

SYSTEM ARCHITECTURE

Project : Lab Data System

By : Mohamed.a.jaheen@gmail.com

Table of Content

Contents

| | |
|---|---|
| Table of Content..... | 2 |
| 1. Introduction:..... | 2 |
| 2. Equipment and Materials(BOM):..... | 2 |
| 3. System Architecture:..... | 3 |
| 3.1 System Inputs..... | 3 |
| 3.2 System Output..... | 3 |
| 3.2 System Communication..... | 3 |
| 3. System Features and Requirements:..... | 4 |
| 3. Expected User Experiences..... | 4 |

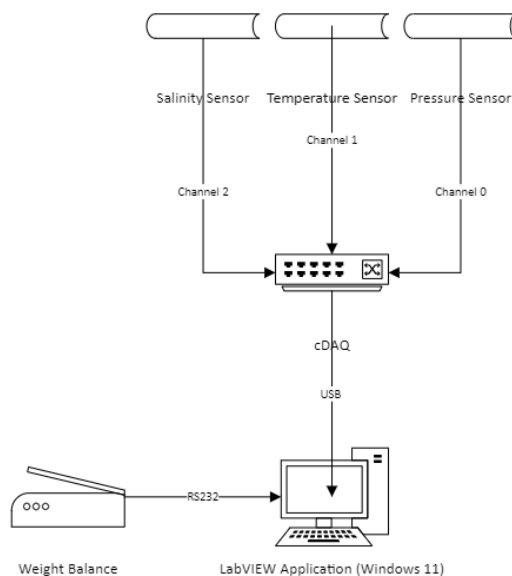
1. Introduction:

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 commends 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

