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Department of Electrical & Electronic Engineering

EEEE1002 - Supplementary Document:

SUGGESTED MQTT TASKS

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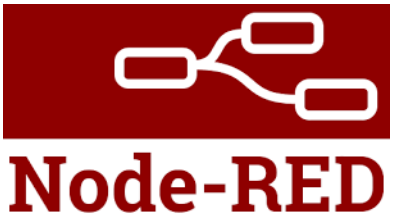

Some example data to display using your ESP32/Raspberry Pi MQTT network

The list is endless, the limit is your imagination and hardware budget!

Here are a few things you could look to implement on your EEEBot/Pi assembly.

These suggestions are in no particular order.

Some will require more thought and effort than others and may prove more valuable.

Data refresh rate should be appropriate to the data being transferred.

Don’t forget to document properly how you achieved success – sources, code modifications etc.

Suggestions:

The live encoder count from each vehicle.

Cumulative distance travelled by vehicles in the network.

NTP date and time display, time including timezone (locality) and GMT/BST correction/validation.

Be able to set the vehicle PID constants in real time using data inserted on the NodeRed webpage sent to the ESP32.

Distance from ultrasonic sensor to nearest object.

ESP32 CPU temperature.

Number of EEEBots connected to the NodeRed Webpage.

Vehicle battery voltage level.

Data from the MPUs - 6-axis angle data, direction of travel - also using the magnetometer for a compass (if applicable).

IR Sensor array raw data and/or live weighted average and/or which sensors are over the black line and/or analog read values, error value.

Local weather forecast summary.