LIQUID PROPULSION

WEEK 10 REPORT

Tasks assigned for week 10

- **#137 ->** Calibration of :
  - Pressure sensor
  - Temperature Sensor
- **#138 ->** Addition of rails into test stand
- **#139 ->** Remote operation

Calibration of Temperature Sensor

▶ Test device : Infrared Temperature Sensor

Used standard temperature(Measured temperature):
• Water at room temperature(23.2 degrees celcius)
• Boiling water at 100 degrees celcius.
• Repeated the same for different temperatures -> 55, 60, 90 …..

Readings during calibration

Reading at 23.2 degree celcius

Reading at 60 degree celcius

Calibration of Pressure Sensor

To calibrate we used the following parameters:

▶ Voltage range that the sensor can output(From the datasheet) = (0.5 – 4.5)V

▶ Microcontroller maps these within a range of 4096 values.

▶ Minimum Pressure (Pmin) gets mapped onto -> (0.5 * 4096)/ 5 = 409.6

▶ Max Pressure (Pmax) gets mapped onto -> (4.5 * 4096)/5 = 3686.4

▶ Pressure range(Prange) the pressure sensor can read is 1.2MPa

Actual Pressure Read = * **Prange**

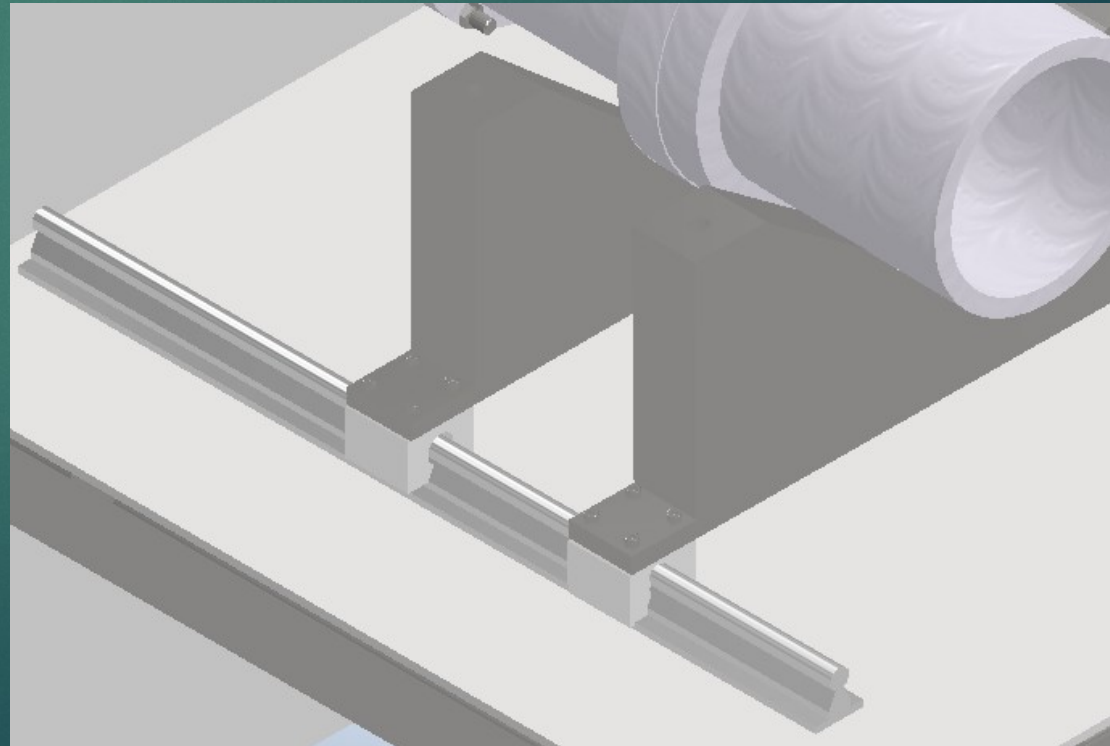# Pressure read from pressure dial **vs** Pressure Sensor Reading
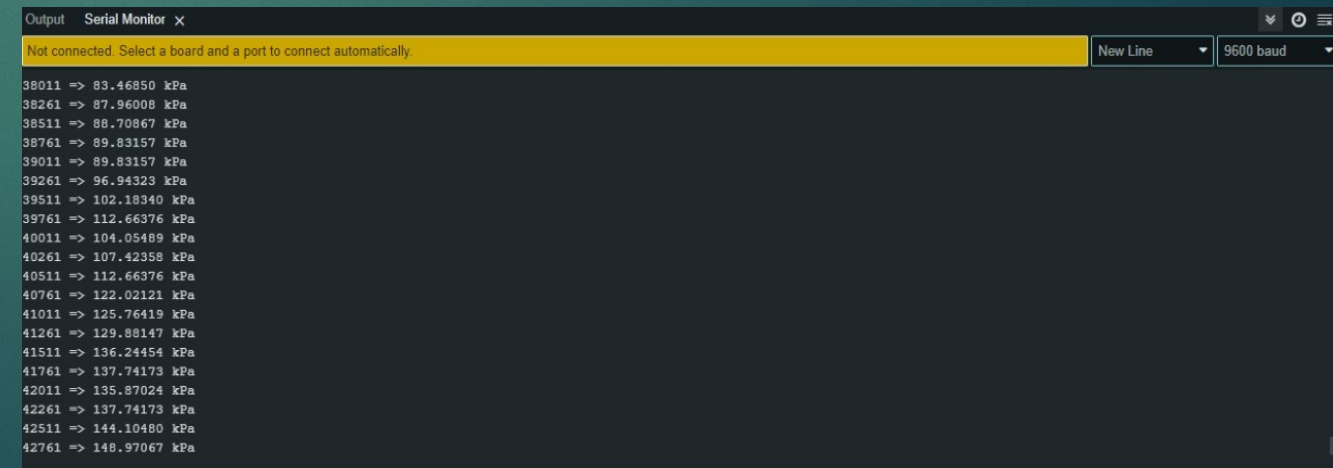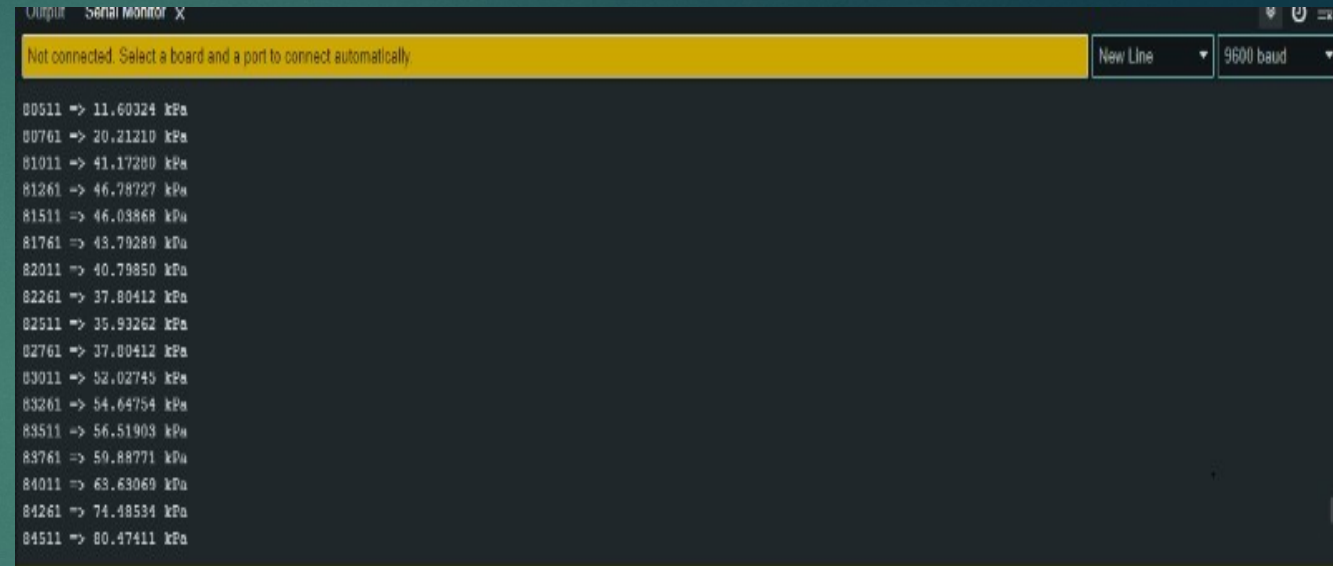
Addition of rails into test stand
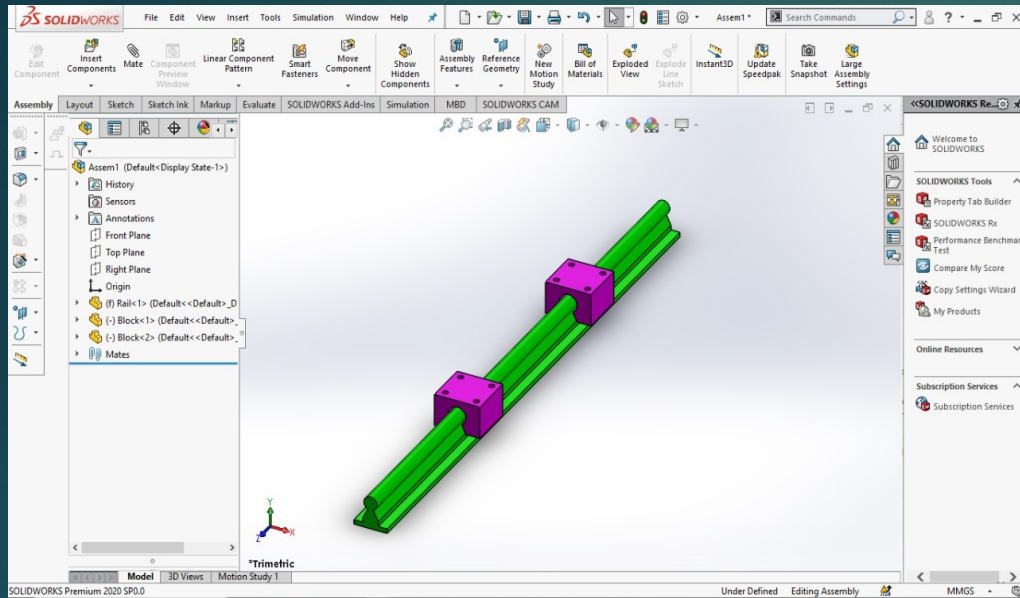
We chose a linear rail of specifiactions:
1kN to support a load of **2kN of thrust**

This linear load rating is for the static load . And can handle the dynamic load of 2kn.

Next Weeks Tasks

▶ 1. Development of the Remote operation Feature.

▶ 2. Going through the PID diagram to integrate the available sensors to our circuitry.

▶ 3. Overall integration of Safety features to our circuitry.

THANK YOU