

# Types of Projects and Approaches

ITS400/CSS400 Project Development (Semester 1)

<http://ict.siit.tu.ac.th/moodle/>

# Systems Development

- Senior project normally involves students developing a **system**
  - Web site or application
  - Mobile application
  - Standalone or networked application
  - Hardware + software system
  - Network + applications
- Other types of projects:
  - Experimental analysis
  - Research study

# Two Approaches

- **Develop a “new” system**
  - Advantage: Valuable output
  - Disadvantage: Hard to convince others it is new
- **Replicate an existing system**
  - E.g. write a word processor from scratch
  - Advantage: Valuable learning process
  - Disadvantage: Not very “exciting”

# General Recommendations

- Your group: 2 people, 2 semesters. Existing systems: multiple man-years of effort
  - Don't try to implement every feature
  - Focus on novel/new features
  - Your project produces a **prototype**
- Wide search for existing systems
  - Identify their good features and missing features
  - How does your system differ from existing systems?

# Web Sites

- Develop a web site/application that does X
- Recommend:
  - Re-use existing components and libraries, e.g. Drupal, Wordpress, Joomla, Django, ...
  - Focus on **novel** approaches for: interaction, presenting data
  - Consider security of website
  - Populate website with example, representative info

# Mobile and Standalone Apps

- Develop a (mobile) app that does X
- Recommend:
  - Select an appropriate platform and development environment
    - BAD: “We chose Java on Windows because that is what we studied”
  - Focus on **novel** features of the app: use of sensors and external data, interaction with other users, user interface, ...

# Hardware and Network Systems

- Build/use a network or piece of hardware
- Recommend:
  - Create a simple application that demonstrates the novel features of the network/hardware
  - Order equipment early; select equipment that will be easy to develop with
    - Doesn't have to be the 'real' equipment you would use if you had a large budget/time

# Features that are NOT novel

- *“Existing systems work on [Windows, iOS, ...]; our system works on [Linux, Android, ...]”*
- *“Existing systems are implemented in language X; our system is implemented in language Y”*
- *“Existing systems cost money; Our system is free”*
- *“Existing systems are in English; our system is in Thai”*



# Provide Evidence of Novelty

- *“Our system performs better”*
  - Results from experiments that compare performance
- *“Our system is easier to use”*
  - Experiments/surveys of users
- *“Our system has a feature others don't have”*
  - Detailed list/review of other systems
- *“Our system is portable across different hardware/OS”*
  - Test it on different hardware/OS

# Convince others that your system ...

- Works as expected
- Contains novel features
- Is complex
- Was well designed, implemented and tested