# **Sensor Platform**

# PSU Capstone Project

# WPR

Last Week: 2/27 – 3/6

Next Week: 3/7 – 3/13

# Colten Nye

## Last week:

* Met with Andrew Greenberg to discuss schematic and get general advice on the project
  + Most notably, he strongly advised to use serial communication to configure the device instead of attaching to it as a USB device. Attaching as Mass Storage Device would allow data retrieval without removing the SD card, but can be implemented later.
* With this direction, re-evaluated using a Chrome App as the platform for GUI and Hardware data exchange (e.g. vs. Python), and decided it was still a good option.
* Installed Chrome Dev Editor for building Chrome Apps.
* Installed Chrome Apps & Extensions Developer Tool (Chrome Extension).
* Completed Chrome App development introductory tutorial.
* Verified Chrome App serial communication via an existing App and a serial device I had available.
* Learned HTML (42 chapters on w3schools.com)
* Started to create the UI form.
  + Currently features a button, a form, text input box, and a pair of radio buttons.
* Began to learn JavaScript (23 / 42 chapters on w3schools.com)

## Next week:

* Complete JavaScript tutorial.
* Complete GUI layout
* Get our App talking to a serial device.

## Issues:

* None

# Golriz Sedaghat

## Last week:

* Created the schematic for sensor board
* Worked on the PCB layout in free version of EAGLE CAD which only supports 2-layer PCB; and therefore, I ran into issues which stopped me from proceeding and completing the layout
* After meeting with Andrew, I revised the circuit based on the given feedback
* Purchased the EAGLE Hobbyist version of EAGLE right after meeting with Andrew
* Finally, Thursday, I received the license number of the EAGLE

## Next week:

* Learning about 4-layer PCB design in EAGLE
* Creating 4-layer PCB layout for the main board
* Creating PCB layout of the sensor boards, probably in two layers
* Possibly, meet or email the final version of the design and PCB layout to Andrew for the final approval
* Send the layouts to fab

## Issues:

* Learning 4-layer PCB design with EAGLE
* Completing our documentation

# Steve Peirce

## Last week:

* Met with Golriz to finalize schematic/board layout changes for meeting with Professor Greenberg and for team meeting with Dr. Zurk.
* Met with Dr. Zurk and team to review progress, (documentation is still an issue).
* Consulted sponsors for further detail on VOC sensor, KEIL license, requirements clarification.
* Successfully implemented ADC sensor read on hardware.
* Successfully implemented I2C sensor read on hardware.
* Successfully implemented RTC alarm code on hardware to trigger sensor readings on a schedule.
* Demonstrated hardware with working ADC, I2C and LED output
* Began Accelerometer library and initialization code
* Reviewed options for USB comm. for GUI programming.
* Met with professor Greenberg for feedback on schematic, board layout, GUI programming impementation ideas and communication protocols.
* Began SDIO and USB implementations for hardware.
* Completed and returned Team Evaluation form #1.

## Next week:

* Meet with team and Dr. Zurk (Tuesday) to review progress, clarify responsibilities and receive feedback on overall project.
* Complete Accelerometer library/implementation code.
* Integrate SDIO and USB code to existing project.
* Begin optimizations for power and efficiency, (clocking, peripheral shutdown, DMA, etc).
* Send board off to OSHPark
* Distribute debugging/testing regime for hardware.
* Complete testing plan for system integration.
* Work with team to develop hardware testing plan for fabricated board.
* Order parts to “stuff” board.

## Issues:

* SDIO not implemented on hardware.
* USB communication not defined for hardware/software integration via GUI.
* GUI not implemented.
* Team communication.
* Equal workload distribution.
* Sharing of responsibilities.
* Willingness to research and contribute from one teammate.