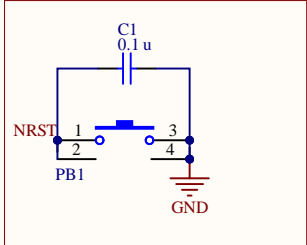
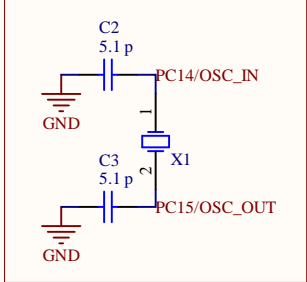


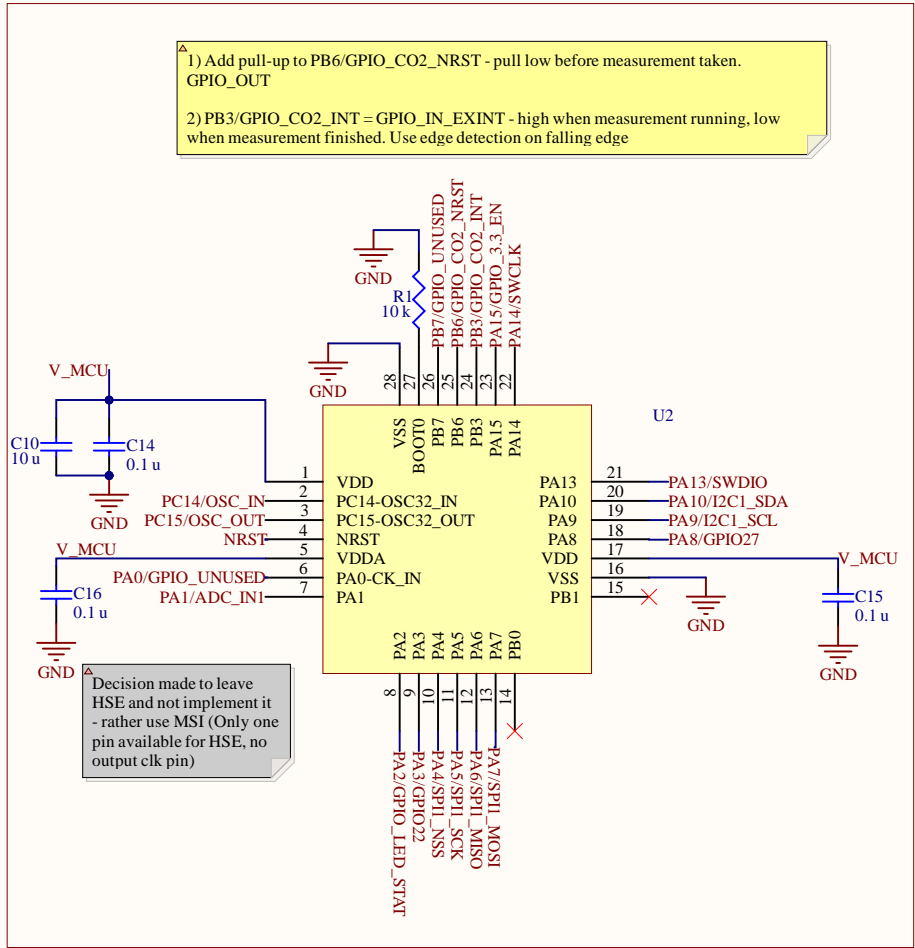
Reset Button



Low Speed Oscillator



STM32 Microcontroller

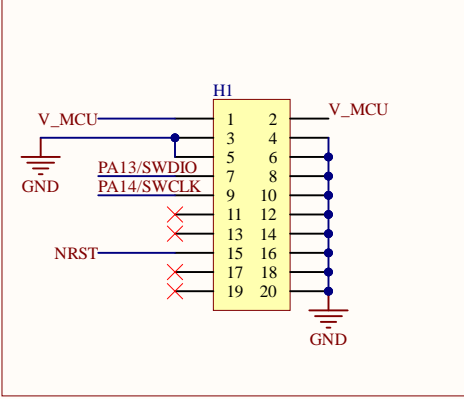


1) Add pull-up to PB6/GPIO_CO2_Nrst - pull low before measurement taken. GPIO_OUT

2) PB3/GPIO_CO2_INT = GPIO_IN_EXINT - high when measurement running, low when measurement finished. Use edge detection on falling edge

Decision made to leave HSE and not implement it - rather use MSI (Only one pin available for HSE, no output clk pin)

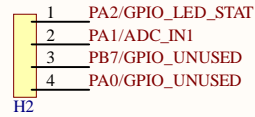
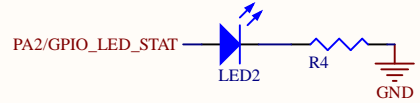
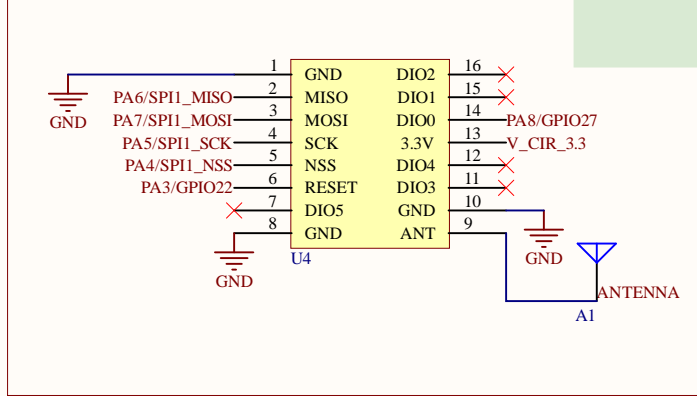
ST-LINK (Serial Wire Debug)



Notes on connecting to SWD:
<https://community.st.com/s/global-search/st-link%2Fv2%20stm321031>

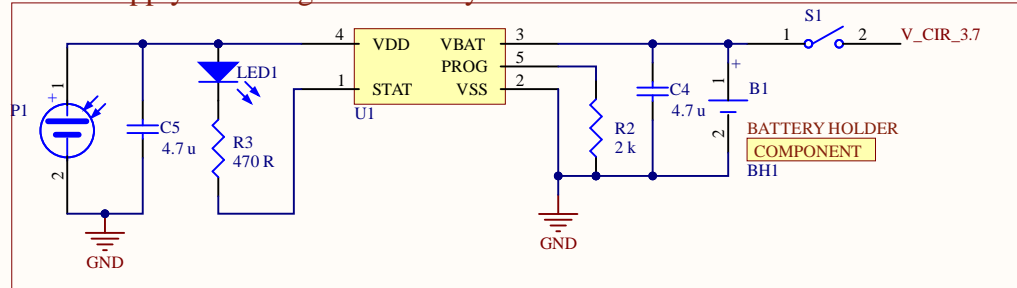
- force program to use HSE clock
- TDO_SWO is optional, TRACESWO (it is used for SWV trace)
- 1. Connect SWDIO (PA13) and SWCLK (PA14), VCC, GND to ST-Link
- BOOT0 pin should be pulled low
- NRST should be high / pulled up

LoRa Transceiver

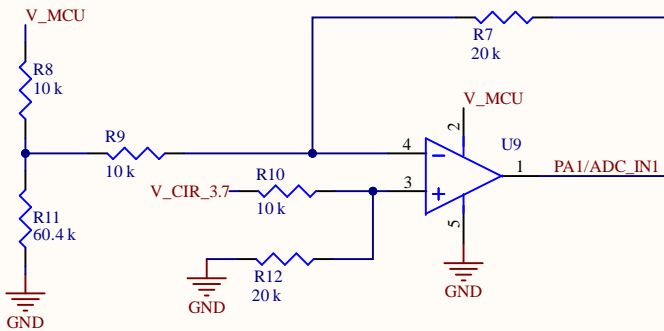


Title Solar air quality monitor - Telemetry and MCU		
Size A4	Number Rita van der Walt	Revision
Date: 6/25/2026	Sheet of	
File: C:\Users\...\Version 1.2 - Measuring Device Schematics	By:	

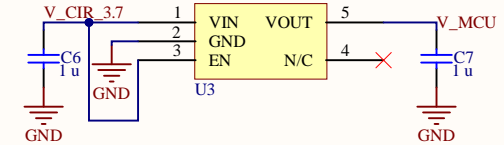
Power Supply - Rechargeable Battery and Solar Panel



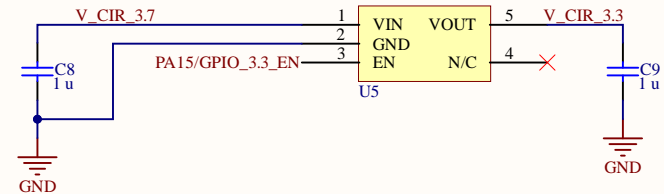
JST CONNECTOR
COMPONENT
P2



3 V Regulator



3.3 V Regulator

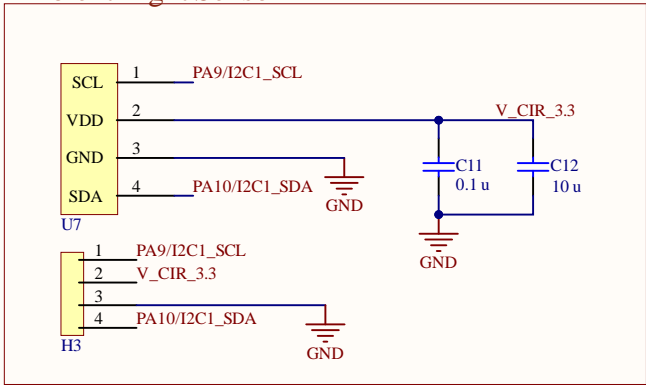


POWER SUPPLY / REGULATED VOLTAGES

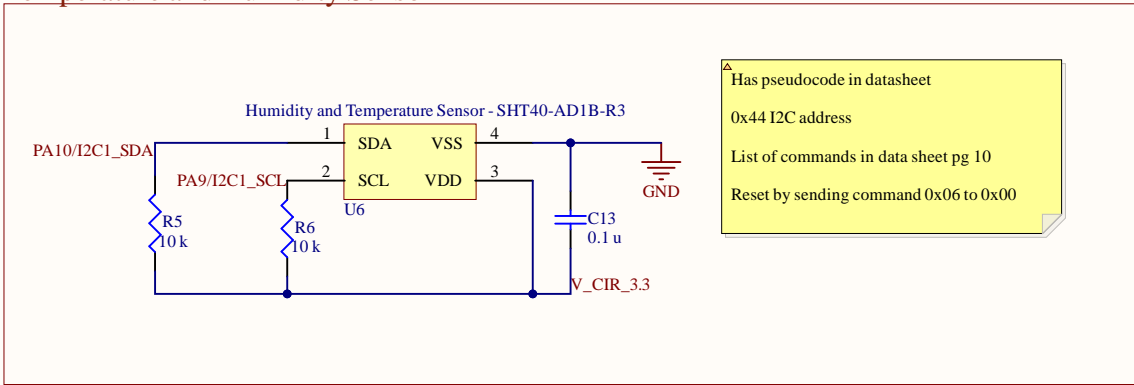
- 3.7 V Supply:
 - Battery Voltage
- 3.3 V Supply:
 - LoRa Module
 - Humidity / Temperature Sensor
 - VOC, CO2 Sensor
- 3 V Supply:
 - STM32 MCU
 - Ambient Light Sensor

Title		
Solar air quality monitor - Power management		
Size	Number	Revision
A4	Rita van der Walt	
Date:	6/25/2026	Sheet of
File:	C:\Users\...\Version 1.2 - Power Supply, Voltage Regulation.SchDoc	

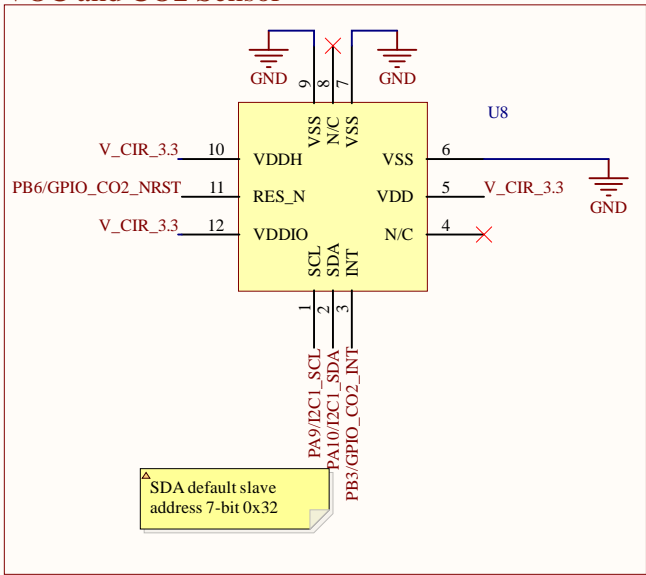
Ambient Light Sensor



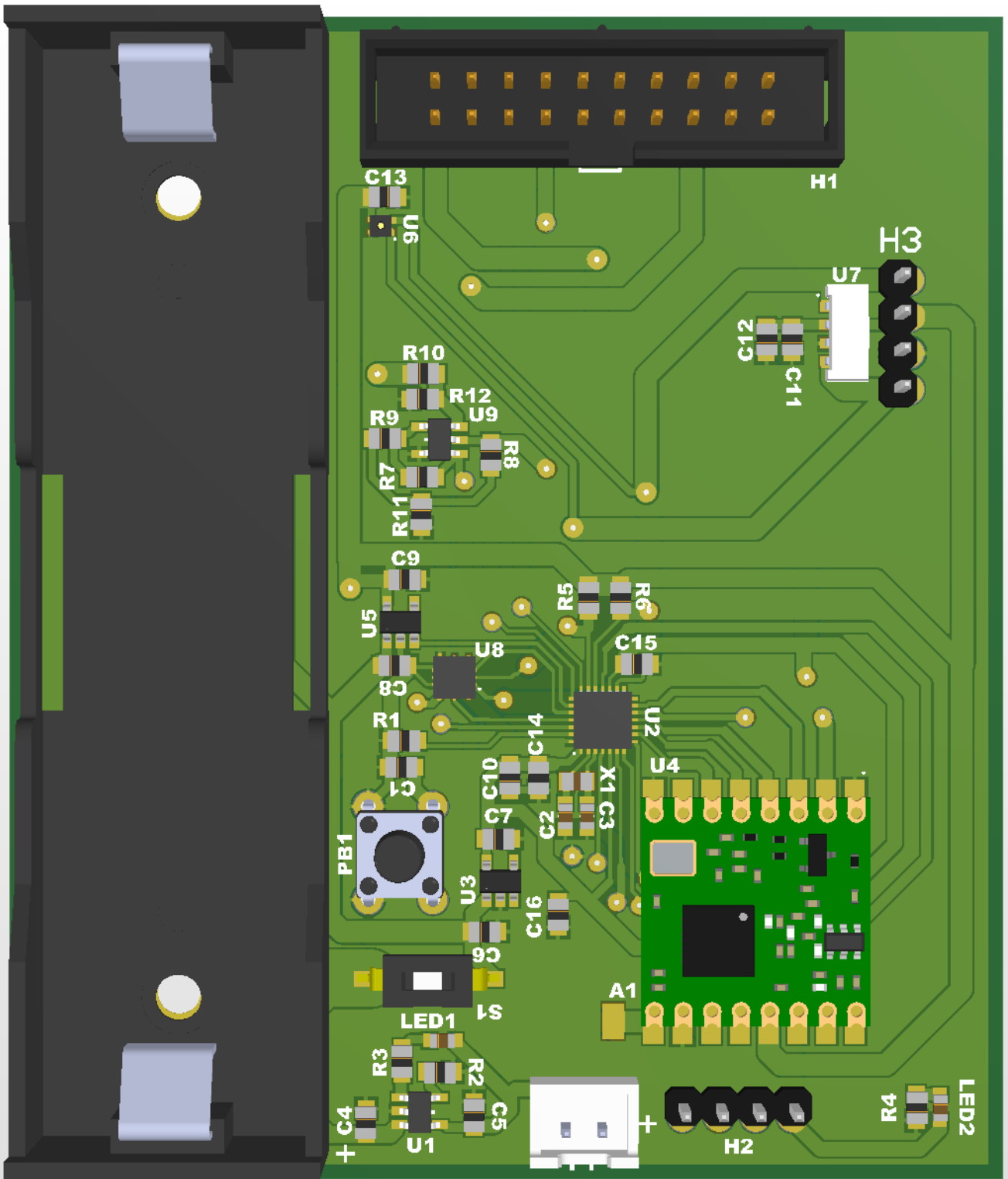
Temperature and Humidity Sensor



VOC and CO2 Sensor



Title Solar air quality monitor - Sensors		
Size A4	Number Rita van der Walt	Revision
Date: 6/25/2026	Sheet of	
File: C:\Users\...\Version 1.2 - Sensors.SchDoc	Drawn By:	



RE van der Walt
Indoor Environment Analysis: Measuring Device

Version 1.2
2022

