CSE 521S Project Guidelines

Chenyang Lu
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 Corey and me
- Put together a team

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

- Everyone should be in a **three**-member team
  - Need special approval from TA for a different size

- Use **Piazza** to “Search for Teammates”

- Email Corey your team members by **9/22**
  - One email per team

- We will help make sure everyone has a team.
Proposal Presentation

- **In class on 10/1**

- **7 min** per group
  - 6-min talk + 1-min Q&A
  - 4 slides

- Your **elevator pitch**!

- Email Corey your slides before class
Written Proposal

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

- Written proposal due: 10/1, 11:59pm
  - Email to Corey
Demo I

- In class on 11/3.
- 7 min per team.
- Must show something **real**.
- Send Corey a video before class as backup.
Demo II

- In class on 11/24.
- 7 min per team.
- Substantial progress → final demo.
- Send Corey a video before class as backup.
Final Demo

- In class on 12/17.
- 7 min per team.
- Set up and test your demo in advance.
- All expected to attend the entire session. It’ll be fun!
- Send Corey a video before class as backup.
Final Report

Submit to Corey by 1/4/2021, 11:59pm.

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

Materials
- Web page
- Slides of your final presentation
- Source code
- Documents: README, INSTALL, HOW-to-RUN
- Video
Suggested Report Outline

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

- For fairness in team projects.
- Email me on **1/4/2021**
  - 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

Diagram:

- User
- Amazon Echo
- AWS Lambda
- AWS IoT
- Raspberry Pi
- Amazon SNS

By Alex Herriot, 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
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