Lecture 1
Project Organization

Ken Birman, Theo Gkountouvas, Soham Sankaran
Project - IoT application

- Input
  - Sensor Data
- Data Analysis
  - Machine Learning/Optimization
- Output
  - Visualization of Data
  - Control Actions
  - Recommendations
  - Alarms
Project - IoT Architecture
Project - Technical Challenges

1. Data Collection
   - Integrate data from possibly multiple sources
   - Integrate data from third-party sources (Weather)

2. Data Analysis
   - Utilize ML/Optimization tools to analyze data.

3. Scalability
   - Scale up to million/thousands devices

4. Hardware on Site*
   - Tune devices on site to work accordingly

5. Cost-Effective Solutions
Project Organization

➢ Group Formation and Project Idea (February 20th)
➢ Project Plan (March 6th)
➢ Intermediate Report (March 27th)
➢ Peer Reviews (April 13th)
➢ Final Report (April 24th)
➢ Presentation/Poster/Demo (April 25th-April 26th)
  ➢ Exception might be made, since your presence is required.
Project Grading

- Project accounts for 50% of your total grade.
  - 5% -> All Reports besides Final
  - 5% -> Peer Reviews
  - 10% -> Final Report
  - 10% -> Poster
  - 10% -> Presentation
  - 10% -> Demo
  - +5% -> Presentation in BOOM (April 24th).

- The course grade would be assigned to M.Eng. projects as well. Note that prelim matters as well.
Group Formation & Project Idea

- List of group Members
  - Name, Net ID
- If this is an M.Eng. project mention who is taking the M.Eng. credits.
- Two paragraphs about the project idea.
  - What are you trying to achieve?
  - Why is it useful?
  - Briefly mention how you are going to do it (input data, analysis, etc.) in one paragraph.
Intermediate & Final Report

Should consist of the following sections:

1. Motivation (idea, why it is useful, etc.)
2. Background (what is the current state?)
3. CS-ANSC Innovation-Implementation
4. Evaluation
5. Conclusions
Projects with ANSC

➢ Pros
  ➢ Get bonus +5% for project.
  ➢ Cooperate with inter-disciplinary students.
  ➢ Do something impactful.
  ➢ *Interact with animals.

➢ Cons
  ➢ Have a specific goal. Provide a concrete solution.
  ➢ Interact with ANSC students.
  ➢ Closely monitored by instructors (weekly updates).
Special Projects

- Recommended for:
  - M.Eng. Projects
  - Undergrad students/groups that want to pursue Ph.D. careers
  - Students that want to have impact
- Might differ from typical IoT projects.
Recitation Lectures

- Lecture 2:
  - Lecture about ANSC
- Lecture 3:
  - Project Recommendations
- Lectures 4-14:
  - Project Technologies
  - Project Related Questions/Issues
  - Revisit Course Material
Azure Accounts

- Once you form groups, you will receive some Azure credits for your project.
- We will have examples using Azure technologies in the next lectures.
- Other Cloud vendors might be used. We will not provide funding or assistance for them.