CSE 521S Project Guidelines

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Steps

1. Come up with your favorite topic
2. Form a team
3. Proposal: propose a design and plan
4. Analyze and Implement your solution
5. Evaluate your solution
6. Demo 1, 2 and Final Demo
7. Write a technical report
Project Topics

- Theme: IoT cloud and analytics

- Build and demo an IoT application
  - Devices: Raspberry Pi, smart watches…
  - Amazon cloud: IoT, notification, Alexa…
Get Started Early

- Think about topics and ideas
- Talk to Ruixuan and me
- Put together a team

- A lot of work (and fun) throughout the semester!
Teaming

- How many of you have full teams?
- Who need to find teammates?
- Email Ruixuan your team members by 9/5
  - One email per team
Proposal

- One proposal/team, one page
  - Team members
  - Concise description of project
  - Responsibilities of each member
  - Equipment needed

- Written proposal due: 9/12, 11:59pm
  - Email to Ruixuan
Proposal Presentation

- In class on 9/12

- 10 min per group
  - Including 2 min for questions and discussions
  - 6 slides

- Your **elevator pitch**!

- Email Ruixuan your slides in advance
  - All use computer in classroom → reduce context switches
Demo I

- In class on 10/17.
- 10 min per team.
- Must show something **real**.
Demo II

- In class on 11/21.
- 10 min per team.
- Almost there! Substantial progress → final demo.
Final Demo

- In class on 12/5
- 10 min per team
- Set up and test your demo in advance
- All expected to attend the entire session
  - There will be snacks and drinks
- Return equipment to TA by 12/12
- It’ll be fun! 😊
Final Report

- Submit report/materials to Ruixuan by **11:59pm, 12/12**.

- **Report**
  - Style follows conference papers in the reading list
  - 6 pages, double column, 10 pts fonts
  - Use templates on the class web page

- **Materials**
  - Web page
  - Slides of your final presentation
  - Source code
  - Documents: README, INSTALL, HOW-to-RUN
  - Video on Youtube (if any)
Suggested Report Outline

- Abstract
- Introduction
- Goals
- Design
  - Hardware
  - Software
- Implementation
- Experiments
- Related Works
- Lessons Learned
- Conclusion and Future Works
Peer Review

- For fairness in projects.
- Email me on 12/12
  - Percentage of contributions of each team member.
  - Brief justification.
Spice Bot: Spice-Blend Automation

- 3D-Printed Prototype
- Voice-Control-Interface
  - Amazon Echo
- Actuator Control
  - Raspberry Pi
- Control Command Interpretation
  - AWS IoT

BY ALEX HERRIOTT, QUOC NGUYEN, RAYMOND JONES
Car Informatics in the Cloud

- Pull real-time OBD data from a car
- Upload to the Cloud and display stats at real-time

BY Ethan Vaughan, Frank Sun, and Adith J. Boloor
Smart Lock

- Remote doorway system
  - Live video
  - Arrival (motion) detection
- Web application
  - Node.JS server on an EC2 instance
  - Live video via ssh tunnel
  - Engage/disengage lock

BY Charles Ahrens Feldman, David Ayeke, and Steven Bosch