Sensor Stream

Hardware Requirements

- Sensors Mezzanine
- 3 Grove Connectors
- Temperature Sensor → A0
- Light Sensor → A1
- Sound Sensor → A2

Description

- Arduino program reads in temperature, light, and sound data and sends it over serial to the Dragonboard.
- The Dragonboard sends it to the “dbSensors” topic handled by AWS IoT
- On AWS, it is stored on a DynamoDB database.
- We created a HTTP access point using Lambda and API Gateway that allows us to get a stream of data from the “dbSensors” topic.
- Then on the EC2 instance, we run a simple webserver using NodeJS that visualizes the data stream.

Emotion Booth

Hardware Requirements

- Sensors Mezzanine
- Servo -> D3
- USB Webcam

Software Requirements

- AWS CLI - **pip install awscli**
- AWS Python SDK - **pip install boto3**
- IAM User:
    - AWS Rekognition permissions

Description

- Uses AWS Rekognition to see the emotion of a person
- We actuate a servo to react to whatever emotion it sees
  - Left -> Sad
  - Center -> Neutral
  - Right -> Happy

Environment Alert System

Hardware Requirements

- Sensors Mezzanine
- 3 Grove Connectors
- Temperature Sensor → A0
- Light Sensor → A1
- Sound Sensor → A2

Description

- Uses the same fundamental parts of the sensor stream
- This time we use AWS's Simple Notification Service to trigger a text/email under certain conditions
- In our case the conditions are:
  - Light < 100
  - Temperature > 25
  - Sound > 400