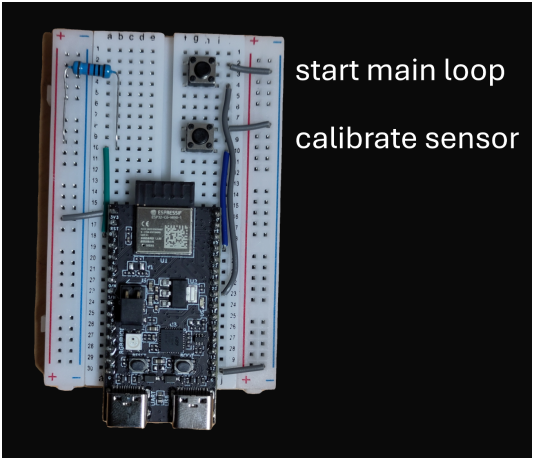
universität innsbruck

# ESP32 Temperature Sensor Project

An IoT Implementation with Deep Sleep

Group 1

# Prototype



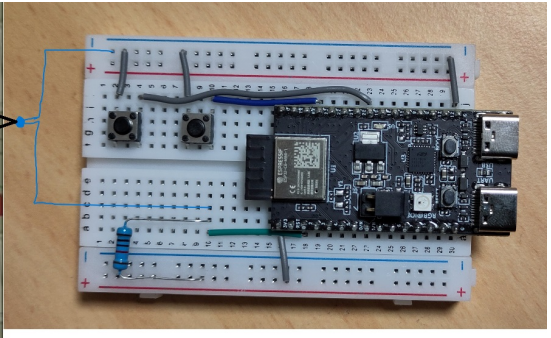
# Power Saving Features

- Deep Sleep Mode
  - 30 second sleep intervals between measurements
  - 300 second sleep after 10 measurements completed
- WiFi Power Optimization
  - Modem sleep mode enabled
  - Quick reconnect using stored WiFi config
  - WiFi disabled during sleep
- ADC Power Management
  - One-shot ADC readings
  - Only 5 samples per measurement
  - ADC unit deleted before sleep

# Main Operating Loop

- Three Operating States
  - IDLE: Waits for user input
    - Calibrate button: Calibrates thermistor at 0°C
    - Start button: Begins measurement cycle
  - MEASURING: Active measurement phase
    - Takes 5 ADC samples
    - Connects to WiFi and syncs time
    - Sends data to server
    - Prepares for sleep
  - SLEEPING: Power saving phase
    - 30s sleep between measurements (up to 10)
    - 300s sleep after 10 measurements complete

# Where is the thermistor?

Thank you for your attention!