AndesFlux

Project-Website: Ecotower.org

As a project partner of the PUCP in particular the Institue for Nature, Earth and Energy led by Eric Cosio, we are working on supporting the build-up of an infrastructure to connect multiple eddy covariance towers located in the Amazon basin into one network and also develop and install LoRaWAN Hardware, which is used to gather information from the area surrounding the towers.

As of now [end of 2022], we have worked on building a parallel network system at the GreenFabLab at our Campus in Kamp-Lintfort (Germany). This is needed to evaluate the setup and be able to reproduce the environment at the towers, at least to some extent. Our current state can be found here: Experiment System in Kamp-lintfort

Furthermore, we also build the first prototype of a LoRaWAN-Node which can measure a Dendrometer, like the DC4 built by Ecomatik. The first will be tested out in the Amazon forest at the tower in Tambopata. More information can be found here: Dendrometer Overview.

Here is the link to the **original Grafana Dashboard**.

Technical Notes

- Ecotower Notes

Challenges








Latest News



Fig. 1



Fig. 2

The current data of the dendrometers in the GFL can be viewed on our Grafana Dashboard:

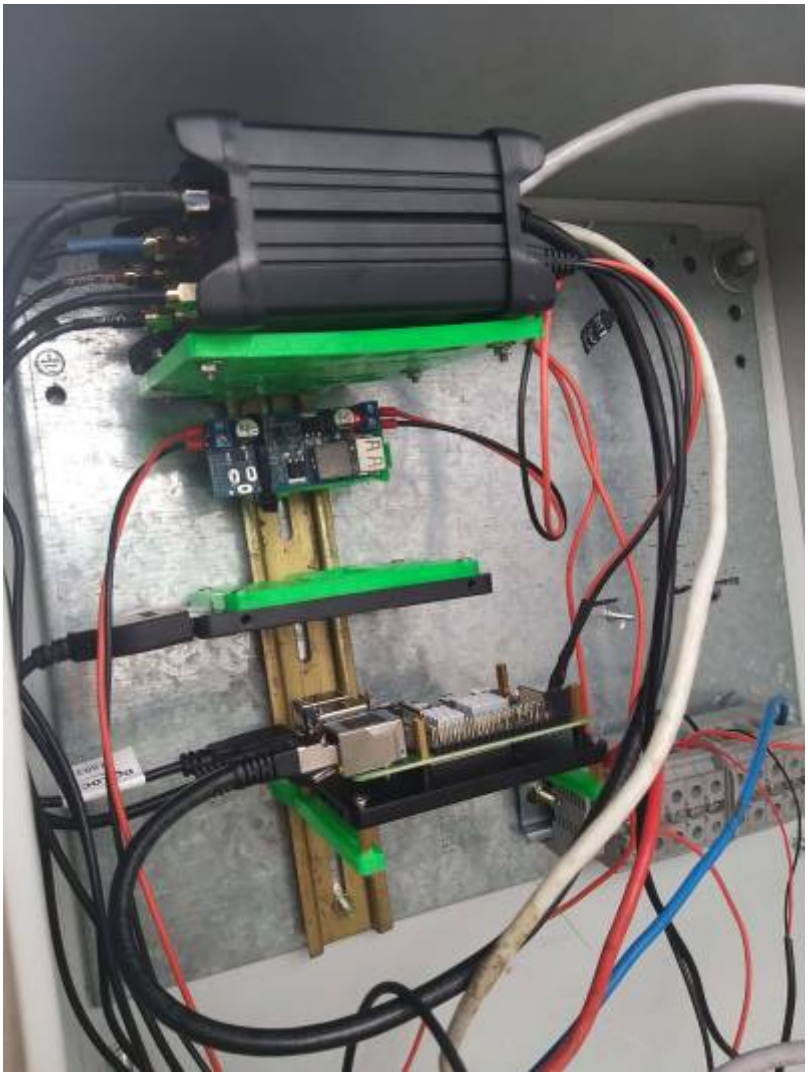


Fig. 3



Fig. 4



Fig. 4

FAQ

• What is the download/upload speed? I ran an internet speed test. These are the results: Download

36.42 Mbps Upload 31.26 Mbps Ping 41ms (to Claro Server in Arequipa)

• Does it have a fixed or dynamic IP address? The IP address of the tower is a dynamic IP address. You are not able to use the address to access any service on the tower If you want to connect to services on the tower from off-site (just like I did to run the speed test), you have to use a VPN-Connection

• Is there a monthly limit on the amount of data that may be transferred? The current monthly limit is 1.5 GB. This is not enough to transfer all the necessary data from the tower to our servers As far as I know, Eric is working actively to get a higher data volume so we can actually download all the data from the tower

• How many ethernet connections are there? There are currently 3 ethernet connection they are all occupied a fourth one could be used when configured (by default it's used for WAN) for more devices, I would recommend a small ethernet switch

• Is there a laptop or computer on-site? Actually, there is a computer on-site (A Raspberry Pi 4) We use it to host a database and some other services Also, it can be used to gather data from the installed Licor Systems

• Is Campbell Scientific “Loggernet” software installed on the computer? I don´t think that is compatible with our system Also, we just use the CLI, there is no option for a GUI

• Does the computer have an available serial port that could be connected to the Campbell Scientific Data Logger in the CO2 system? Yes there should be a serial port available through the Raspberry Pi´s GPIO Pins (3.3V UART)

• Does the laptop have remote access software available and working? As I already mentioned there is no GUI But you can connect to the computer through SSH

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Last update: **2023/06/14 10:04**