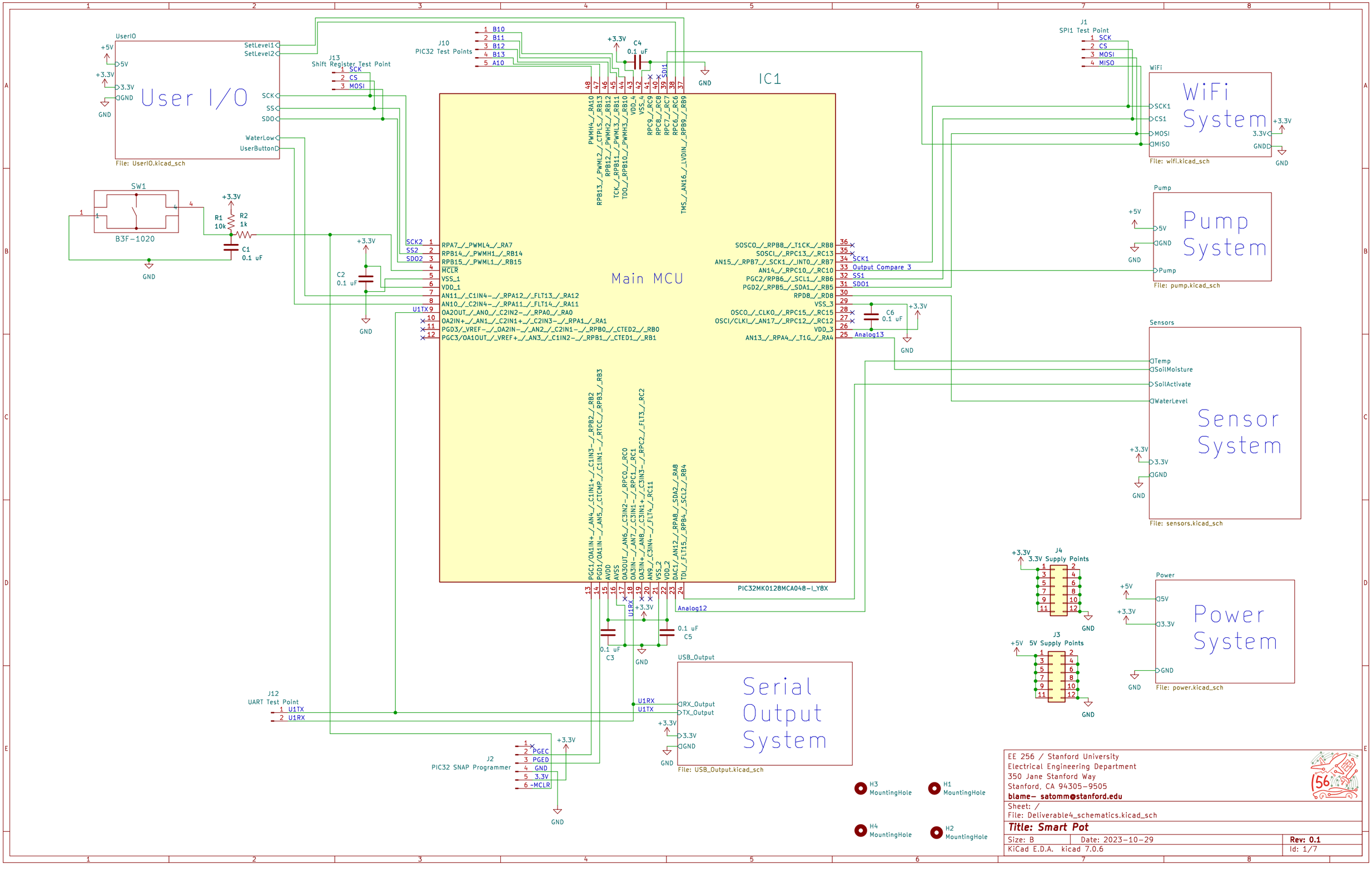
UserIO
+5V
5V
+3.3V
3.3V
GND
GND
User I/O
SetLevel1
SetLevel2
SCK
SS
SDO
WaterLow
UserButton
File: UserIO.kicad_sch
J13
Shift Register Test Point
1 SCK
2 CS
3 MOSI
J10
PIC32 Test Points
1 B10
2 B11
3 B12
4 B13
5 A10
+3.3V
C4
0.1 uF
GND
IC1
PWMH4_/_RA10
RPB13_/_PWML2_/_CTPLS_/_RB13
RPB12_/_PWMH2_/_RB12
TCK_/_RPB11_/_PWML3_/_RB11
TDO_/_RPB10_/_PWMH3_/_RB10
VDD_4
VSS_4
RPC9_/_RC9
RPC8_/_RC8
RPC7_/_RC7
RPC6_/_RC6
SDI1
TMS_/_AN16_/_LVDIN_/_RPB9_/_RB9
SW1
B3F-1020
R1
10k
R2
1k
C1
0.1 uF
+3.3V
GND
SCK2
SS2
SDO2
MCLR
VSS_1
VDD_1
AN11_/_C1IN4-_/_RPA12_/_FLT13_/_RA12
AN10_/_C2IN4-_/_RPA11_/_FLT14_/_RA11
OA2OUT_/_AN0_/_C2IN2-_/_RPA0_/_RA0
OA2IN+_/_AN1_/_C2IN1+_/_C2IN3-_/_RPA1_/_RA1
PGD3/_VREF-_/_OA2IN-_/_AN2_/_C2IN1-_/_RPB0_/_CTED2_/_RB0
PGC3/OA1OUT_/_VREF+_/_AN3_/_C1IN2-_/_RPB1_/_CTED1_/_RB1
U1TX
Main MCU
SOSCO_/_RPB8_/_T1CK_/_RB8
SOSCI_/_RPC13_/_RC13
AN15_/_RPB7_/_SCK1_/_INT0_/_RB7
AN14_/_RPC10_/_RC10
PGC2/RPB6_/_SCL1_/_RB6
PGD2/_RPB5_/_SDA1_/_RB5
RPD8_/_RD8
VSS_3
OSCO_/_CLKO_/_RPC15_/_RC15
OSCI/CLKI_/_AN17_/_RPC12_/_RC12
VDD_3
AN13_/_RPA4_/_T1G_/_RA4
SCK1
Output Compare 3
SS1
SDO1
Analog13
C6
0.1 uF
+3.3V
GND
RPB2
RPB3_/_RB3
RPC2
RPC3_/_RC3
RPC4_/_RC4
RPC5_/_RC5
PGC1/OA1IN+_/_AN4_/_C1IN1+_/_C1IN3-_/_RPB2_/_RB2
PGD1/OA1IN-_/_AN5_/_CTCMP_/_C1IN1-_/_RTCC_/_RPB3_/_RB3
AVDD
AVSS
OA3OUT_/_AN6_/_C3IN2-_/_RPC0_/_RC0
OA3IN-_/_AN7_/_C3IN1-_/_RPC1_/_RC1
OA3IN+_/_AN8_/_C3IN1+_/_C3IN3-_/_RPC2_/_FLT3_/_RC2
AN9_/_C3IN4-_/_FLT4_/_RC11
VSS_2
VDD_2
DAC1/_AN12_/_RPA8_/_SDA2_/_RA8
TDI_/_FLT15_/_RPB4_/_SCL2_/_RB4
PIC32MK0128MCA048-I_Y8X
U1RX
+3.3V
C2
0.1 uF
C3
0.1 uF
C5
0.1 uF
GND
USB_Output
RX_Output
TX_Output
3.3V
GND
Serial Output System
File: USB_Output.kicad_sch
J12
UART Test Point
1 U1TX
2 U1RX
J2
PIC32 SNAP Programmer
PGEC
PGED
GND
5 3.3V
6 -MCLR
+3.3V
GND
J1
SPI1 Test Point
1 SCK
2 CS
3 MOSI
4 MISO
WiFi
SCK1
CS1
MOSI
MISO
WiFi System
3.3V
GND
File: wifi.kicad_sch
Pump
5V
GND
Pump
Pump System
File: pump.kicad_sch
Sensors
Temp
SoilMoisture
SoilActivate
WaterLevel
Sensor System
+3.3V
3.3V
GND
File: sensors.kicad_sch
J4
3.3V Supply Points
J3
5V Supply Points
Power
5V
3.3V
GND
Power System
File: power.kicad_sch
H3
MountingHole
H1
MountingHole
H4
MountingHole
H2
MountingHole
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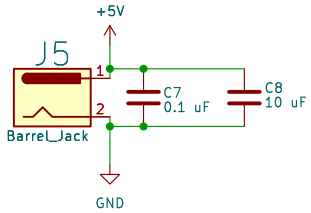
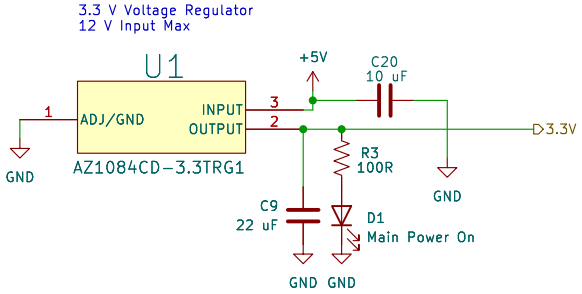
blame- satomm@stanford.edu
Sheet: /
File: Deliverable4_schematics.kicad_sch
Title: Smart Pot
Size: B
Date: 2023-10-29
Rev: 0.1
KiCad E.D.A. kicad 7.0.6
Id: 1/7





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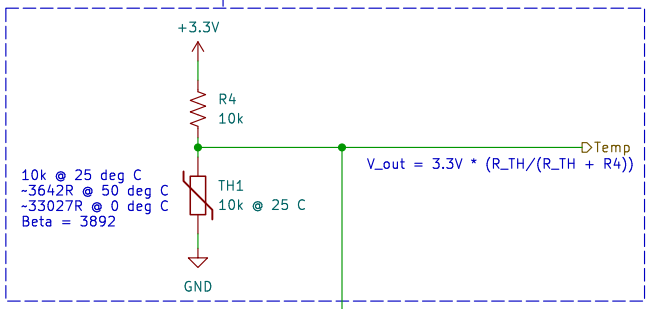
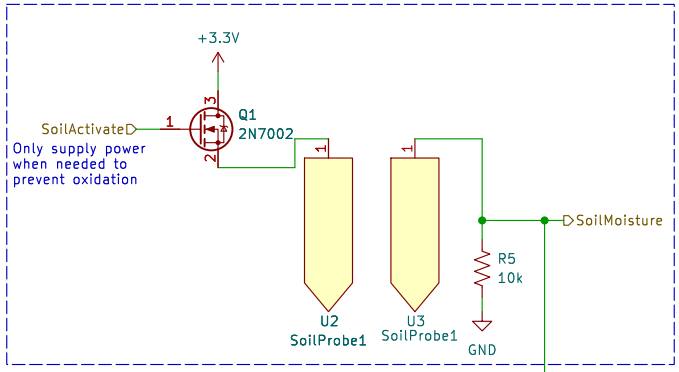
Sheet: /Power/ File: power.kicad_sch		
Title: Smart Pot		
Size: A4	Date: 2023-10-29	**Rev: 0.1**
KiCad E.D.A. kicad 7.0.6		Id: 2/7

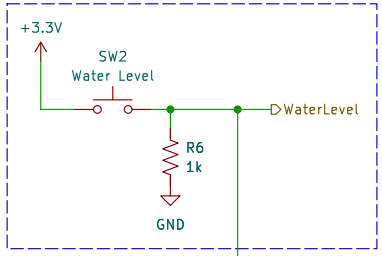
Temperature Sensor

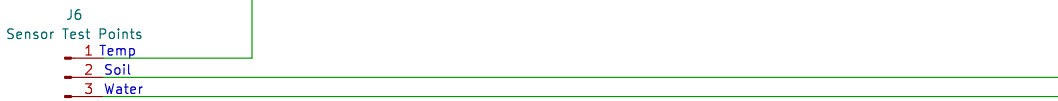


Soil Moisture Sensor

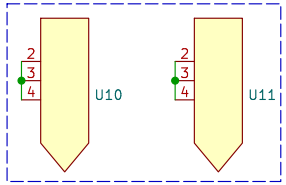


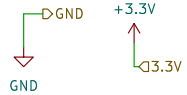
Limit Switch for Water Level Monitoring





These are just here so that we have a footprint for the soil probes for the PCB.
Wire will connect from PCB to these probes in the soil.





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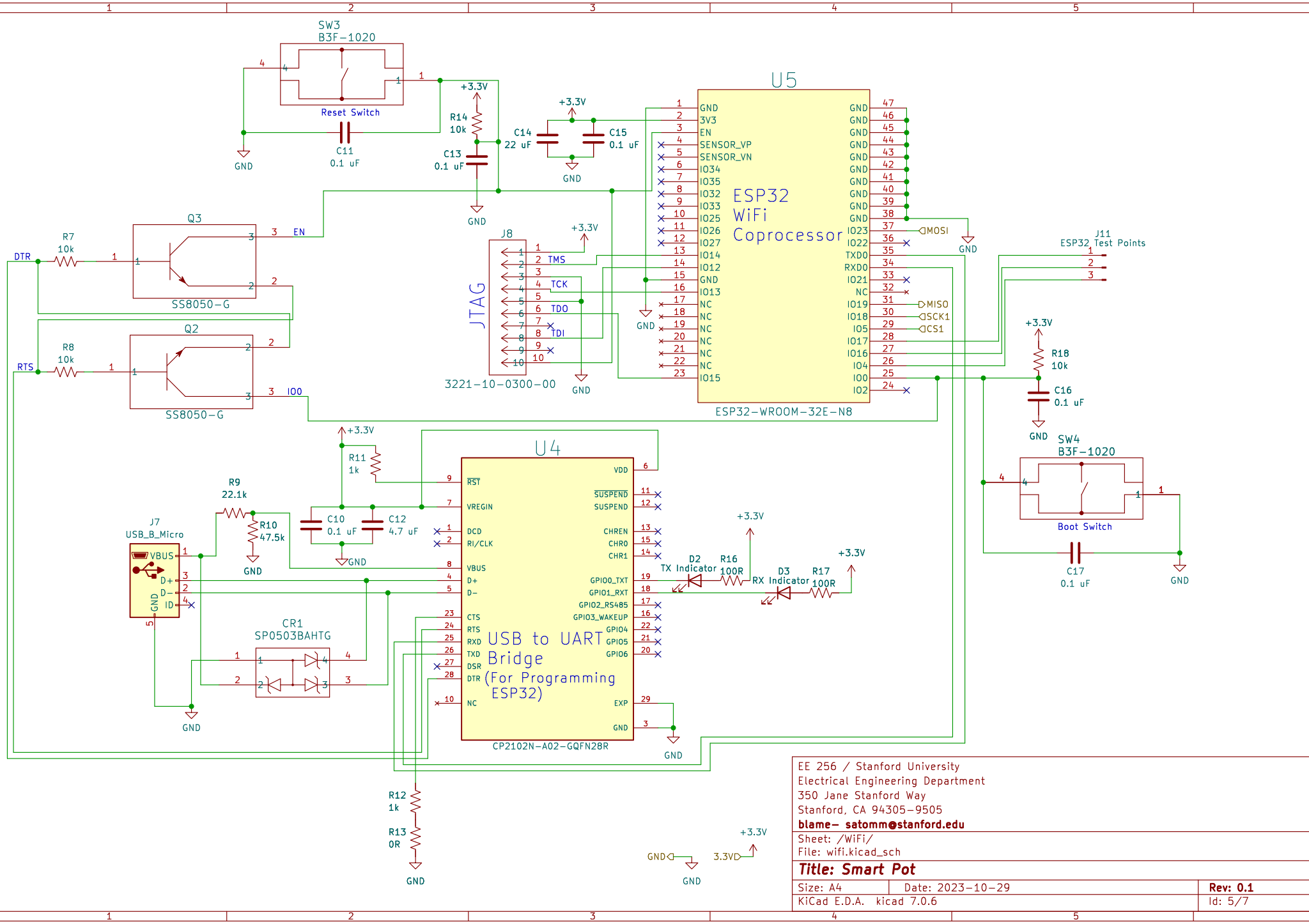
Sheet: /Sensors/
File: sensors.kicad_sch

Title: Smart Pot

Size: A4	Date: 2023-10-29	**Rev: 0.1**
KiCad E.D.A. kicad 7.0.6		Id: 3/7


SW3
B3F-1020
Reset Switch
R14
10k
C11
0.1 uF
C13
0.1 uF
C14
22 uF
C15
0.1 uF
U5
ESP32
WiFi
Coprocessor
ESP32-WROOM-32E-N8
J8
JTAG
3221-10-0300-00
Q3
SS8050-G
Q2
SS8050-G
R7
10k
R8
10k
DTR
RTS
EN
IO0
TMS
TCK
TDO
TDI
MOSI
MISO
SCK1
CS1
J11
ESP32 Test Points
R18
10k
C16
0.1 uF
SW4
B3F-1020
Boot Switch
C17
0.1 uF
U4
USB to UART
Bridge
(For Programming
ESP32)
CP2102N-A02-GQFN28R
R11
1k
R9
22.1k
R10
47.5k
C10
0.1 uF
C12
4.7 uF
J7
USB_B_Micro
CR1
SP0503BAHTG
D2
TX Indicator
R16
100R
D3
RX Indicator
R17
100R
R12
1k
R13
0R
+3.3V
GND
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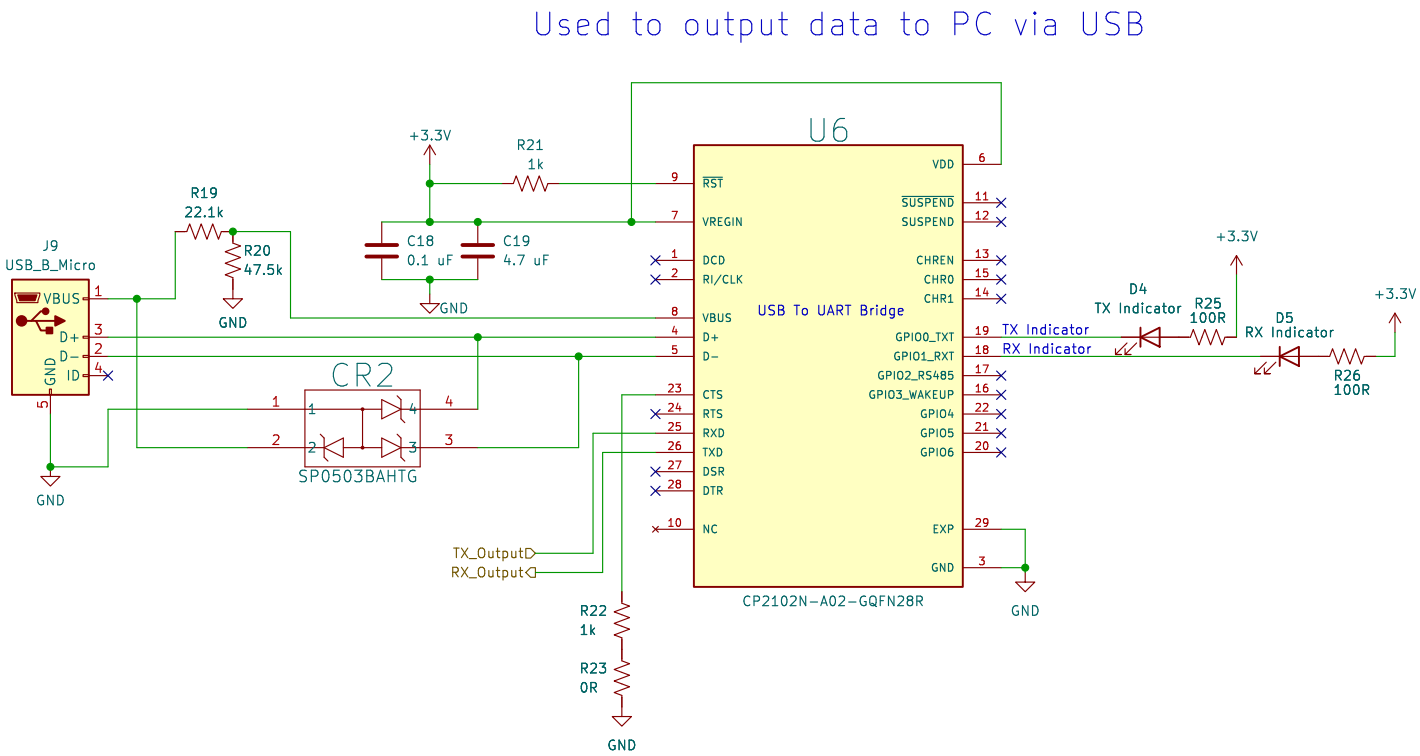
Sheet: /WiFi/
File: wifi.kicad_sch
Title: Smart Pot
Size: A4
Date: 2023-10-29
Rev: 0.1
KiCad E.D.A. kicad 7.0.6
Id: 5/7



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Sheet: /USB_Output/
File: USB_Output.kicad_sch

Title: Smart Pot

Size: A4	Date: 2023-10-29	**Rev: 0.1**
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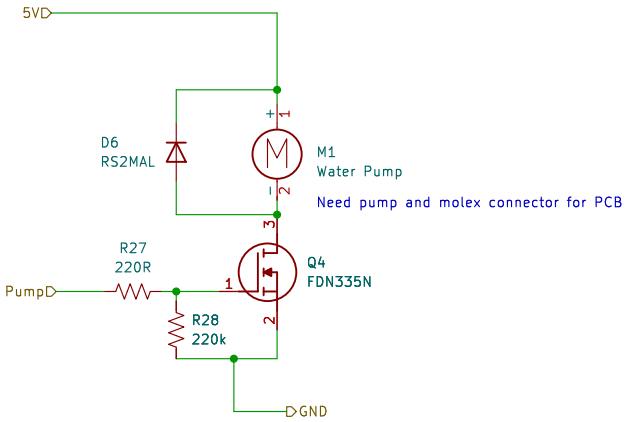

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Sheet: /Pump/ File: pump.kicad_sch		
Title: Smart Pot		
Size: A4	Date: 2023-10-29	**Rev: 0.1**
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Temperature Display

Shift Register x2 to control 7 Segment Display with SPI

U8
SN74HCS595PWR

U9
SN74HCS595PWR

U7
SN74ACT244DWR

Buffer to bring SPI signal up to 5V

C21 0.1 uF
C22 0.1 uF
C23 0.1 uF

R15 1k
R29 1k

RN1 CAY16-301J4LF
RN2 CAY16-301J4LF
RN3 CAY16-301J4LF
RN4 CAY16-301J4LF
300R

D7
HDSP-523G
7 Segment Display for Temperature

LED indicator for how frequent to water

R24 100R
R31 100R
D8 Set Level 1
D10 Set Level 2
Q6 2N7002
Q8 2N7002
SetLevel1
SetLevel2

LED indicator for low water tank

R36 27R
D15 Water Level Low
Q13 2N7002
WaterLow

Push button for user inputs

SW5
B3F-1020
R30 1k
UserButton

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Sheet: /UserIO/
File: UserIO.kicad_sch

Title: Smart Pot

Size: A4	Date: 2023-10-29	**Rev: 0.1**
KiCad E.D.A. kicad 7.0.6		Id: 7/7