Internet of Things: Project 1

High level sketch

- Get sensor input
  - Get sound sensor input event
  - Get PIR sensor input event
  - Read light sensor input

- Policies
  - Upon PIR event, read light sensor, switch on one of the lights if the luminance is low
    - E.g., if it is day time, the room is anyway luminated, no need to switch the light on
  - Upon sound event:
    - Use Google speech recognition to determine which case the speech is about
      - A. not relevant, B. light 1 on, C. light 2 on, D. all lights on, E. all lights off
      - Students can alter the cases to make it more interesting

Development

- Hardware connection
  - Connect light sensor, PIR sensor, sound sensor to Raspberry Pi to support readings
  - Connect 2 LED bulbs to the relays and connect the relay board to Raspberry Pi

- Program in Node.js
  - Load node.js to Raspberry Pi
  - In node.js, link to each sensor and make sure you can catch the events and get the readings
  - Program in node.js to perform the desired control policies

- Program in Python
  - Program to catch the events and readings and make control decisions

Additional development if desired

- Continuously collect the light data and entry data
  - Best is from multiple rooms

- What analysis can be performed
  - Analyze the weather and lighting correlations
  - Analyze operating hours of the rooms
  - ...