VT23 ET100G Elektroteknik GR (C), Prototypkonstruktion av inbyggda system, 6 hp (normal)

Allmänt

Nyheter
Discussion
Course plan

Lab Meeting

EDA

Project

Project descriptions and instructions

Dina framsteg

ET100G Projects

Choose one of the following three projects to design, make and test.

Rough schedule for the labs.

First two labs will be dedicated for the PCB design, by the end of the second lab (22:rd of February) you should have a BOM (bill of material) and gerbers (manufacturing files from the EDA software) ready so we can order the PCB and components.
In the BOM for your projects all components should have a digikey article number specified.

Due to the very real component shortage that currently exists you need to choose components that are availiable in large amounts (atleast in the hundreds) to be sure that the components are availiable for purchase when we order them after the second lab.

The last two labs will be soldering/troubleshooting and testing the PCB:s.

The boards should use SMD components to as large extent as possible (connectors excluded) and size should ideally be 0603 or 0805 for passive components like resistors and capacitors.

Soldering the components will be done mainly with stencil/solderpaste/hotplate. Through hole components like connectors will be soldered with soldering iron.

Indoor WiFi temperatur sensor

Build an indoor sensor based on an ESP32-S2-WROOM-I module with WiFi communication

The sensor should send the temperature to a MQTT server and sleep between measurements.

What needs to be included in the design:

- Power regulation suitable for low power sleep modes

- Micro USB port for programming and power. (should be located at the bottom of the board to face the matching hole in the box for the USB cable)

- Battery connector for standalone use.

- Battery charge circuit (Li-Ion)

- PCB size and mounting holes should be according to box specification

For the programming there are examples on the internet that can be used as a base for this.

For circuit inspiration you can have a look at Adafruit Metro board schematic.

Wifi temperature sensor, box dimensions