Meteo Team

PROCESS CONTROL PROJECT

INITIAL PRESENTATION

Project timeline

week 1

- members selection
- work distribution
- initial presentation work

week 2-3

- deciding on sensors and electronic parts
- consulting, connecting to an MCU

Project timeline

week 3-6

- programming the sensors to process the measurements
- testing the output

week 6-9

- working on a 3D model for the meteo device in Fusion360
- finishing the model, consulting

Project timeline

week 9-10

- printing
  and assembling all
  parts
- consulting and
  correcting
  the printed parts

week 10-12

- integration of VESNA meteo device using API
- setting up the device on an IoT cloud services
- programming the MCU to send measurements to the cloud service

Project timeline

week 12-13

- finishing up
- working on documentation
- working on the final presentation

Team Members

- Filip Hlubík: 3D modelling, testing outputs
- Ivana Dukayová: data exchange, cloud service
- Marek Horecký: programming of a microprocessor, testing outputs, team leader
- Richard Bielovič: choosing appropriate sensors, assembling all parts
- Viliam Vrba: 3D modeling, testing outputs

What do we need for the weather station

sensors: temperature, humidity, barometric pressure, light intensity, …

ESP board

material for the case

What sensors we used

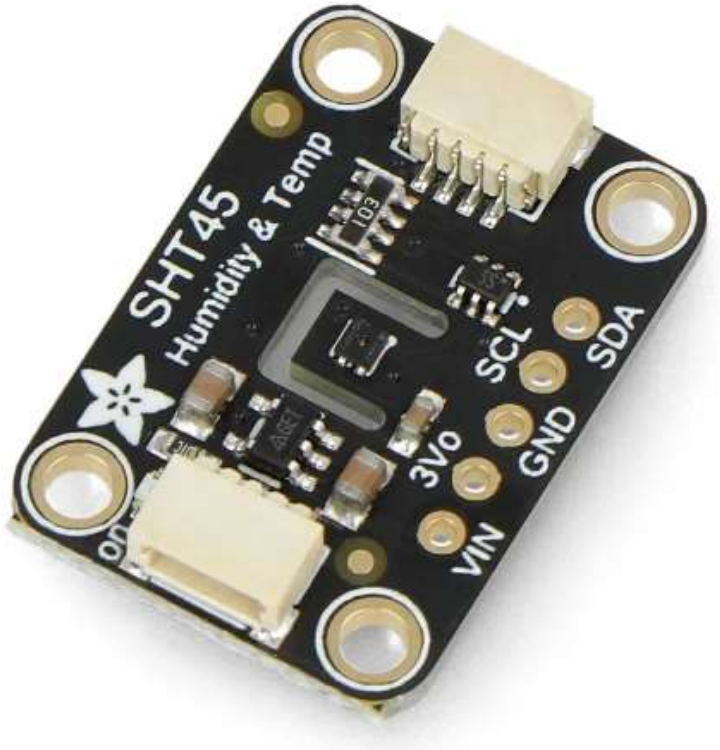
SHT30 soil sensor

What sensors we used

FS400-SHTXX

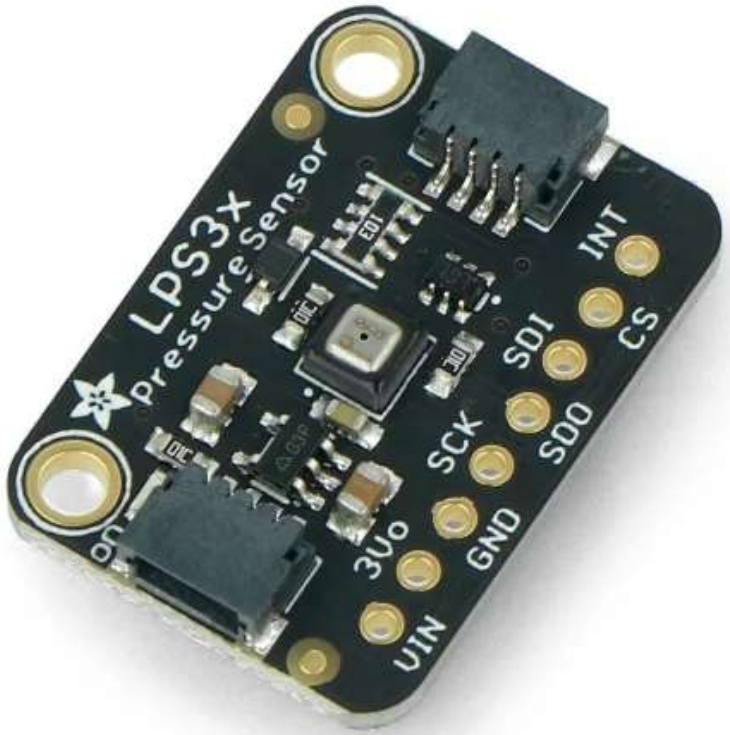
What sensors we used

SHT45



What sensors we used

LPS35HW

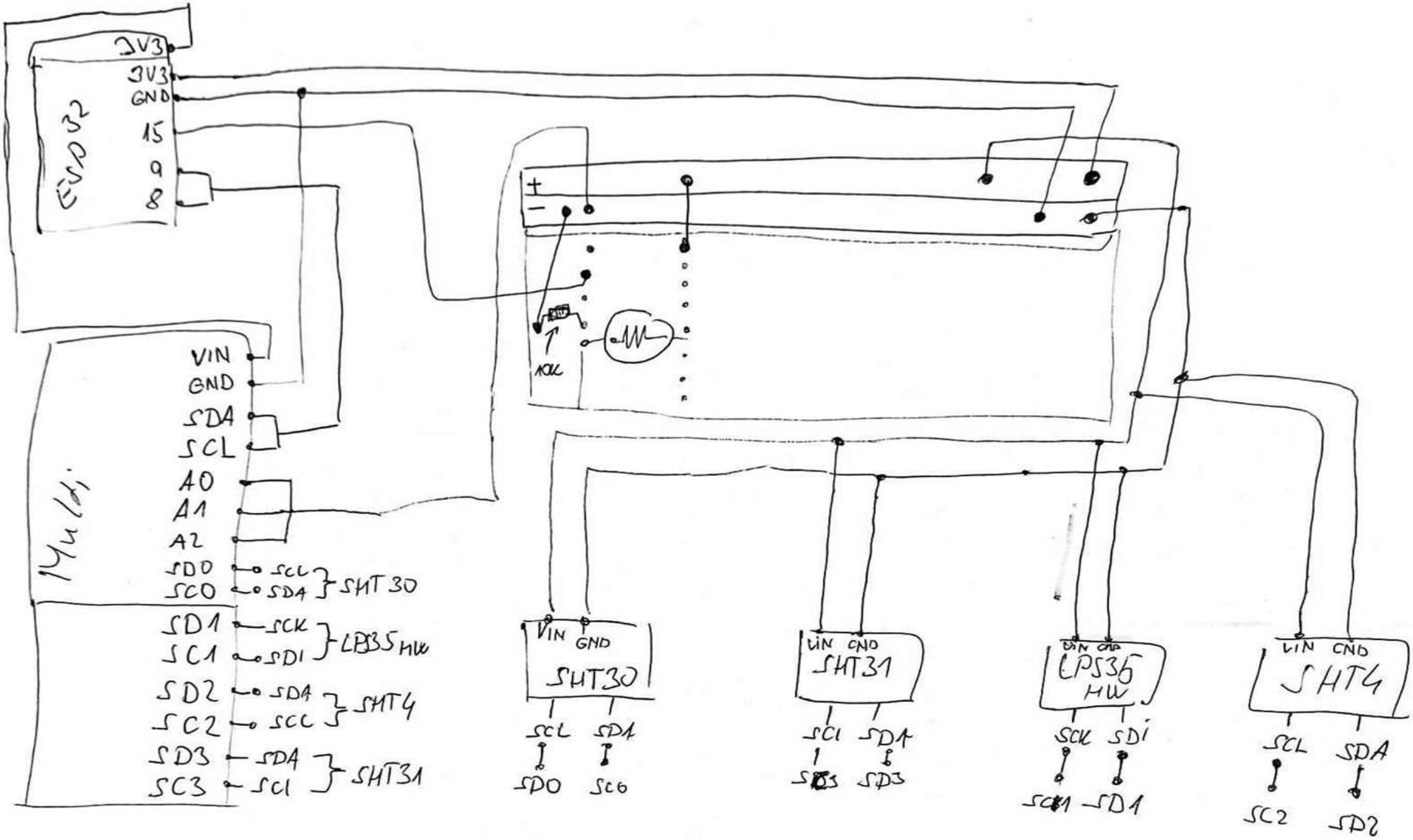


What sensors we used

analog photoresistor

Complications

- 3 out of 4 digital sensors have the same IP address
  - final fix: multiplexer
- Heap corruption
  - final fix: code review


3V3
3V3
GND
15
9
8
ESP32
VIN
GND
SDA
SCL
A0
A1
A2
SDO
SCO
SD1
SC1
SD2
SC2
SD3
SC3
SCL
SDA
SCK
SDI
SCL
SDA
SCL
SDA
SCL
SDA
SHT30
LPS35HW
SHT4
SHT31
10K
VIN GND
SHT30
SCL SDA
SDO SCO
VIN GND
SHT31
SCL SDA
VIN GND
LPS35 HW
SCK SDI
VIN GND
SHT4
SCL SDA
SC2 SD2

- 3D models-attempts

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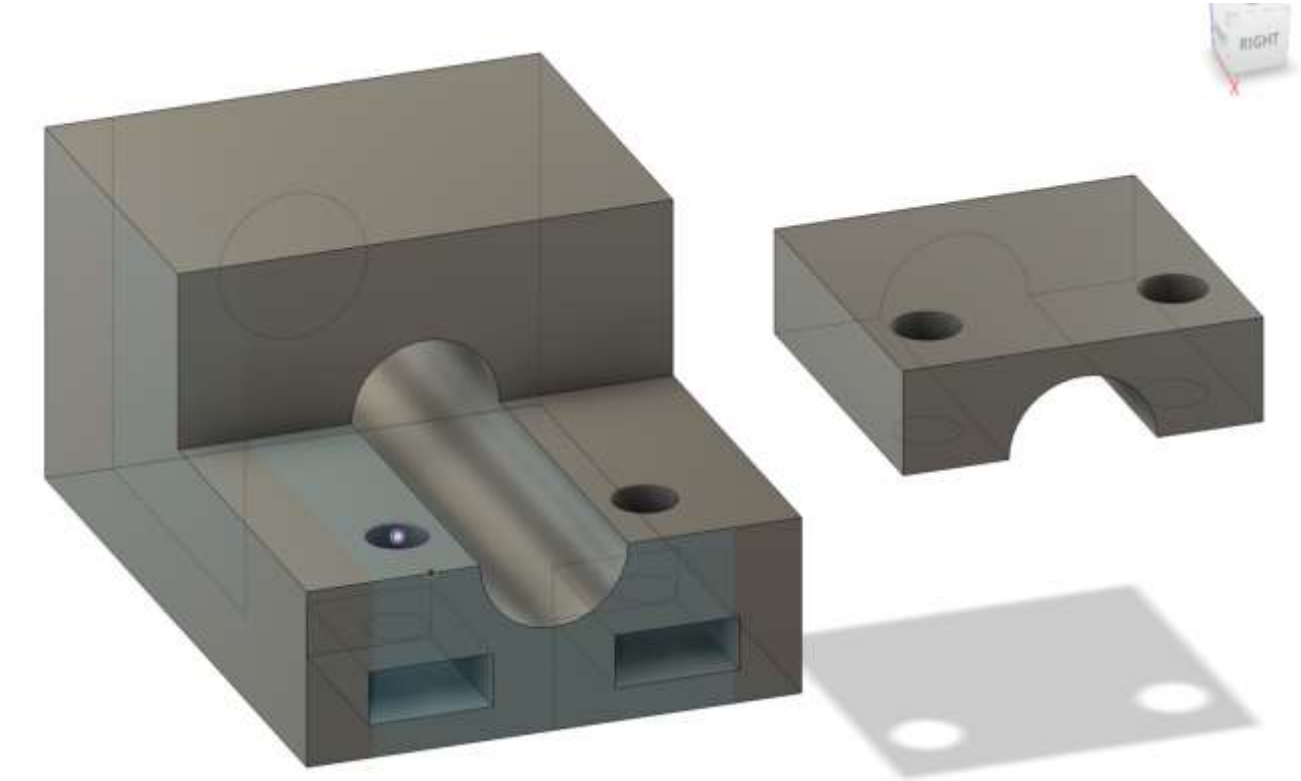
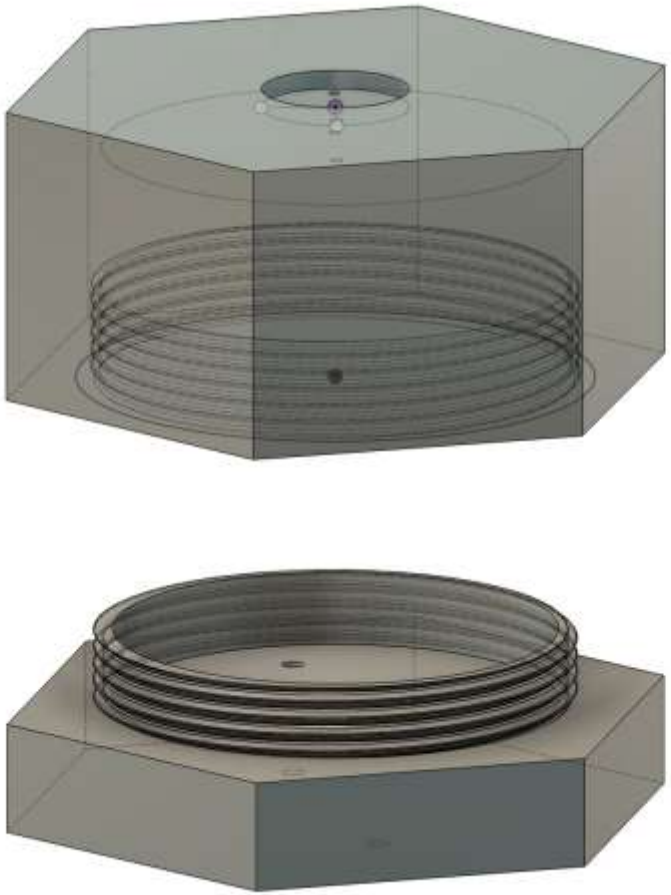
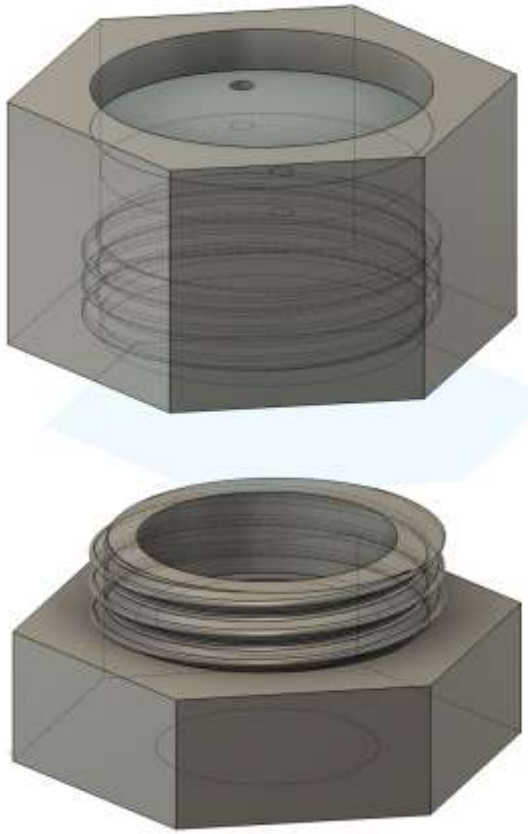


3D-model-photoresistor





What's the plan

- keep working on a 3D model and finish it
- print and assemble all final parts
- integrate the device using API
- start to set up the device on an IoT cloud services
- program the MCU to send measurements to the cloud service