

EEE3095S PRACTICAL6

PART II

MFNLIN003 MBLTAK003 GTTDAN002

IoT Balena

Introduction

The practical required the use of balena client, 2 raspberry pis, Prac4 circuit connection to get temperature and light sensor values . The goal of the practical was to get two raspberry pi Zero transmitting data to and from remotely through the use of a web interface.

Results

Data being transmitted are sensor values the data should be viewed and downloaded locally. By clicking the buttons on the web interface to trigger corresponding action and response of either turn the on the transmission of LDR and Temperature sensor data from client to server or Display status, or exit the transmission process or display log on screen or download log in a csv file.

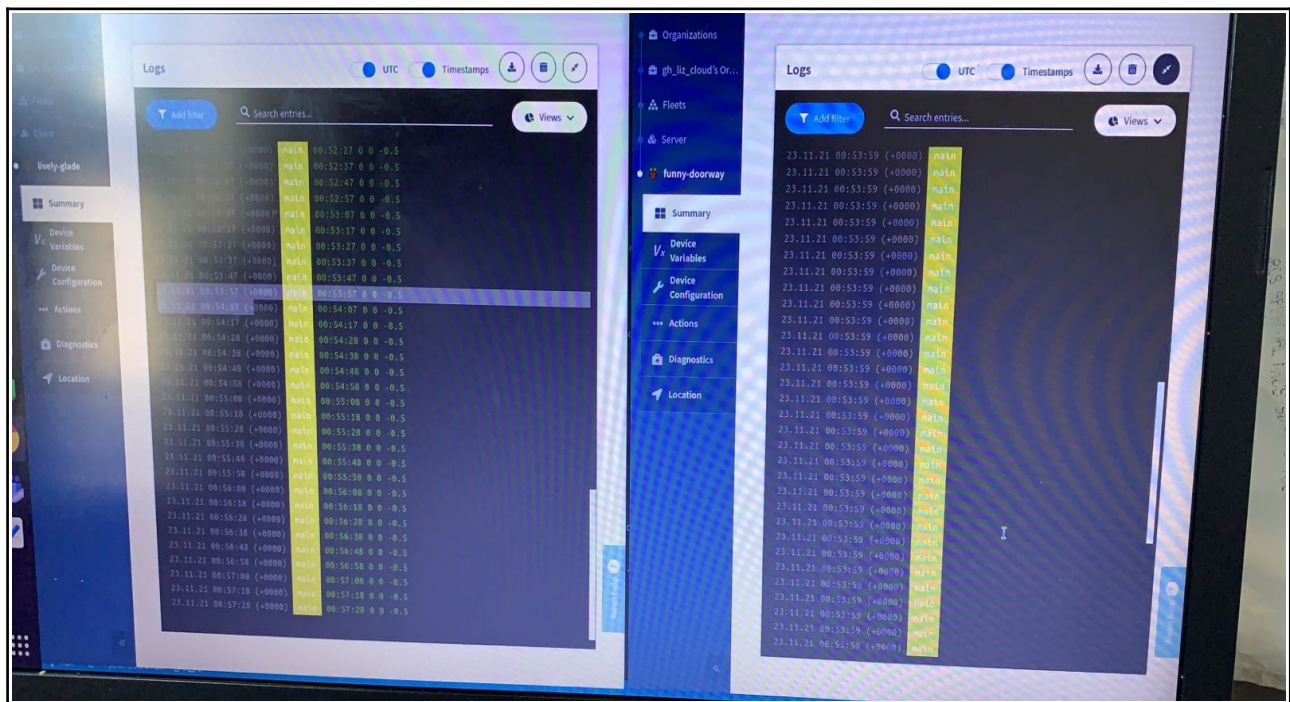
The link to the client and server code to git hub https://github.com/Liz-cloud/EEE3095S_Prac6.git
Instructions on how to test the code are in the *README* file on git hub

- 1.Push the Client folder contents to a separate client fleet
- 2.Push the Server folder contents to a separate server fleet
- 3.Open the server fleet public url
- 4.Click Activate button the sensor and ldr threads are ran
- 5.Click Deactivate button to to turn off the sensors
- 6.Click Check Status button to check client status
- 7.Click CheckLog button to check the log generated
- 8.Click DownloadLog button to download the logs locally in a csv file
- 9.Click Exit button to exit screen

Server to Client Messages (P2 to P1)

- **ACTIVATE** : Allow for the server being able to turn on or turn off Pi1's sending of sensor data, see sending flag below.
- **CHECK STATUS** : Check that the client is active (the P1 should returns a ON message if it is on
- **ACK** : (optional) You could return an acknowledgement from receiving a SEND so that the server knows the request got through
- **CHECK STATUS** : The client replies to the server indicating if its sampling of data is active, and the time (in HH:MM:SS) at which the last sample was sent.
- **MAIN FUNCTION** : the function sends back sampled sensor data, the sensed temperature value, the sensed LDR value, and the time, i.e. a timestamp, in HH:MM:SS. In the while loop

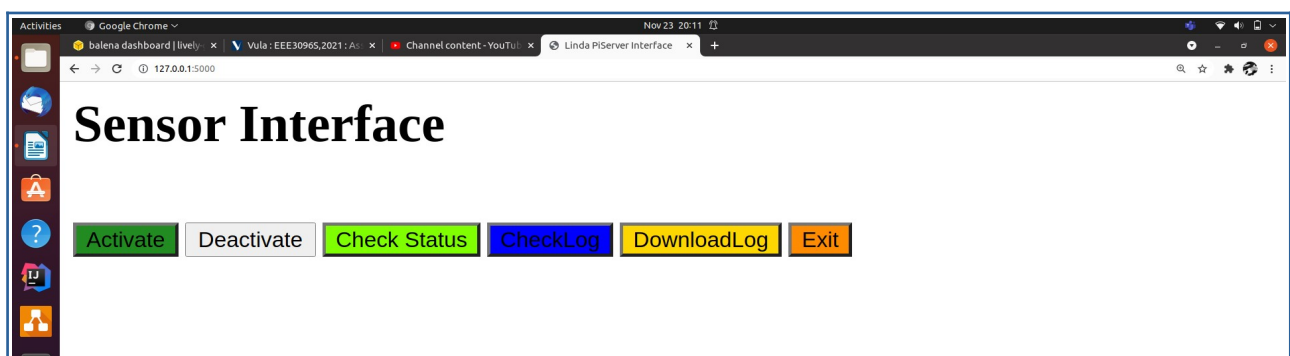
Screen shot of Client & Server running on balena:



Web Interface

The P2 server needs to provide a simple web interface. It should provide the following facilities, these can be provided either by hyper links 10 that activate functions or buttons on the web page:

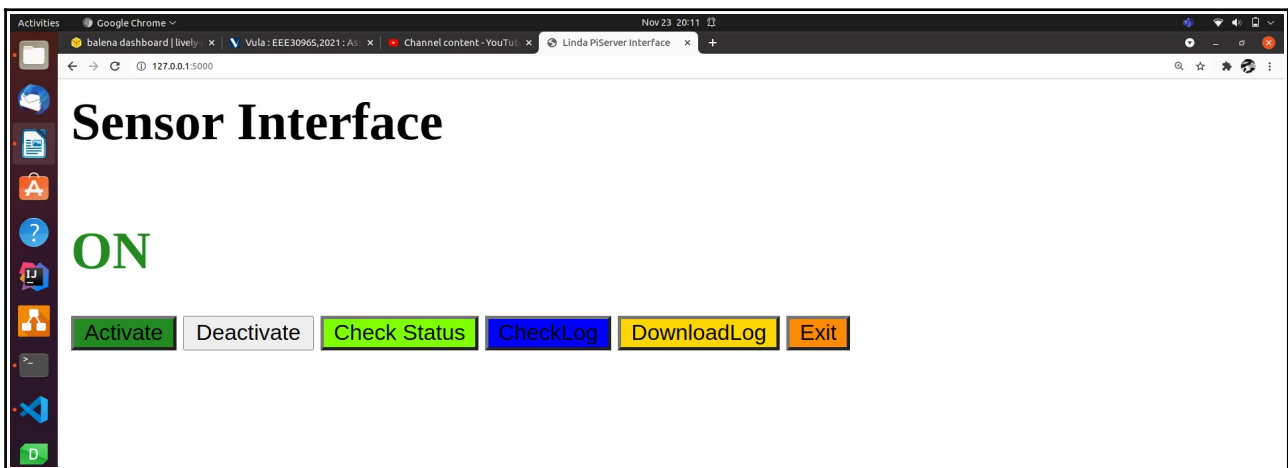
- Activate :Turn on the sensors (i.e. send a Activate message to tell Pi1 to start sampling).



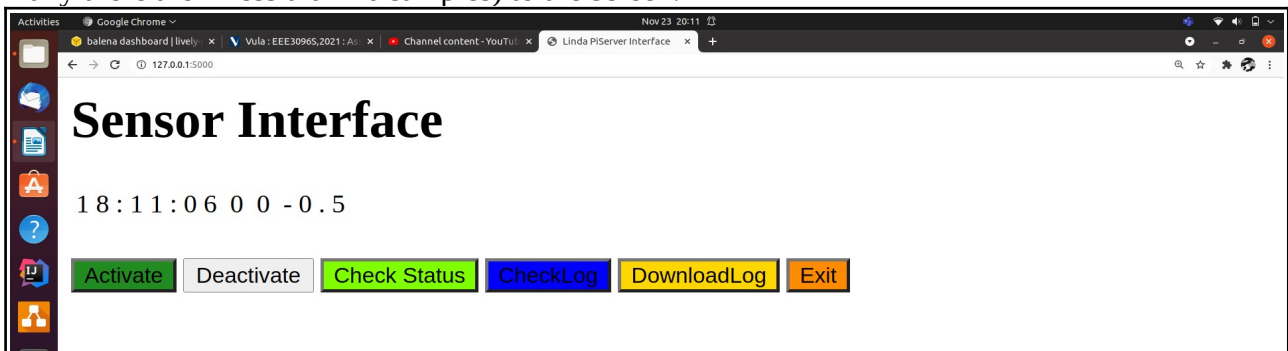
- Deactivate: Turn off the sensors (i.e. send a Deactivate message to tell Pi1 to stop sampling).



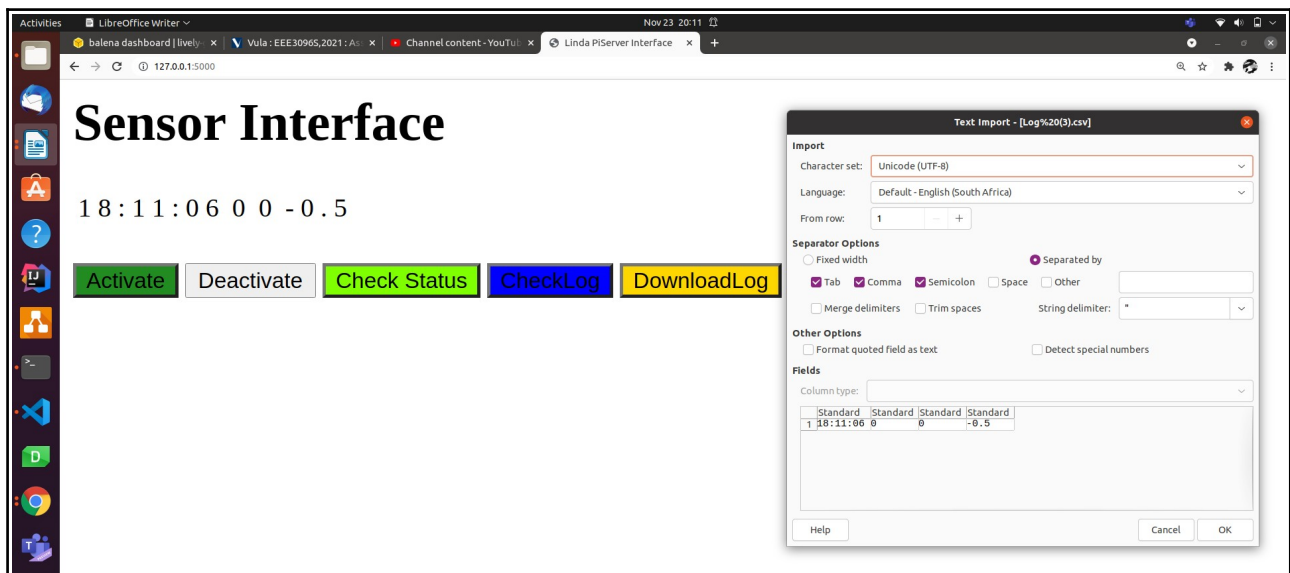
- Check Status: use the CHECK STATUS message to see what the status of the Pi1 is (e.g. is it sampling, when did it last send a sample).



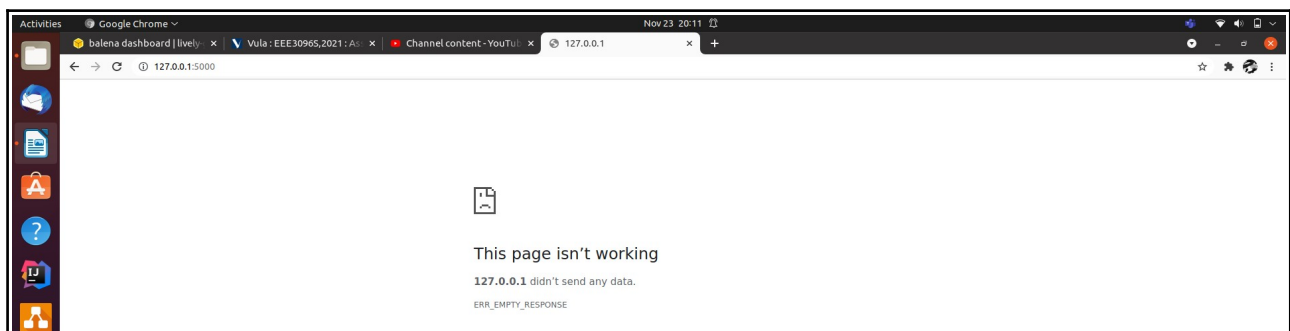
- CheckLog This function needs to print out the last 10 samples from the current run (or however many there are if less than 10 samples) to the screen.



DownloadLog: Allow user to download the current sensor log file.



- Exit: This just exits the server program. It could show a screen exited



Link to demo video <https://youtu.be/HnXSfdwxbww>

For demo video the server pi SD card got corrupted we the constant flashing and deploying so we decided to do a demo of the practical locally. However we are confident if you test the code posted on git hub it will run properly as we were able to get logs from the above image.

References:

- support, P. and →, n., 2021. *Stuck devices - "tunneling socket could not be established: cause=socket hang up"*. [online] balenaForums. Available at: <<https://forums.balena.io/t/stuck-devices-tunneling-socket-could-not-be-established-cause-socket-hang-up/5113/30>> [Accessed 23 November 2021].
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