

ELEX 3120/3321: Electric Circuits 2

LAB 1 – LabVIEW Instrumentation

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# Introduction

This Lab is to introduce the basic features of LabView & myDAQ, including implementing functions, setting myDAQ input & output. The Lab also aims to build a temperature sensing control system using LM335.

# Pre-Lab

## Temperature sensor conversion equation

## Temperature sensor circuit with DAQ connections

## 

Figure 1 - Temperature Sensor Circuit

## Heater circuit with DAQ control connections

A diagram of a circuit

Description automatically generated

Figure 2 - Heater Circuit

# Experiments

## LabView Implementation of Mathematical Equation

A screenshot of a computer

Description automatically generated

Figure 3 – Block Diagram of Implemented Mathematical Equation

A screenshot of a computer

Description automatically generated

Figure 4 - Front Panel of Implemented Mathematical Equation

## LabView Equation Implementation with myDAQ Input

## A computer screen shot of a diagram Description automatically generated

Figure 5 - Block Diagram of Implemented Mathematic Function with myDAQ Input

A screenshot of a computer

Description automatically generated

Figure 6 - – Front Panel of Implemented Mathematic Function with myDAQ Input

## LabView myDAQ Output Control of an LED Light

A screenshot of a computer

Description automatically generated

Figure 7 - Block Diagram of Using myDAQ Output to Toggle an LED Light

A screenshot of a computer

Description automatically generated

Figure 8 - Front Panel of Using myDAQ Output to Toggle an LED Light

## LabView Temperature Sensor Input, Conversion to Celsius and Display

A diagram of a computer

Description automatically generated

Figure 9 - Block Diagram of Temperature Sensor Input, Conversion to Celsius and Display

A screenshot of a computer screen

Description automatically generated

Figure 10 - Front Panel of Temperature Sensor Input in Celsius

## LabView ON/OFF Temperature Control System

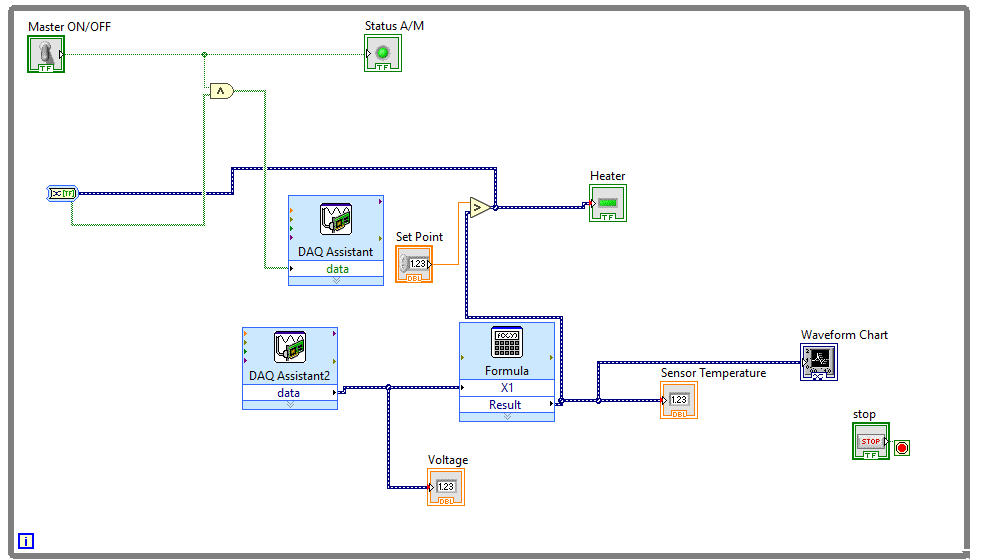


Figure 11 - Block Diagram of ON\OFF Temperature Control System

A screenshot of a computer

Description automatically generated

Figure 12 - Front Panel of ON\OFF Temperature Control System

# Conclusions

In conclusion, this lab provided a hands-on experience with LabVIEW and the myDAQ system for data acquisition and control. Through various tasks, including equation implementation, signal input/output control, and temperature sensor integration, the lab demonstrated how to use LabVIEW to interact with hardware in a real-world application. The successful implementation of a temperature control system, complete with an electric heater and ON/OFF control, highlighted the practical use of instrumentation in electronic circuits.