Experiment instructions

Stage 1: compressor curve – rough test of the outlet flow rate against the compressor pressure for a range of 1 Bar to 3 Bars in steps of 0.5 Bar gauge. This will be used for comparison against the compressors used for calculations.

Compressor Pressure (Bar)	Flowrate
1	X
1.5	X
2	X
2.5	X
3	X

Stage 2: Temperature and pressure testing with GY-68 BMP180 – measure the temperature and pressure variation within the robot for varying compressor pressures.

Install python if not already installed – install python by installing the pip package manager https://www.liquidweb.com/kb/install-pip-windows/

Modules – pyserial from https://pypi.org/project/pyserial/, numpy from https://numpy.org/install/, matplotlib https://pypi.org/project/matplotlib/, schedule from https://pypi.org/project/schedule/

1. Attach the barometric pressure sensor within the robot
2. Run the BMP180withESP8266.ino file
3. Run theBMP180Data.py script
   Python communicationpiarduino.py –port "COM4" –baudrate 115200 –outFile "2barResults.csv"
   - --port is the port for serial communication
   - --baudrate is the baudrate that the esp8266 is transferring data at
   - --outputFileName is the output filename, this is a csv file
4. End the test once the temperature curve has reached a steady equilibrium. This can be viewed by running the liveDataPlotter.py script
   Python liveDataPlotter.py –dataFile "2barResults.csv"
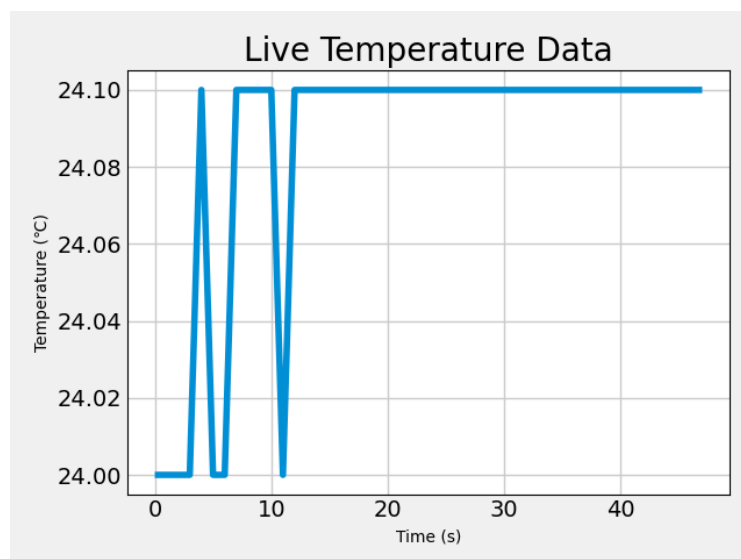
5. Repeat the experiment for the same intervals measured during stage 1