



# Device Maintenance Hub

SCHULICH  
School of Engineering



Team SoapGoats - 500-TS-3:  
Duncan Grace (30057117)  
Zane Regel (30065090)  
Elgiz Abbasov (30062467)  
Manjot Singh (30086587)  
Jaron Baldazo (30093870)

Academic Advisor:  
Mostafa Mohamed

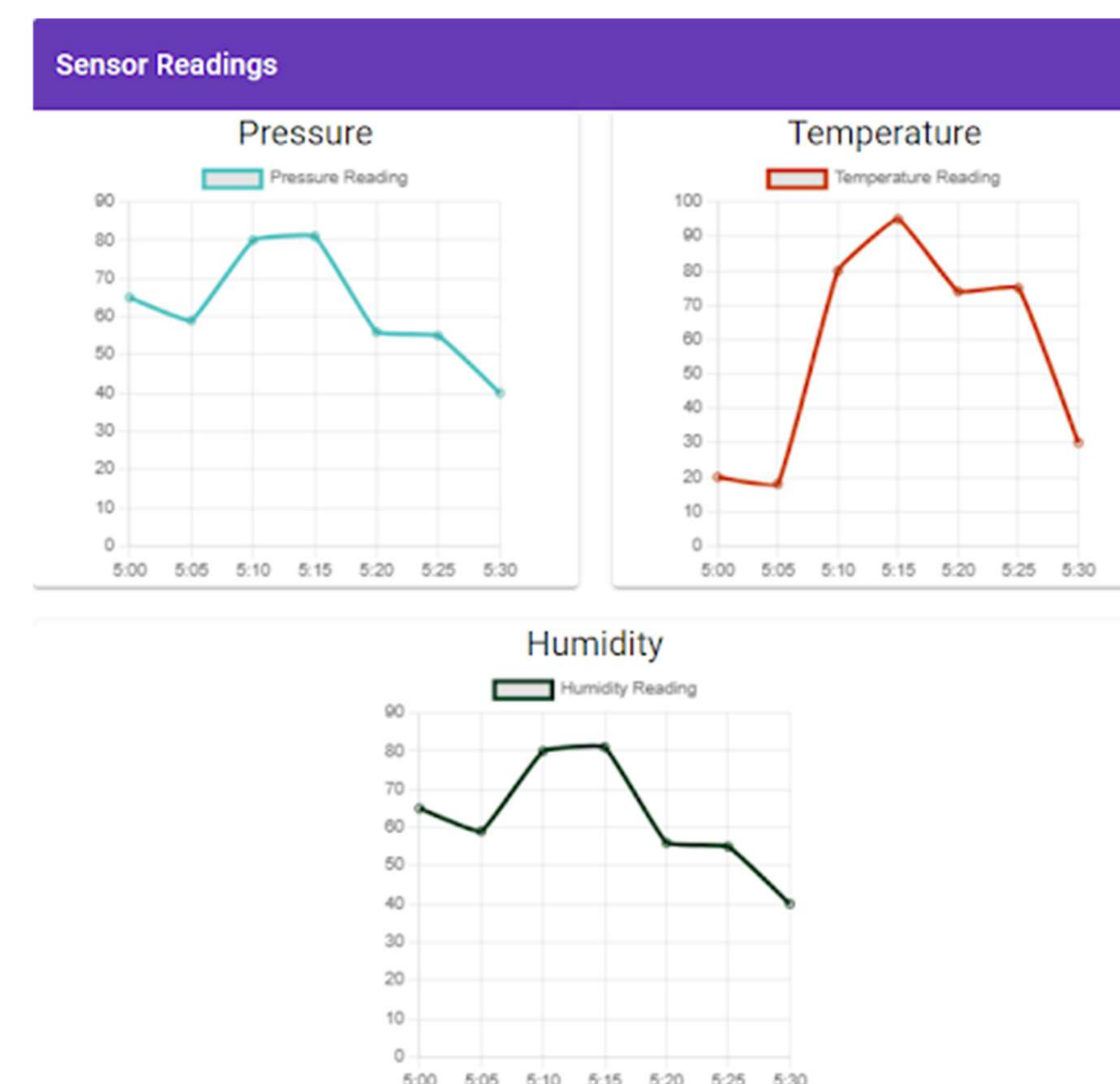
Teaching Assitant:  
Tariq Al Shoura

## Motivation:

Currently CarbinX have carbon capture devices with sensors but have no way to display them visually. The sensors play a huge roll in determining whether the internal reactions of the carbon capture device are working as expected and being unalbe to see sensor output easily is hindering the technicians ability to understand what is happening to the device. Another component of this is the bi-weekly checklist that the technicians need to fill out and send to CarbinX. These checklists are used to ensure that the technicians are doing their job and are a way for CarbinX to know how much product is made from the chemical reaction.

## Problem:

The CarbinX device requires a technician on each site to install the device and perform bi-weekly checkups on the device to ensure functionality. Prior to our project, the technician would fill out a paper form checking the status of the device as well as take pictures of the device chamber and weight of the output product. There was no interactive way to see what was going on in the device with the temperature, pressure and humidity sensors, and it was taking a lot of time for CarbinX employees to receive pictures of the checkup form and other data every week as well as process it for all their clients globally.



## Dashboard Graphs

**Setup Wizard**

1 Setup Site — 2 Setup Device — 3 Setup Sensors — 4 Completion

Site Name \_\_\_\_\_

Organization \_\_\_\_\_

Address \_\_\_\_\_

Country \_\_\_\_\_

Province \_\_\_\_\_

City \_\_\_\_\_

Postal Code \_\_\_\_\_

**CONTINUE**

## Setup Wizard

**Technician Form**

Technician Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

Date \_\_\_\_\_

Date KOH Added \_\_\_\_\_

Batch Number \_\_\_\_\_

Number Of 25kg Bags \_\_\_\_\_

pH \_\_\_\_\_

☐ Shut off power to unit

☐ Check pH of pearl ash record results

☐ Vacuum out all pearl ash from chamber

## Technician Checklist Form

## Solution:

As a proposed solution, we opted to help digitize parts of the job of a CarbinX technician to make their tasks more efficient. The first part of a solution was a digitized version of a technicians bi-weekly checkup form where various data and photos are collected as well as certain checks regarding the device and sensors. This data is sent directly into CarbinX's database, saving the company valuable time when compared to manually processing photos and paper forms emailed in. The second portion is a dashboard where at a glance, a technician can see the brief health status and history of the temperature, humidity and pressure sensors since their last checkup to know if anything is unusual. Lastly, there is a setup wizard to help with the first time installation of a new client's CarbinX device. This saves CarbinX staff a lot of time in not having to communicate back and forth with technicians about how to set up a machine.

## Sensor Health List

Sensor Health	
<div></div>	
<div></div>	Temperature 1 Good
<div></div>	Temperature 2 Needs Review
<div></div>	Pressure 1 Good
<div></div>	Humidity 1 Disabled