Department of Electronic & Telecommunications Engineering

University of Moratuwa

EN3250 Internet of Things / EN2560 Internet of Things Design and Competition
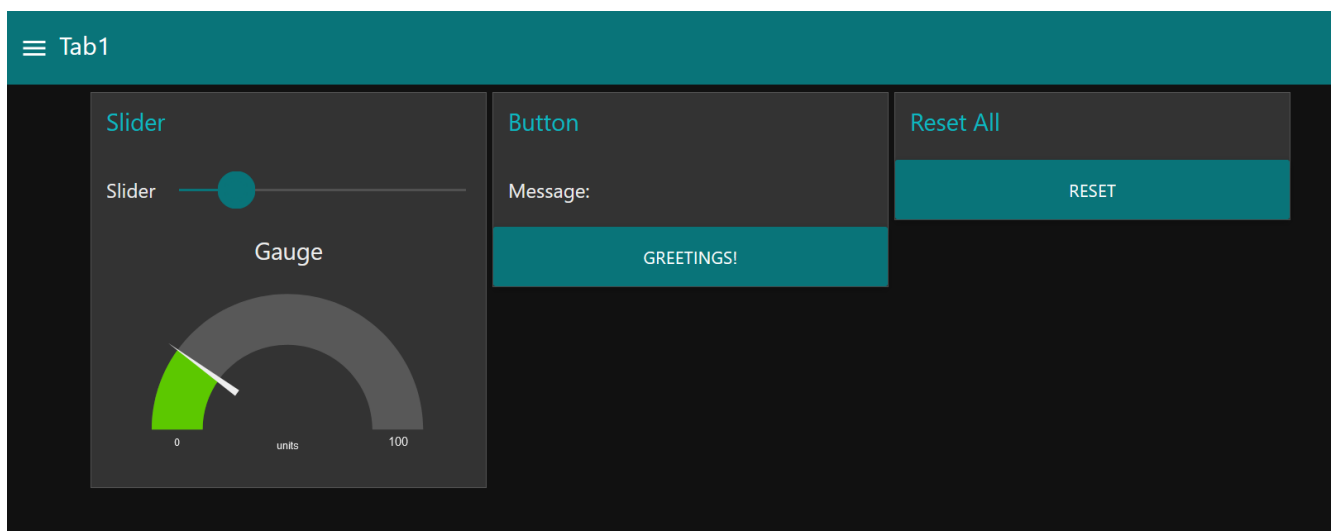
Node-RED Session 2 - Exercises

2019 Batch _____   **Semester 4**

Exercise 1:

Create a dashboard having two tabs as shown below.

Tab 1:
- The *Slider* should produce data between 0 and 100. The *Gauge* should display the values as the *Slider* changes.
- When the **GREETINGS button** is pressed, the *Message* "Hello World!" should be displayed.
- When the **RESET button** is pressed, the *Slider* and the *Gauge* should return to zero and the *Message* should be cleared. An audio-visual indication "Reset button pressed" should be displayed, which can be cleared with an OK/Cancel button.

Tab 2 (Not shown):
- Should display a **chart** showing the slider data generated within the last 5 minutes.
- A *Clear* **button** should clear all data on the chart.

Download the flow files (in JSON format) and save it as **<index_no>_session2_Ex1.json**

Exercise 2:

Take the node-RED flow from exercise 1 and make the following modifications.

Instead of taking the input data for the dashboard from the slider, we will now take the input data from an API.

- Remove the Hello world message button.
- Remove the Slider.
- Add a ***drop-down List*** and add **five different cities** in Sri Lanka (as String values) into the list as options. (Refer the drop-down list node description to see how the selected option is passed to the next node)
- Add an ***OpenWeatherMap API node*** and,
    - Extract the property '*weather*' and display the weather in a text box in the following format:
      Weather : <value in API response>
    - Extract the property '*humidity*' and display the humidity in a text box in the following format:
      Humidity : <value in API response>
    - Extract the property '*tempc*' and display the temperature (in Celsius) in a text box in the following format:
      Temperature : <value in API response> C
    - Show the *instantaneous temperature* (in Celsius) in the Gauge
        - Parameters for the Gauge:
            - Max value: 45
            - Min value: 15

    > **Hint:**
    >
    > - Use a function node to format the input message to the OpenWeatherMap node so that the city and country can be extracted from the input message (Refer the description of the OpenWeatherMap node)
    > - Use function nodes extract necessary data from the API response

    - Use the chart (with a clear button) to show the **last 10** temperature measurements.

- When the RESET button is pressed the Gauge should be set to its minimum value and all the text boxes should be cleared.
- Deploy the flow.
- Change the city in the drop-down list and verify the functionality of the dashboard.

Download the flow files (in JSON format) and save it as **<index_no>_session2_Ex2.json**