Project Guidelines

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Project 0: AWS IoT

- Create Your AWS account
- Setup your things with certificates and policy
- Publish and subscribe a topic
  - Update your thing’s Shadow with AWS IoT Test Console
    - See tutorial
  - Use your computer as a “Thing” to update your thing’s Shadow
    - Install AWS IoT SDK, copy the certs, modify the code
    - Publish message to your Shadow Topic from your computer
  - Publish and Subscribe on your computer
    - Publish a message to a topic in one client from your PC
    - Subscribe to the same topic in another client from your PC
    - Hints: the “clientID” cannot be the same for the two client. The two clients can share the same certs. You can use the shadow as the topic.
    - (You should see one terminal sends message, and another terminal receives that message)

- Email your results (inline with some screenshots, you don’t need to write a report) to dairuixuan@wustl.edu by 1/28 (Tuesday)
Start Early and Work Often!

- Choose topics
- Put together a team
- Meet every week to coordinate
- Development and experiments over the semester
Proposal

One proposal/team, two pages
- Team members and responsibilities
- Description of project
- Research plan and milestones
- Responsibilities of each member
- References

Written proposal due: 2/11, 11:59pm
- Email Ruixuan
Proposal Presentation

- In class on 2/11
  - 10 min per group
  - including 3 min for questions
  - Your elevator pitch!

- Email Ruixuan your slides by 11am on 2/11
  - All use classroom computer → reduce context switches
Demo I

- In class on 3/5.
- 10 min per team.
- Email Ruixuan slides by 11am.

- Must show something real.
Demo II

- In class on 3/31.
- 10 min per team.
- Email Ruixuan slides by 11am.

- Gearing up for the final demo.
Final Demo

- In class on 4/23
- 10 min per team
- Test your demo in advance
- All expected to attend the entire session
- It’ll be fun! 😊
Final Report

- Send report and materials to Ruixuan by 11:59pm, 4/30

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

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

Abstract

1. Introduction
2. Goals
3. Design
4. Implementation
5. Experiments
6. Lessons Learned
7. Related Works
8. Conclusion and Future Works
Peer Review

- For fairness in projects.

- Email me on 4/30
  - Percentage of contributions of each team member.
  - Brief justification.
Follow-Me Music
Spice Bot: Spice-Blend Automation

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