Objective:
Design and fabricate a modular machine data acquisition system to detect potential failures in Station 190 on the C1-PTU assembly line.

Specifications
Measurements
• Humidity
• Ambient temperature
• Vibration
Analysis
• Graphical plots of live measured data to spot unusual activity
Data Access
• Wi-Fi or Bluetooth access to microcomputer
Mounting
• Modular system with easy install
Sensors
• Quick and easy installation
• Minimal interference to system if a sensor fails
• As close as possible to point of action
Unit
• Able to run on electrical power or battery power
• Quick and easy to replace any failed parts
• Designed to withstand industrial environment

Implementation
• Connect Modem to Microcomputer to communicate to all sensors
• Node-red process the data, displaying it visually and storing it in CSV files for later analysis
• Monitor data for abnormalities and set thresholds for temperature, humidity, and vibration
• Predict failures in both the station 190 and the product it is manufacturing

Placement of Sensors
Vibration Sensor
Temperature Sensor

User Interface Tabs
Current
• Shows data from the last 30 minutes as well as battery voltage
History
• Shows historic data for the last 24 hours
Files
• Shows all the files for each sensor for each day
• Data can be graphed or downloaded if needed

Microcomputer: Provided by GKN

Data Analysis
• After reviewing the provided data there were no distinct outliers to indicate any fault in the sensors’ readings or a failure in Station 190