MUNI
FI

PV198 - UART II

One-chip Controllers

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Intro

- Switch the branch to *Week_10*!
- No homework for week 10.

Introduction

- Sometimes you cannot or don't have to program the MCU yourself
- Instead control from other MCU or computer
- Usually custom, device specific communication protocol

AT-Commands

- Protocol for controling other MCUs
- Not standardized but shares some common structure and core set of commands accross different devices
- Originally used for modems
- Nowadays mostly GSM/GPRS modules and other wireless communication modules

Goal

- Control a MCU over UART from Python using AT-Commands

Wiring and configuration

- You will need ESP32-C6 DevKit and USB-UART bridge
- Connect 5V, GND, RX, TX (don't forget to swap RX and TX)
- UART uses 115200 bauds/s, 1 stop bit, no parity and 8-bit data

Task

1. Reset the board with at_reset.py script from study materials
2. Use Python to communicate with board and ensure that commands are suffixed with '\r\n'
3. Verify connection using the test command
4. Check status of Wi-Fi, scan the surronding networks and connect to "PV198" with password "lDo53b8xp6aR"
5. Request contents of webpage located on https://www.fi.muni.cz/~xrohlin/

AT-Commands documentation can be found here.

Bonus Task

1. MQTT: Connect to "mqtt://test.mosquitto.org" and send and receive messages to and from "PV198" topic
2. PWM: Connect the devkit to LED using breadboard and genereate PWM

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