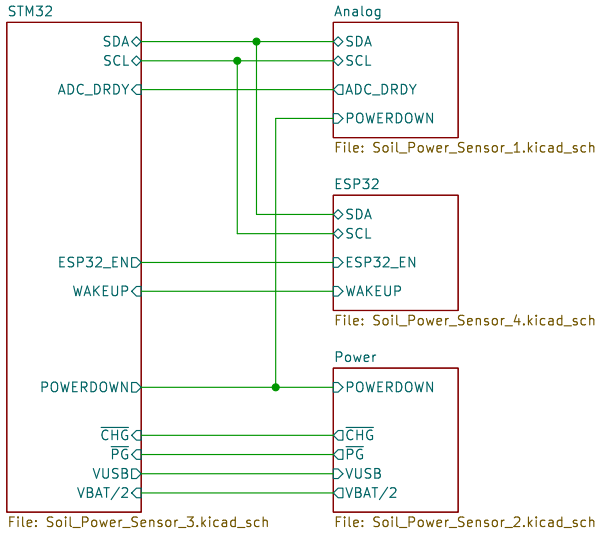
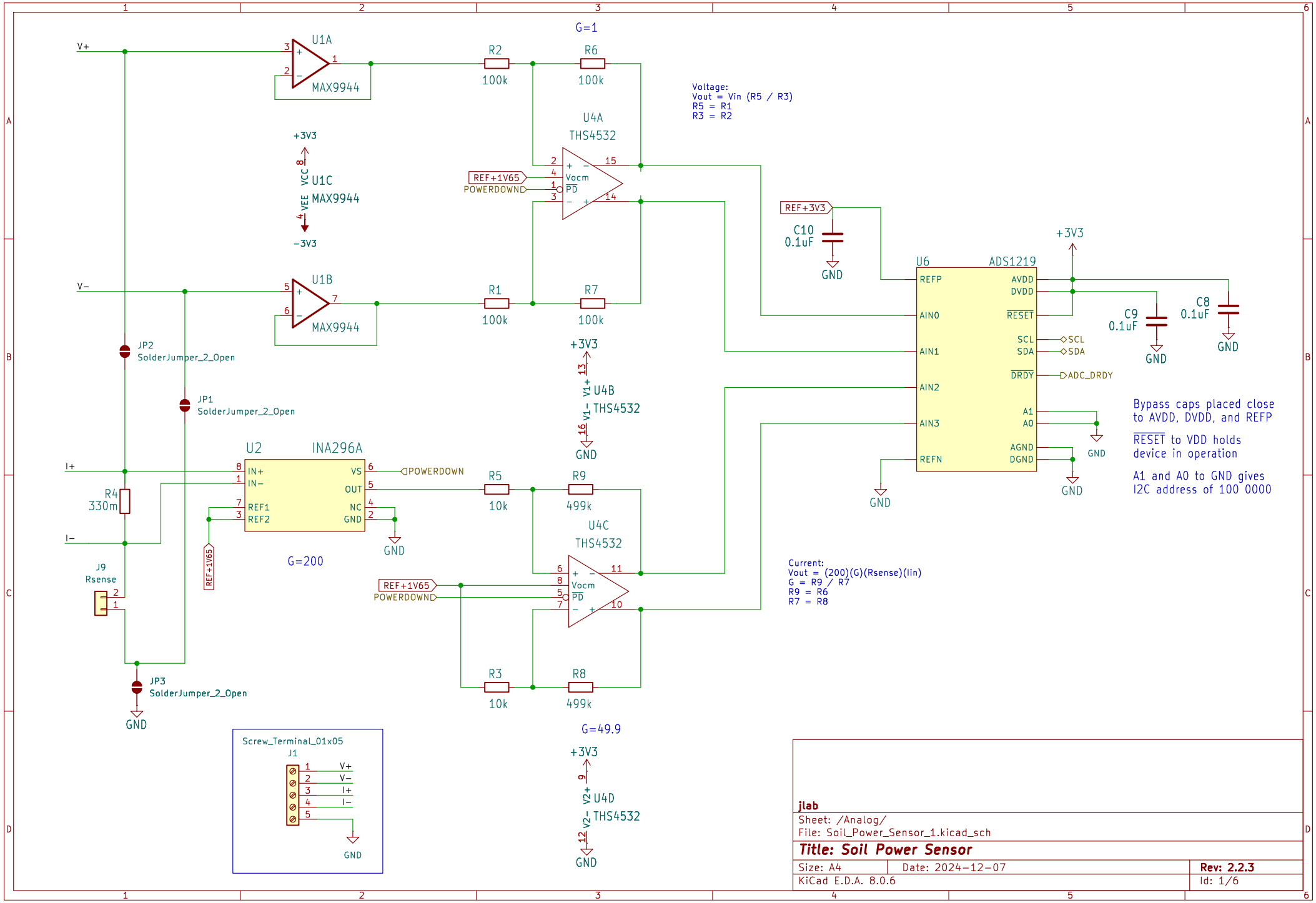


jlab

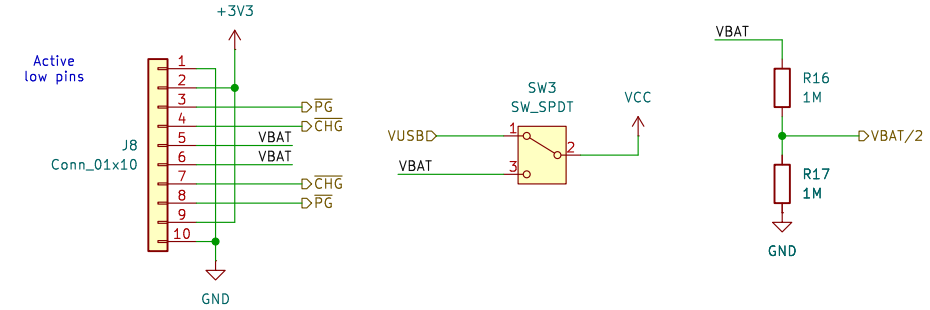
Sheet: /
File: Soil Power Sensor.kicad_sch

Title: Soil Power Sensor

Size: A4	Date: 2024-12-07	**Rev: 2.2.3**
KiCad E.D.A. 8.0.6		Id: 1/6


G=1
U1A
MAX9944
V+
R2
100k
R6
100k
Voltage:
Vout = Vin (R5 / R3)
R5 = R1
R3 = R2
U4A
THS4532
REF+1V65
POWERDOWN
Vocm
PD
+3V3
U1C
MAX9944
VCC
VEE
-3V3
V-
U1B
MAX9944
R1
100k
R7
100k
REF+3V3
C10
0.1uF
GND
U6
ADS1219
REFP
AIN0
AIN1
AIN2
AIN3
REFN
AVDD
DVDD
RESET
SCL
SDA
DRDY
A1
A0
AGND
DGND
ADC_DRDY
C9
0.1uF
C8
0.1uF
Bypass caps placed close to AVDD, DVDD, and REFP
RESET to VDD holds device in operation
A1 and A0 to GND gives I2C address of 100 0000
JP2
SolderJumper_2_Open
JP1
SolderJumper_2_Open
U4B
THS4532
V1+
V1-
U2
INA296A
I+
I-
R4
330m
IN+
IN-
REF1
REF2
VS
OUT
NC
GND
POWERDOWN
R5
10k
R9
499k
G=200
REF+1V65
J9
Rsense
U4C
THS4532
Current:
Vout = (200)(G)(Rsense)(Iin)
G = R9 / R7
R9 = R6
R7 = R8
JP3
SolderJumper_2_Open
R3
10k
R8
499k
G=49.9
U4D
THS4532
V2+
V2-
Screw_Terminal_01x05
J1
V+
V-
I+
I-
jlab
Sheet: /Analog/
File: Soil_Power_Sensor_1.kicad_sch
Title: Soil Power Sensor
Size: A4
Date: 2024-12-07
Rev: 2.2.3
KiCad E.D.A. 8.0.6
Id: 1/6

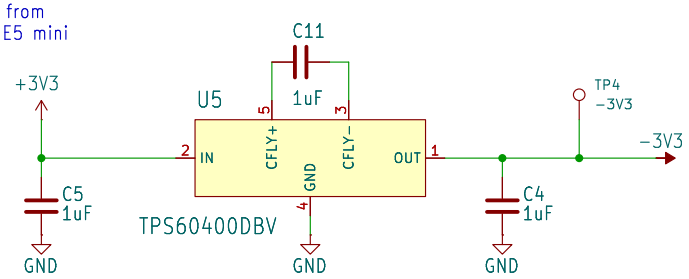
Battery Connector and Switch



Charge Pump for −3V3 Rail

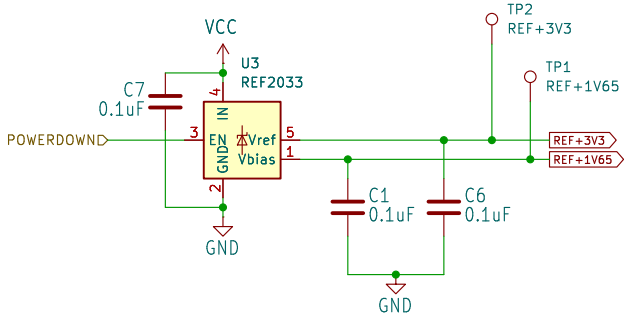
Place bypass caps close to package

+3V3 comes from
LDO on Wio-E5 mini

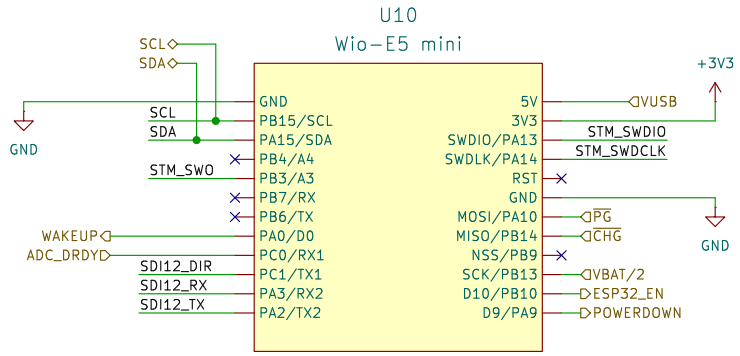


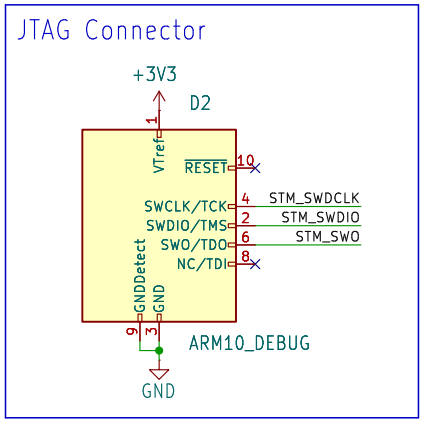
Reference +3V3 and +1V65

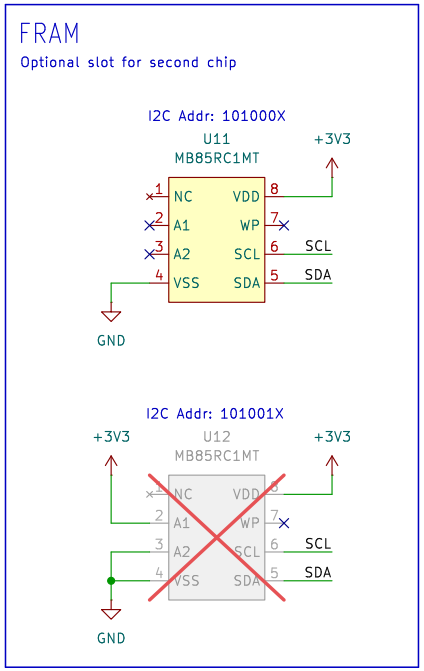
Place bypass caps close to package

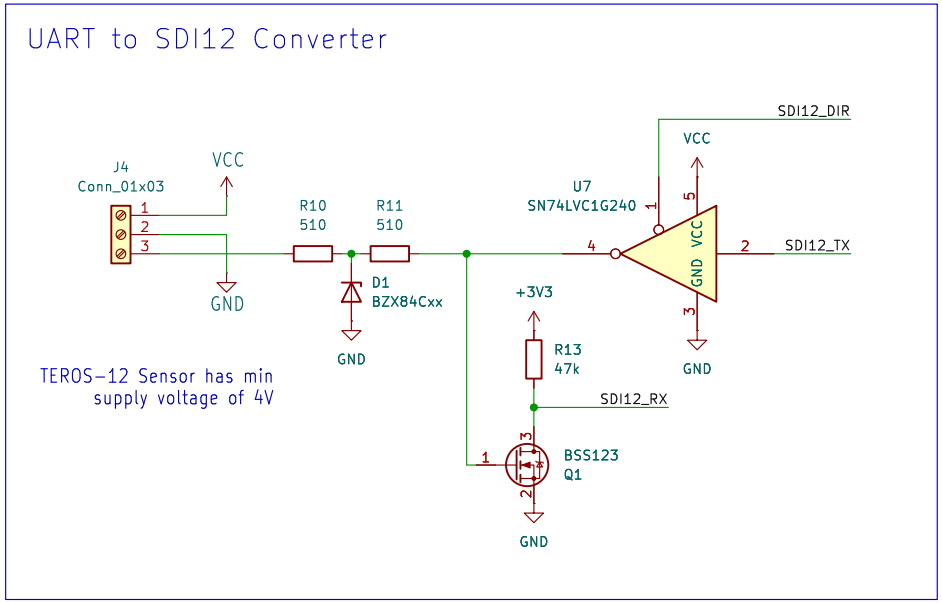


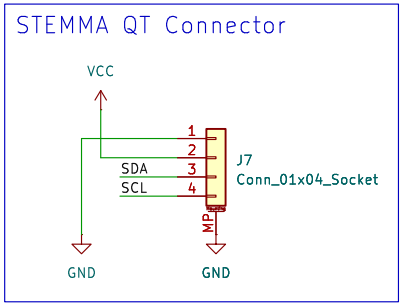
jlab		
Sheet: /Power/		
File: Soil_Power_Sensor_2.kicad_sch		
Title: Soil Power Sensor		
Size: A4	Date: 2024-12-07	**Rev: 2.2.3**
KiCad E.D.A. 8.0.6		Id: 2/6











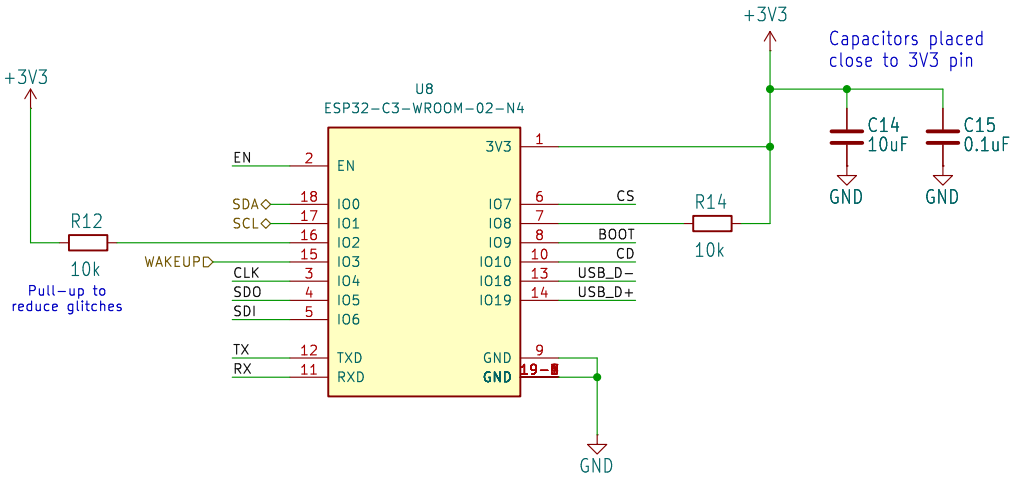
jlab

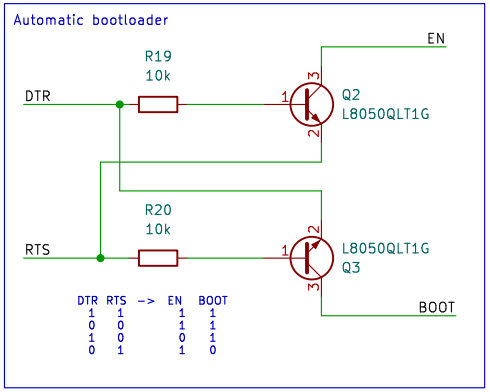
Sheet: /STM32/

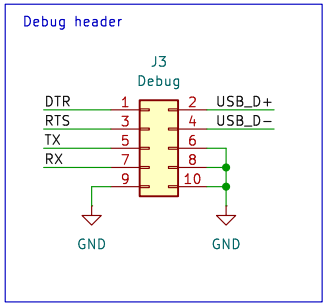
File: Soil_Power_Sensor_3.kicad_sch

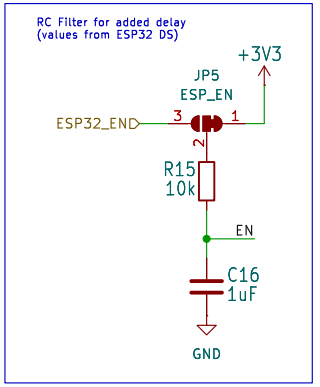
Title: Soil Power Sensor

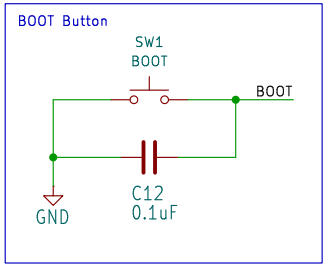
Size: A4	Date: 2024-12-07	**Rev: 2.2.3**
KiCad E.D.A. 8.0.6		Id: 3/6

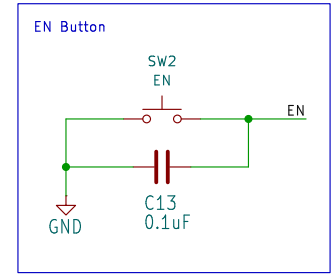


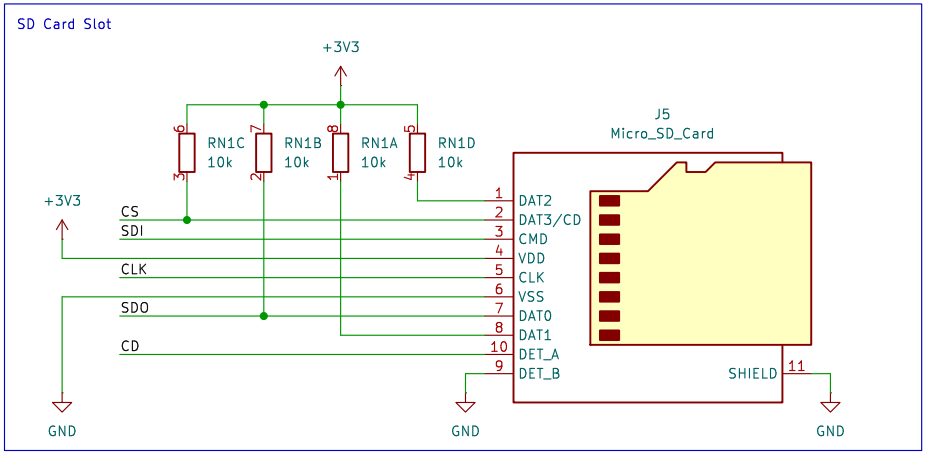












jlab

Sheet: /ESP32/
File: Soil_Power_Sensor_4.kicad_sch

Title: Soil Power Sensor

Size: A4	Date: 2024-12-07	**Rev: 2.2.3**
KiCad E.D.A. 8.0.6		Id: 4/6

RF Shield

Covers analog components in sheet 1 and reference voltage source.

J2
RFShield_OnePiece

Frame placed on PCB

Shield

1

GND

J6
RFShield_OnePiece

Cover not placed

Shield

1

GND

Mounting Holes

H1
MountingHole_Pad

GND

H2
MountingHole_Pad

GND

H3
MountingHole_Pad

GND

H4
MountingHole_Pad

GND

jlab		
Sheet: /Hardware/		
File: hardware.kicad_sch		
Title: Soil Power Sensor		
Size: A4	Date: 2024-12-07	**Rev: 2.2.3**
KiCad E.D.A. 8.0.6		Id: 5/6