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 massage, 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!

Ø Choose topics

Ø Put together a team

Ø Meet every week to coordinate

Ø 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
- Send your slides and video to Ruixuan by 11am
- 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
  - Source code
  - Documents: README, INSTALL, HOW-to-RUN
  - Slides of your final presentation
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

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