MCTX3420 Team 4: Progress Report #2 (Summary)

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Sam:

1. **Investigate server side HTTP interface**
    a. Decided to use custom multithreaded HTTP server instead of CGI scripts
    b. Wrote test implementation of HTTP server in C
2. **Communication with other teams**
    a. Sensors/Electronics/Pneumatics - Raspberry Pi as microcontroller, ADC/DAC requirements

Rowan:

1. **Studied Arduino coding**
    a. Reading of physical analogue sensors
2. **Investigate use of JavaScript for GUI**
    a. Using Code Academy for examples: http://www.codecademy.com/
3. **Communication with other teams**
    a. Mounting/Housing/Case - Physical layout of system, physical variables (eg: Pressure) expected
    b. Electronics - Data input and Camera Quality

Justin:

1. **Arduino coding**
    a. Used online examples for reading of simple analogue sensors
    b. Also tested more complex examples such as mapping & recording multiple accelerometers.
    c. Experiment with Arduino Simulator
2. **Communication between Raspberry Pi and Arduino**
    a. Looked at Python control via USB and IC2/serial examples

Callum:

1. **Investigate the use of OpenCV for Image Processing**
    a. Can use a variety of languages (C/C++ or Python); flexibility for integrating with other programs
    b. Investigate Canny edge detector in OpenCV for simplifying determining how the can is distorted

James:

1. **Investigate jUnit tests for client side GUI**

Work To Do:

1. **Confirm Microcontroller(s) with Sensors/Electronics/Pneumatics Team**
    a. What sensors are required?
    b. What actuators are required?
    c. Are we using a single Raspberry Pi, or a second Microcontroller (Arduino?) as well?
2. **GUI: Develop basic design and consider what controls are needed**
3. **Be able to get simple image from USB webcam displayed in web browser**
4. **Develop framework for multithreaded server side software**
5. **Look into safety mechanisms in hardware and software**
6. **Continue investigating communication between Rpi and Arduino**
    a. Subject to us actually using an Arduino