanical/Marine/Aviation Systems: Human centric robots/machines, autonomous mechanical systems, real-time navigation support, autonomous aviation, inter-ship communications, intelligent airport systems,
- Building/Construction/Transportations: smart building, smart city, intelligent transportation systems, taxi dispatching systems, urban planning

Project Teams:
- Size of a team is normally 3 (in exceptional cases, we permit 2 or 4 student teams)

- Highly encouraging students with different majors to form a team
- Team formation will happen at the end of the third week (based on their general interests in topic areas)

Schedule:

Period	Contents	Period	Contents
1week	Introduction Tech Trends	9week	Concept selection/refinement/improvement
2week	Rapid contextual design How to pitch?	10week	Prototyping guideline and related tool tutorials
3week	Rapid contextual design Presentation Skills	11week	Team based prototyping activity
4week	Design concept generation and discussion (+ Arduino)	12week	Prototyping progress presentation and group discussion
5week	Design concept review and discussion	13week	Preliminary prototype evaluation; and usability/user experience tests
6week	Design concept refinement/improvement	14week	Final prototype check-up; final design fair and report preparation guideline tutorial
7week	Design concept review and discussion	15week	Final design fair
8week	Mid-term exam	16week	Final exam

Final Project Report:
- Each team should submit a final report about their systems design.
- The final report will be in the form of a regular technical report
- Students should also submit a demo video

Design Project Lab:
- Starting from week 4, we'll have design project labs instead of regular classes.
- During the concept design phase, the design labs will be primarily used for helping teams to find concepts and develop their ideas
- During the prototyping phase, the design labs will be primary used for progress checking, technical support, and in-depth discussion on system prototyping.

Course Management Software
- We will basically use KLMS for course material distribution and video lecturing (some part of the lectures will be given via online videos)
- Course announcements and materials will be posted to KLMS
- Piazza online platform will be used for group discussion