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# SYSTEM ARCHTECTURE

Project : Lab Data System

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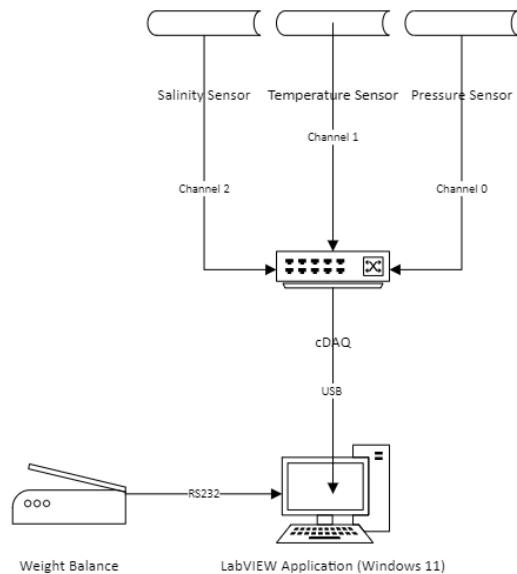
## 1. Introduction:

This document outlines the system architecture of Lab Data System Software. The purpose of this software is to provide real-time monitoring of 3 sensors which are pressure levels, Temperature levels, Salinity Levels, Weight Levels and generate comprehensive reports for analysis and decision-making purposes.

## 2. Equipment and Materials(BOM):

- PC (Windows 11) – Provided from Customer
- 3 Sensors (Pressure – Temperature - Salinity )
- Weight Balance Device with RS 232 Connection
- Computer system with the required specifications
- Converter DC and Electrical Component

## 3. System Architecture:



### 3.1 System Inputs

- 1- Pressure Sensor 4 – 20 mA , (0 – 60 bar)
- 2- Temperature Sensor 4 – 20 mA , (0 – 200 C)
- 3- Salinity Sensor 4 – 20 mA , (0 – 100000 ppm)
- 4- Weight Sensor 0 – 220 g

### 3.2 System Output

- 1- Graph of each sensor
- 2- csv or TDMS File
- 3 – Calibration settings
- 4- Optional statistics of recorded data

### 3.2 System Communication

- 1- CDAQ USB (VISA) 4-20 mA , RSE , Channels (0,1,2)
- 2- RS 232 (boud rate : 9600 , data bits : 8 , parity : None , Stop bits : 1 , flow Control : None ) , No commands Required (Continuous Measurement )

## 3. System Features and Requirements:

- 1 - Monitoring Data from all Sensors (Graphs – Current Last Value)
- 2 - Report File of Graphs (csv - TDMS)
- 3 – Configurable RS 232 Settings
- 4 - Configurable Units, Pressure (Bar - MPa) , Temperature (C) , Salinity ppm , Weight (g - kg)
- 5 – Calibration page for each sensor
- 6 – Statistics of recorded data

### 3. Expected User Experiences

