### PIL Electronics Testing

* Arduino Mega 2650 – Microcontroller that interfaces with all sensors and the radio. The Arduino will collect the data from the sensors, create a JSON string from the data, and send the JSON string over serial to the radio. Binary data will be intermittently sent to the radio which corresponds to parts of a jpeg image when a photo is taken.
* XTEND-900 – Radio transceiver that receives and transmits an asynchronous serial stream.
* SparkFun Venus GPS – GPS Module that outputs GPS Coordinates over a serial connection.
* RHT03 – Temperature and Humidity Sensor. Two of these will be used because the response time is 2 seconds for this component. We will alternate the data collection between these two components, to get a one second response time of temperature and humidity. Data is sent over a single wire interface.
* BMP180 – Barometer sensor. Sends barometric pressure over an I2C connection. The barometric pressure can be used to report altitude as well.
* ML8511 – Ultraviolet light sensor. This sensor continuously streams a voltage between 0V and 3.3V that represents the amount of UV light.
* Apogee Instruments SP-215 – Pyranometer. The pyranometer continuously streams a voltage between 0V and 5V that represents solar irradiance.
* RB-Dfr-485 – CO2 Sensor. The CO2 sensor continusly streams a voltage between 0V and 5V that represents amount of CO2 in the air.
* ADXL345 – Accelerometer sensor. Sends acceleration data over an I2C connection.
* LS-Y201-2MP – JPEG Color camera that outputs JPEG data over a serial connection.
* SparkFun microSD Transflash – microSD Breakout board to write data to microSD. Backup data storage in case of radio failure.