Exercise 1: Getting Started with MyRIO

Objectives:

- Understand the basics of MyRIO.
- Configure and deploy a simple program.

Tasks:

1. Create a simple VI to blink an LED on the MyRIO (either the onboard LED or an external one).
2. Add a control button to enable/disable the LED.

Exercise 2: Reading and Processing an Analog Input

Objectives:

- Read an analog voltage from the embedded accelerometer.
- Display the data in real-time on a graph.

Tasks:

1. Create a VI to read the analog values of the 3 axis and display them.
2. Apply a filter (e.g., low-pass filter) to smooth the signal.

Exercise 3: Digital bubble level

Objectives:

- Design a real time application.

Tasks:

1. Compute tilt measurement using the embedded accelerometer
2. Use the 4 LED to mimic the bubble of the bubble level.
    1. Measure more than 3° LED 3 ON
    2. Measure between 2 and 3° LED 2 and 3 ON
    3. Measure between 1 and 2° LED 2 ON
    4. Measure between +/-1° LED 1 and 2 ON
    5. Measure between -2° and -1 LED 1 ON
    6. Measure between -3 and -2 LED 0 and 1 ON
    7. Measure less than -3 LED 0 ON
3. Use the button to store the current value as the new setpoint (ie bubble centered).

4. Use a file to save the setpoint so as

Exercise 4: Multi-Sensor Acquisition and Data Logging

Objectives:

- Integrate multiple sensors into a system.
- Record data to a file.

Tasks:

1. Connect the LSM303AGR
2. Simultaneously read and display their data from accelerometer and magnetometer
3. Save the data to a CSV file for further analysis.