Central Command Application for CUBY Space
Software Project - Autumn 2021
University of Tartu, Estonia

About

Data acquisition and processing is one of the primary aspects that leverages automation within systems across multiple-domains. While sensors are useful components in measuring ambient conditions, it is required that the measurements are transmitted reliably in order to post-process and eventually extract meaningful information.

This project requires the students to develop a command centre application that acts as a 2-way data-transfer pipeline between a Microcontroller (ESP32) and a PC over WiFi.

What needs to be done?

Build and implement the Command Centre with the following:

- To be able to connect to the microcontroller over WiFi
- Control buttons to initiate and terminate the reception of data-stream
- Grafana dashboard *(to visualise received data over time)*
- Offline database to store incoming data stream
- Ability to load and visualize previously stored data streams.

Micro-controller specific tasks

- Develop code (arduino/python based) to transmit data-stream over WiFi.
- Data-stream to be transmitted and terminated based on requests from Command Centre

Notes

- Project proposal for a 3-4 member team.
- Participants are required to sign NDAs *(Non-Disclosure Agreements)*.
- A NodeMCU (ESP32 based microcontroller based on arduino programming) can be provided to the student-team for development purposes.

Contact

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References

Facebook  Cuby Space Camp