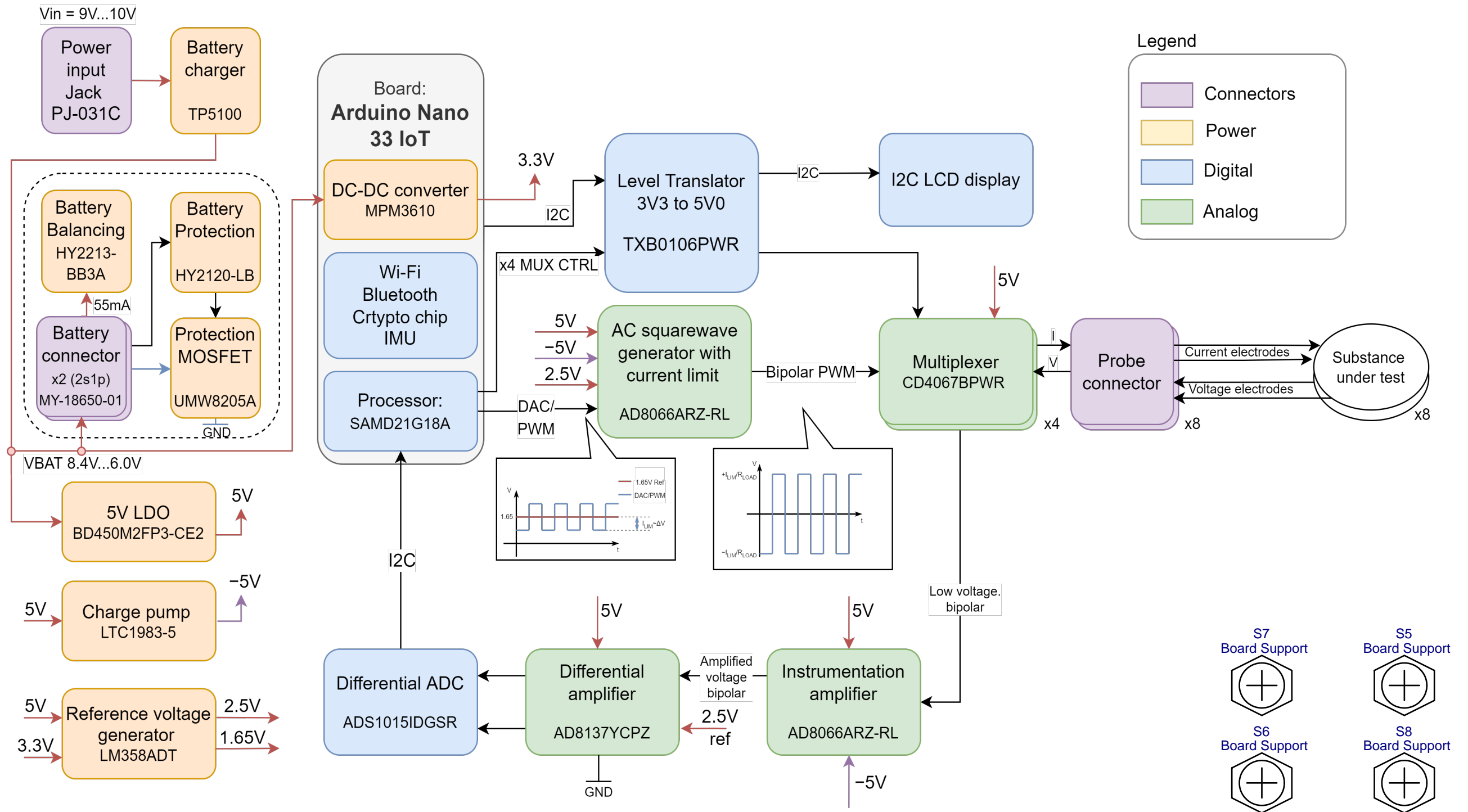


# Flexi-TEER block diagramm

Rev.0.3 - 27-Nov-2022



## Schematic Revision History

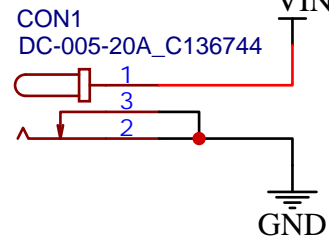
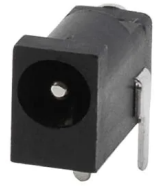
V2.0 July 2022. Contributed by Dennis Yaskevich, Michael Anderson and Jose Yesta Lozano

## NOTES

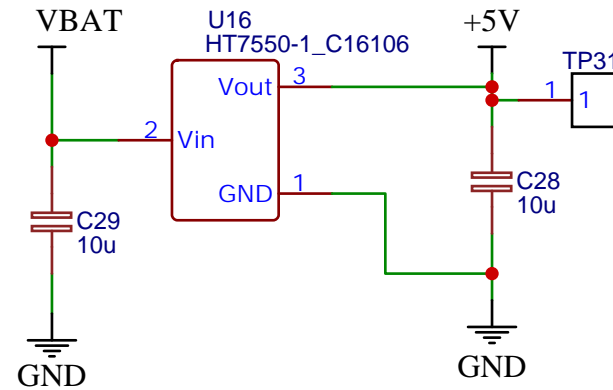
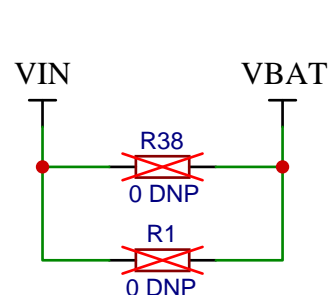
All resistors are 1% tolerance unless otherwise noted

			REV: 2.0
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Block Diagram	Date: 2022-9-29	Drawn By: MD Anderson	

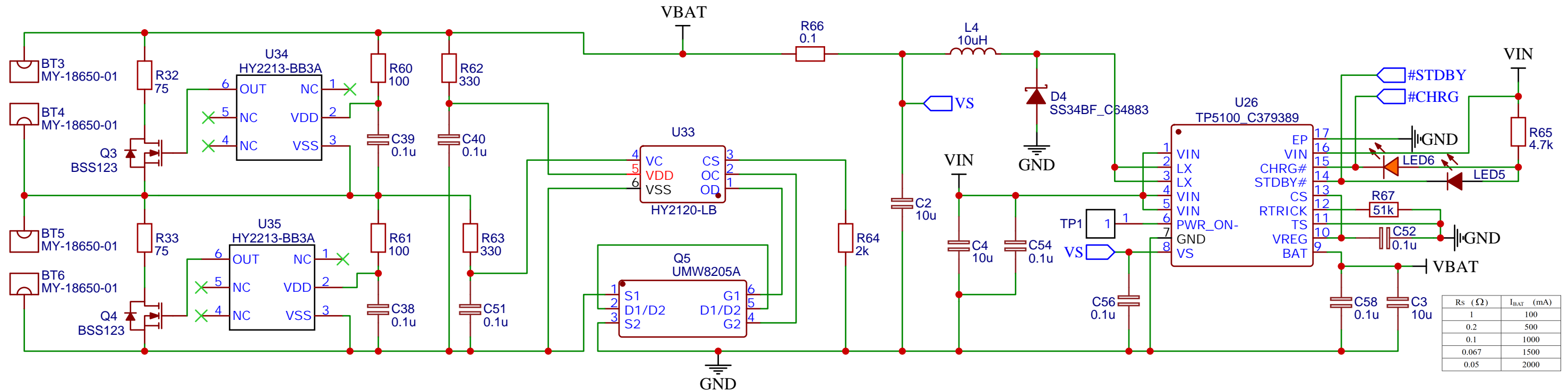
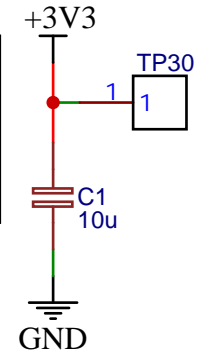
## PSU Input



Input Voltage 9V...10V  
9V > 10W power supply is recommended  
5.5x2.1mm Jack

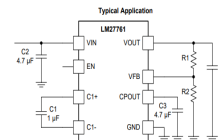
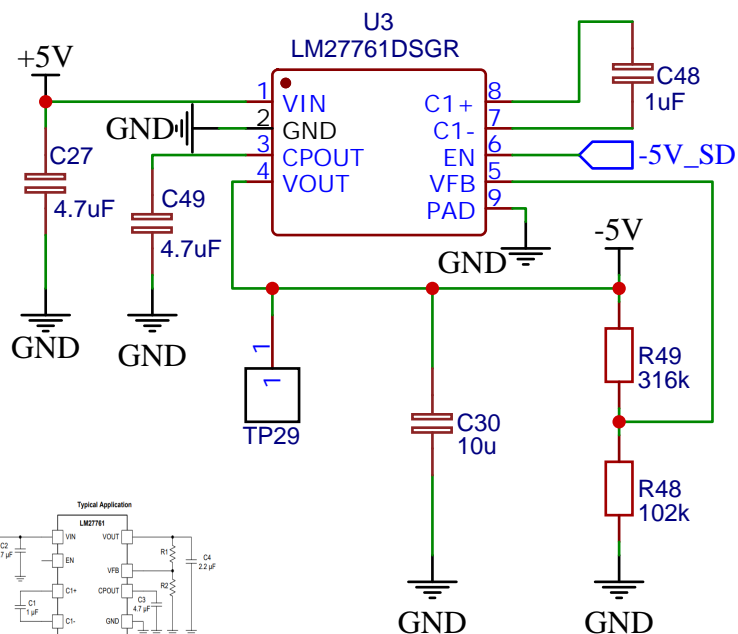


3.3V power  
is provided  
by Arduino



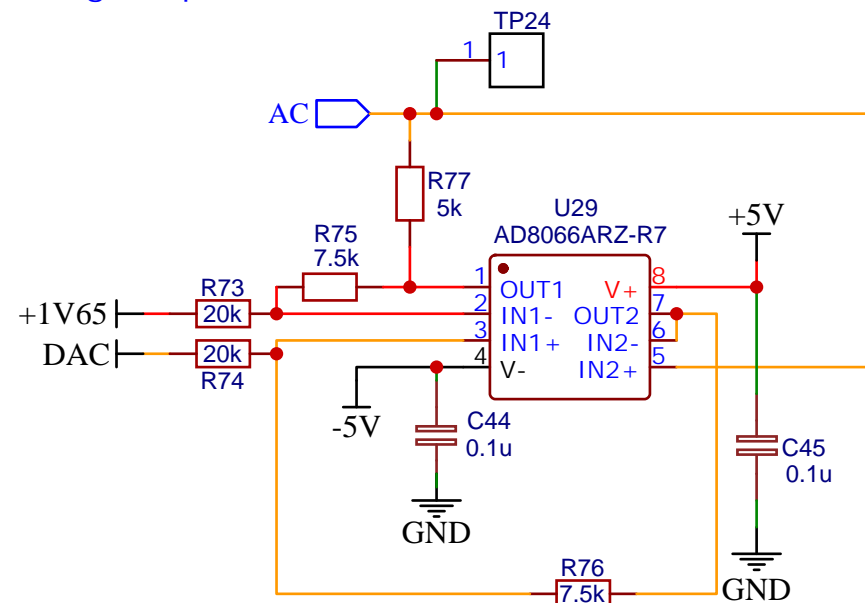
Rs (Ω)	IBAT (mA)
1	100
0.2	500
0.1	1000
0.067	1500
0.05	2000

## Negative -5V generator



$$V_{out} = -1.22V * (R1 + R2) / R2, R2 > 50k$$

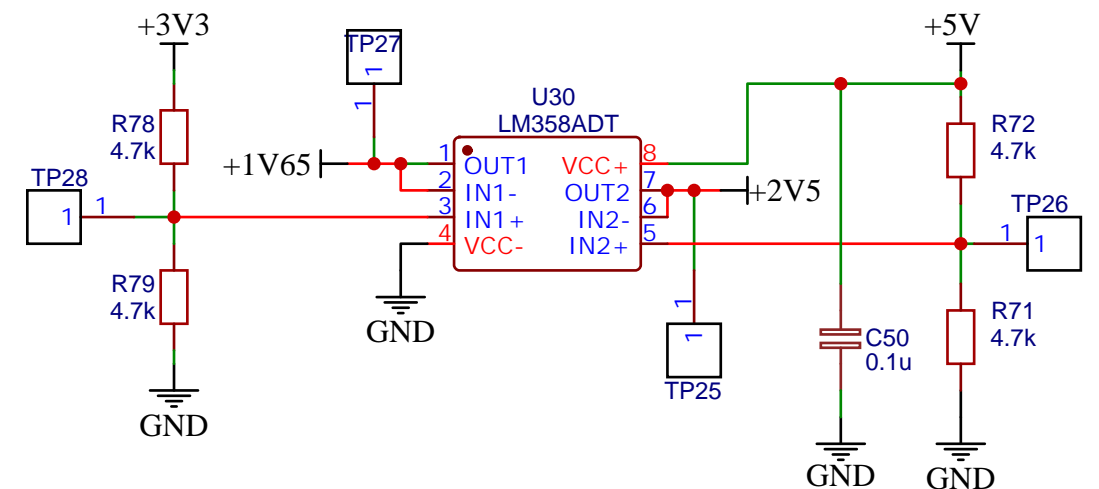
## Voltage dependent, fixed Current AC Generation



$$I = \dots$$

$$I_{max} = \dots$$

## 1.65V and 2.5V ref. voltage buffer generation



**FLexiTEER**

Page name:  
Power

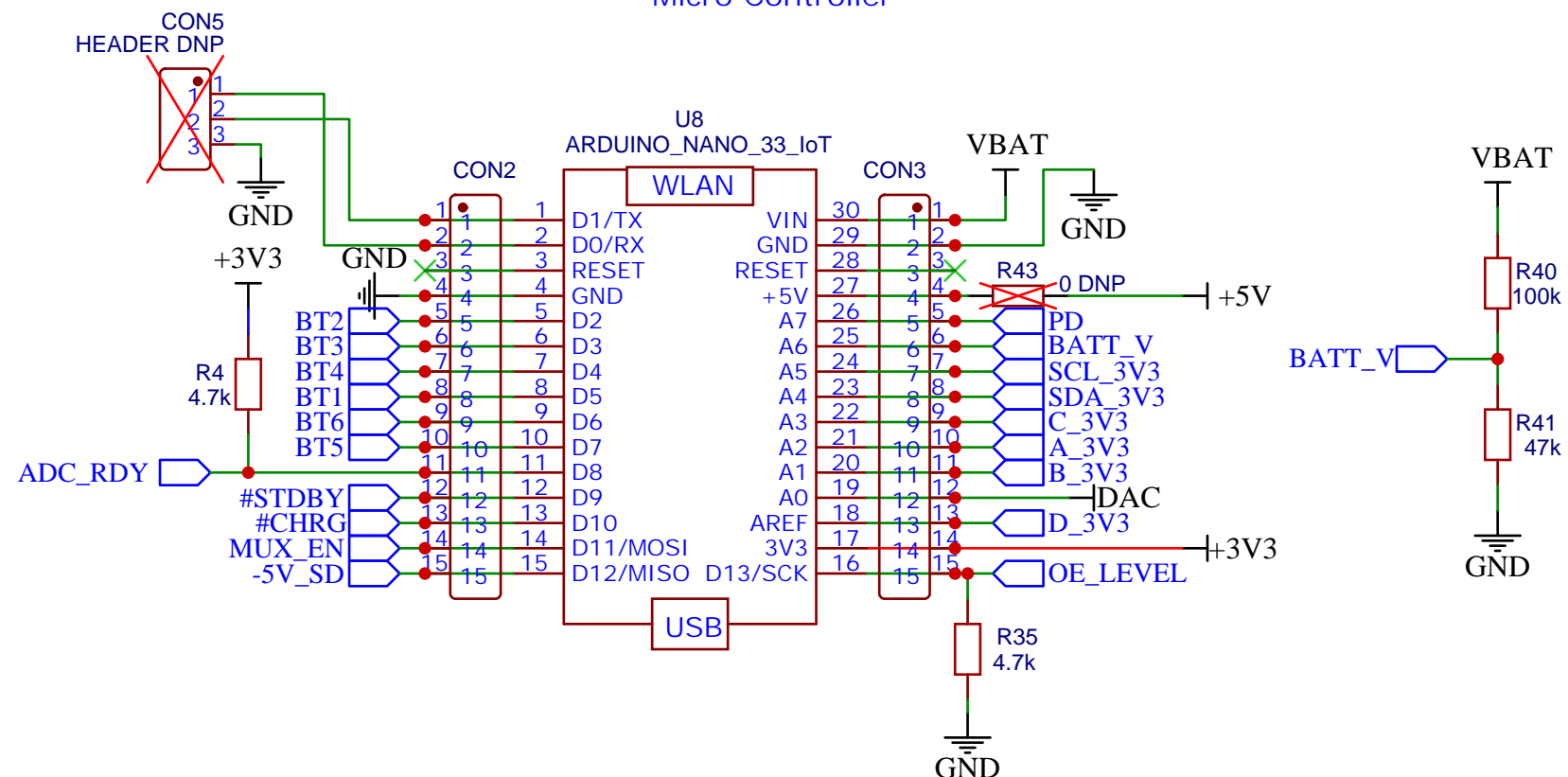
Company: Boston Childrens Hospital

Date: 2022-11-01 Drawn By: MD Anderson

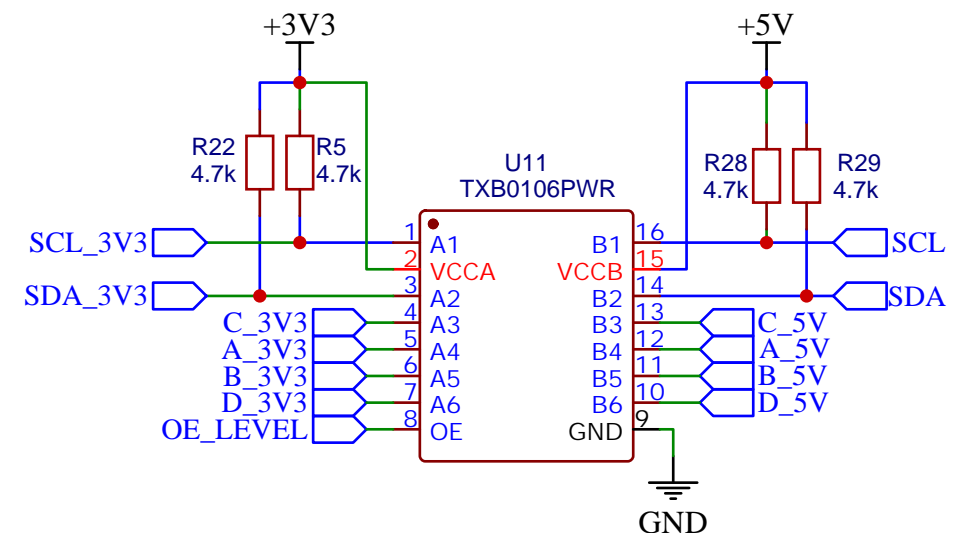
REV: 2.0

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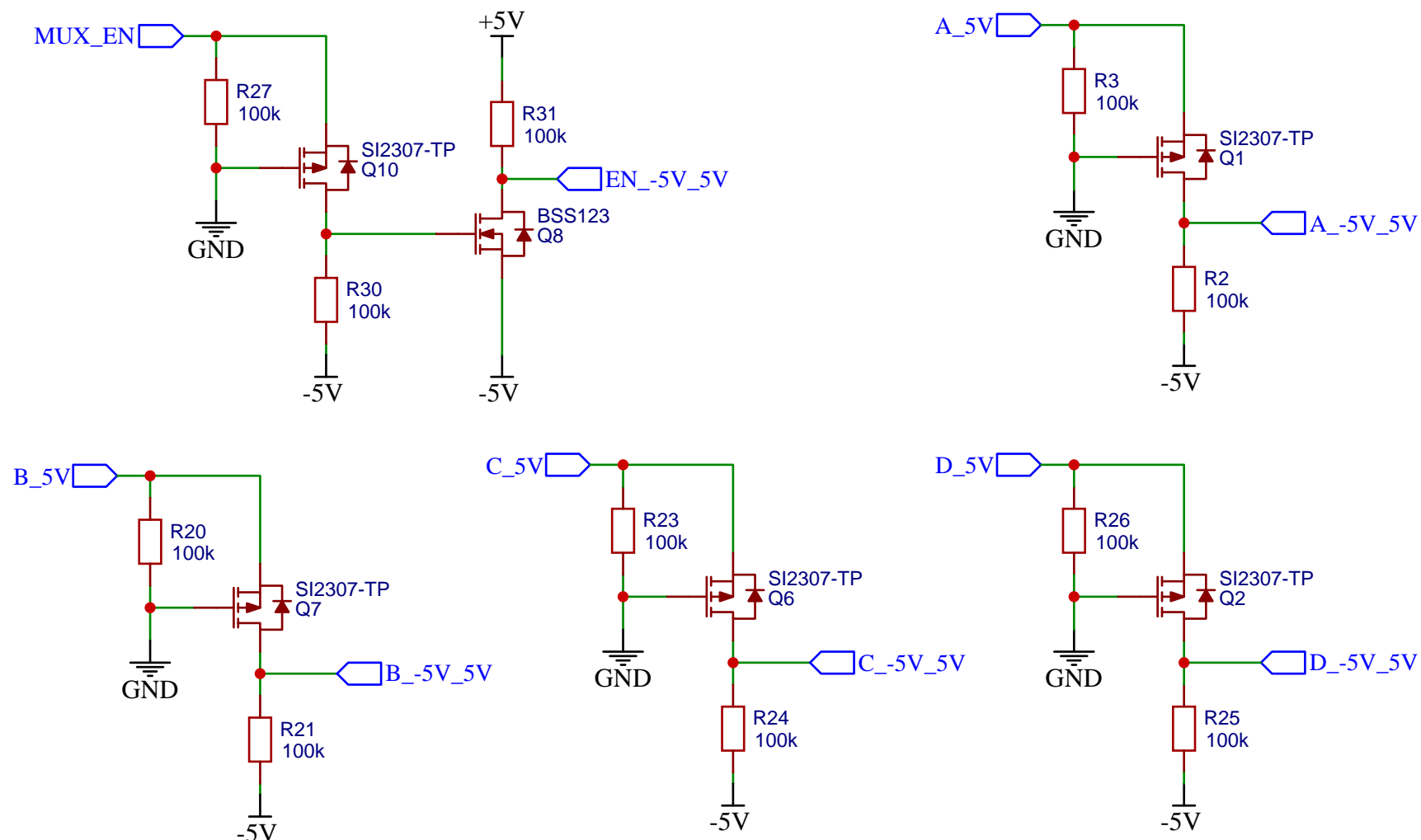
## Micro Controller



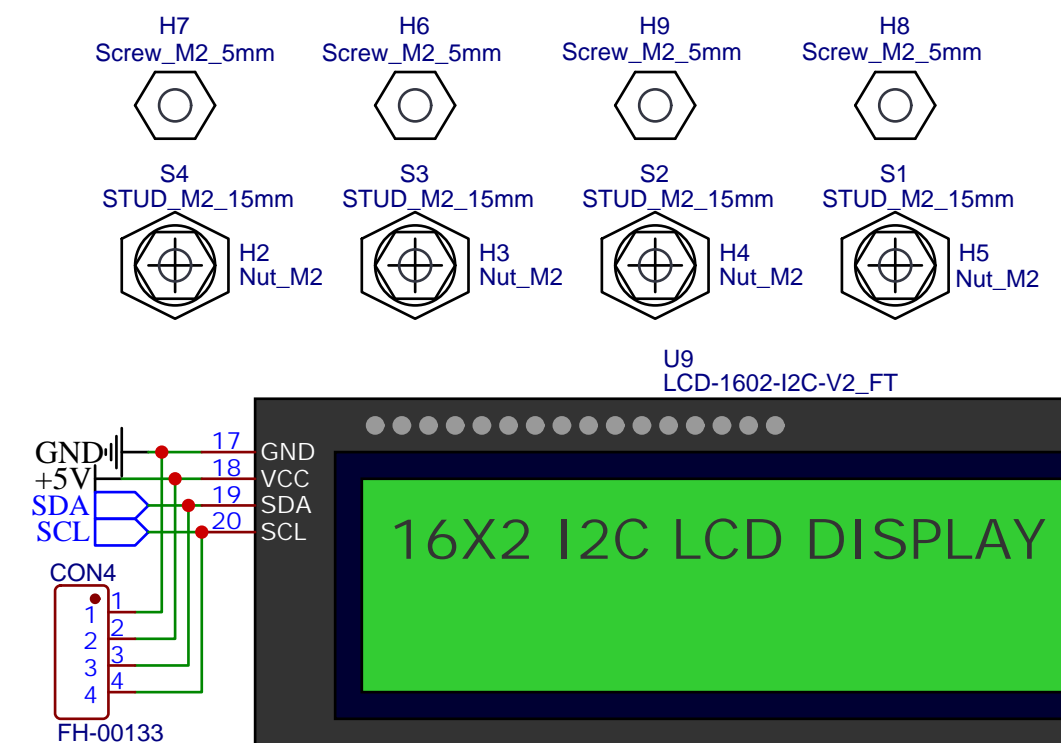
## Level translator 3V3..5V



## Level translator 0..5V to -5V..+5V

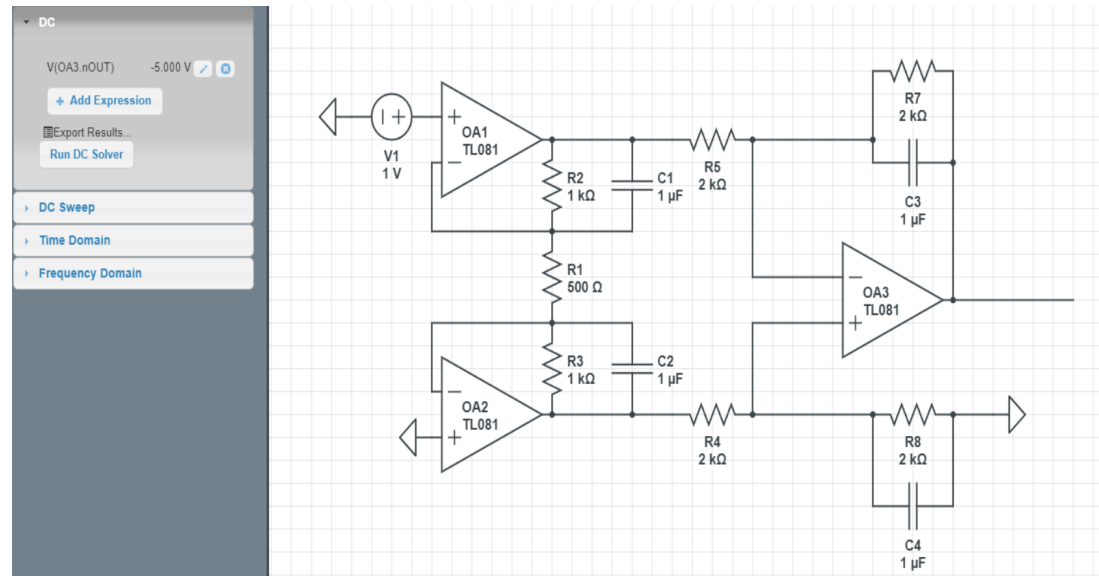
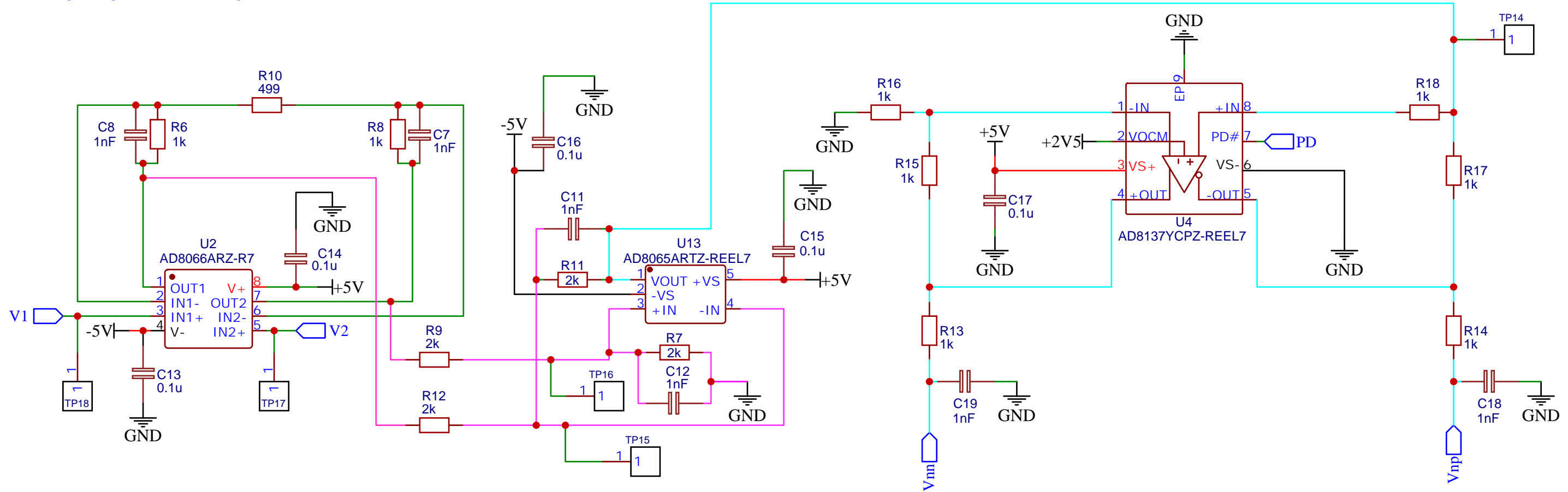


## I2C LCD Panel Connection



Any I2C LCD will work.  
pcf8574t I2C to LCD expander board used.  
Many LCD screens can be purchased with expander board already attached  
<https://www.microcenter.com/product/632704/inland-1602-i2c-lcd-display-module>

## Voltage Signal Processing



Explanation picture

## ADC

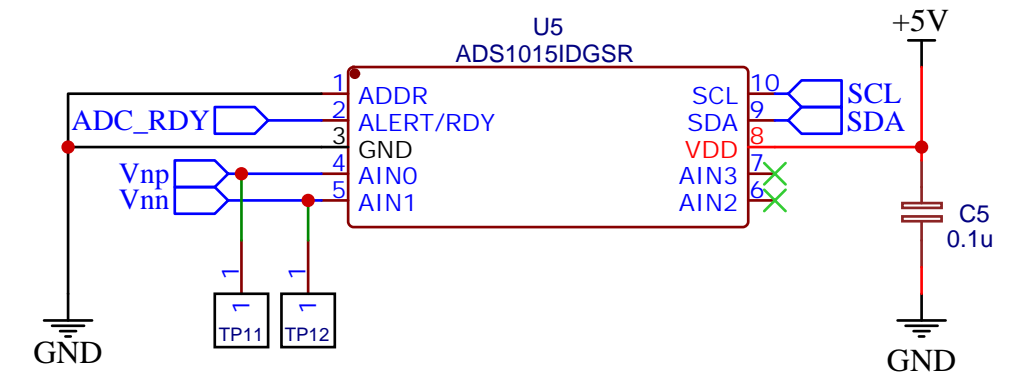
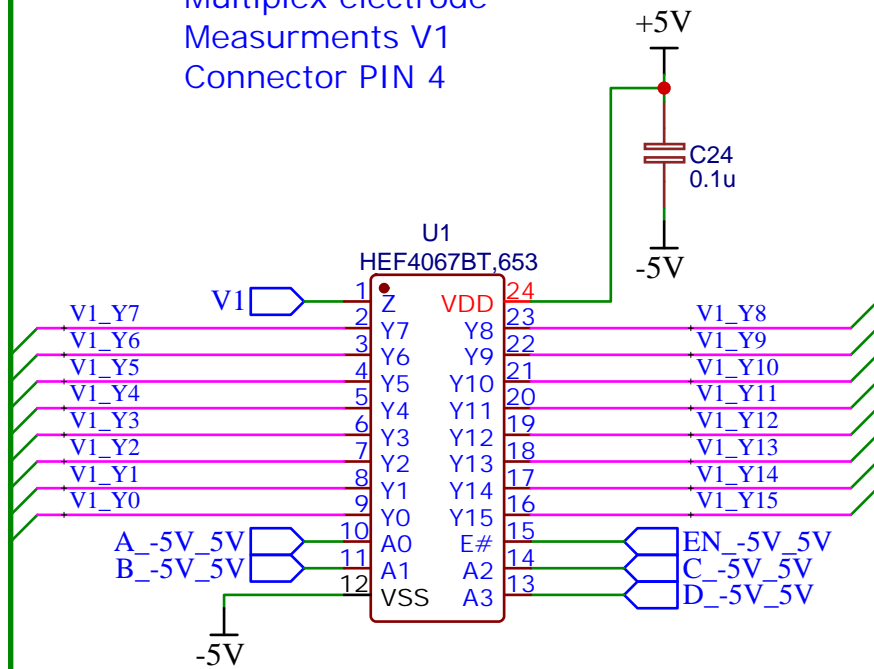


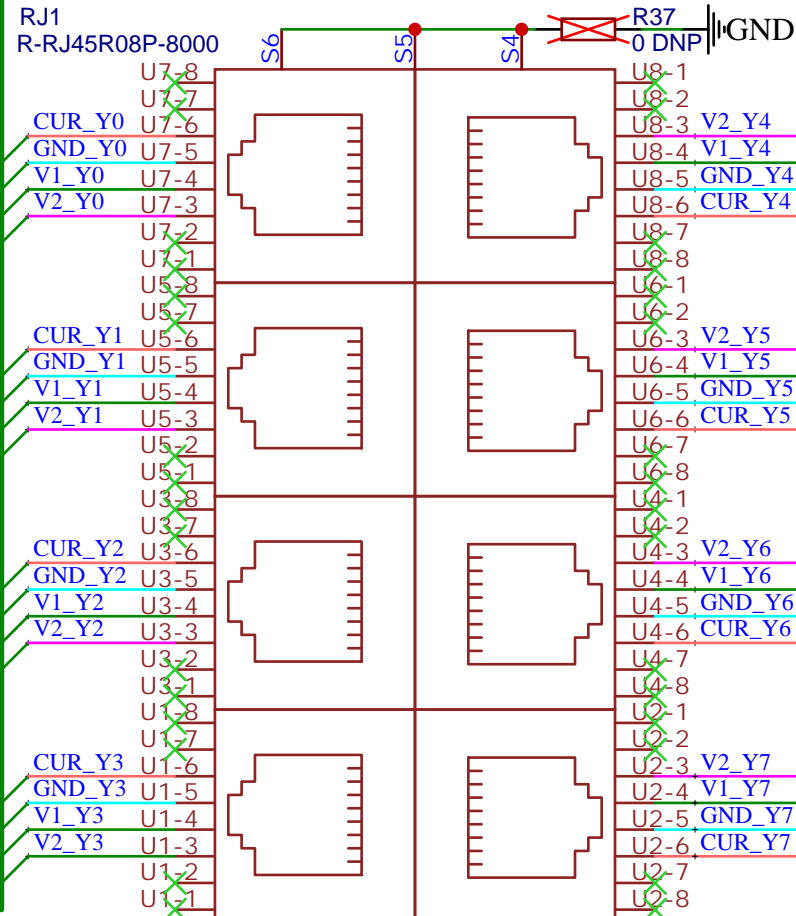
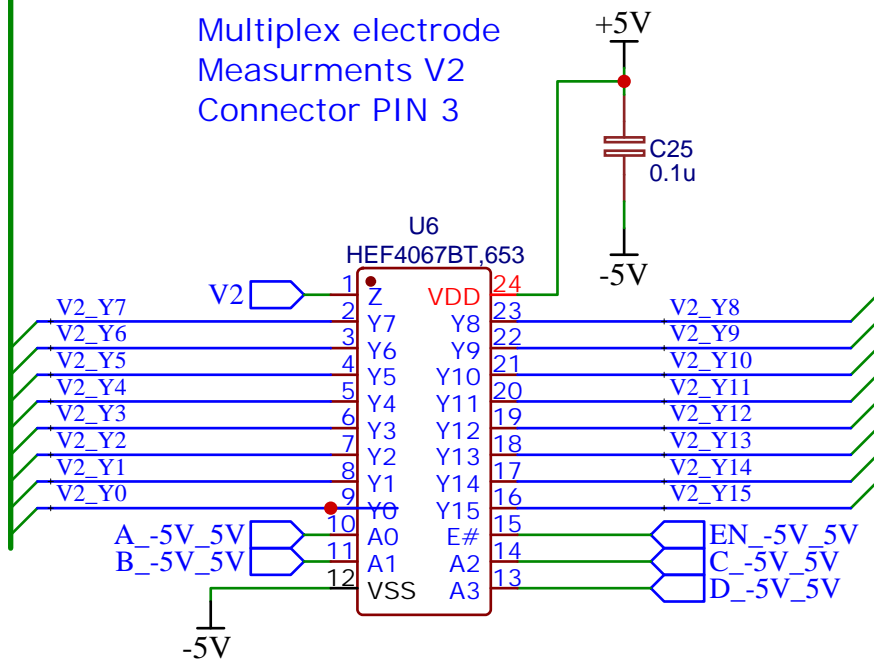
Table 2. ADDR Pin Connection and Corresponding Slave Address

ADDR PIN CONNECTION	SLAVE ADDRESS
GND	1001000
VDD	1001001
SDA	1001010
SCL	1001011

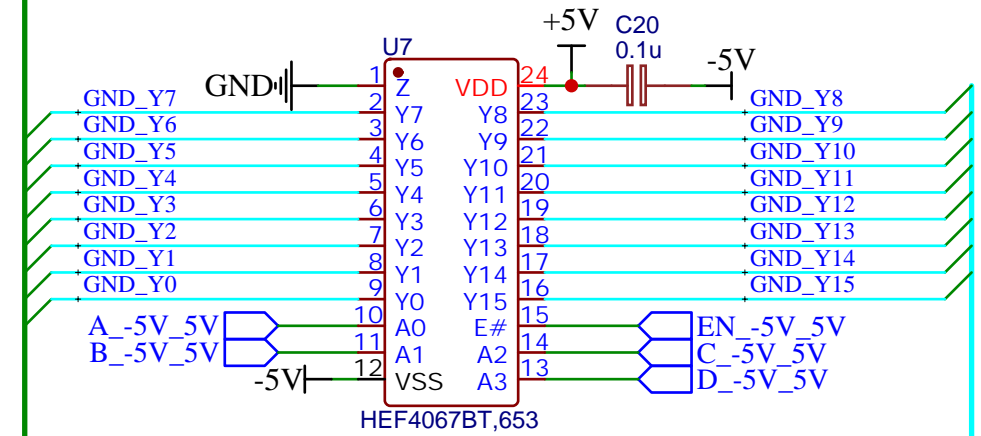
Multiplex electrode  
Measurments V1  
Connector PIN 4



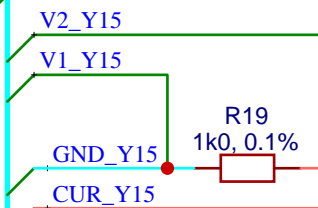
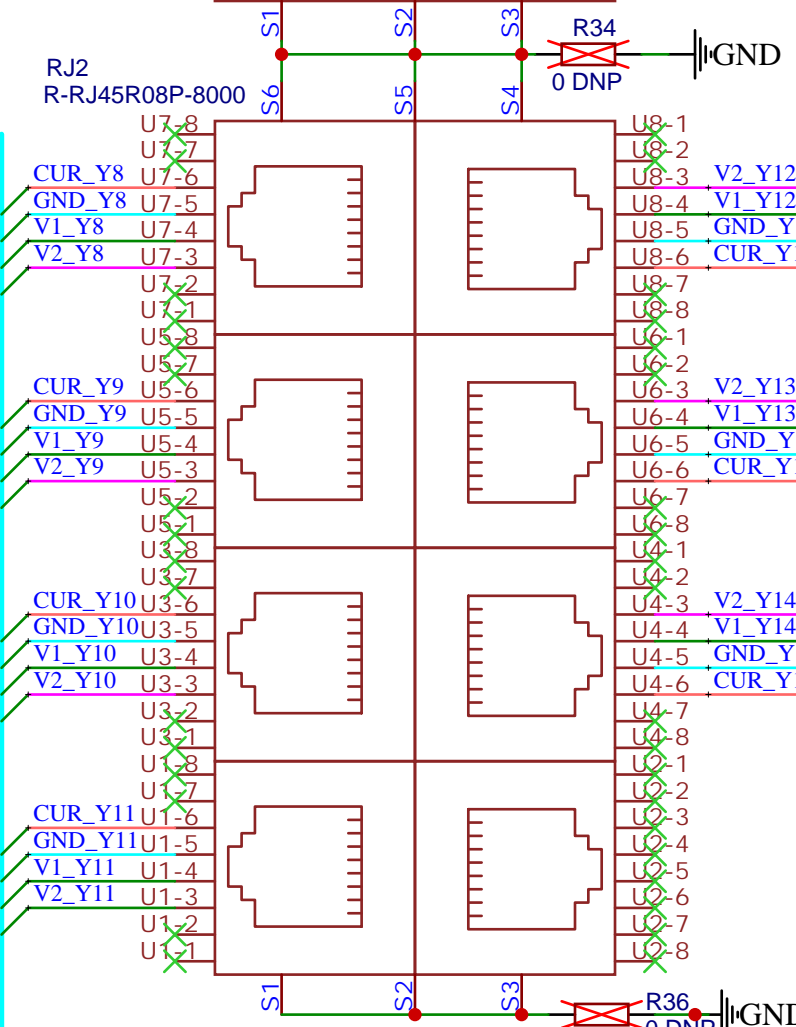
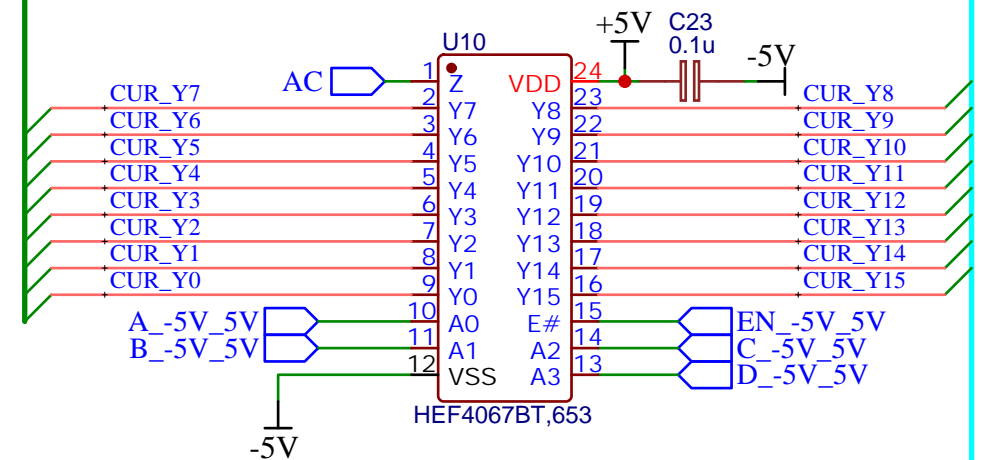
Multiplex electrode  
Measurments V2  
Connector PIN 3



Multiplex I\_1 electrode  
Connector PIN 6



Multiplex I\_2 electrode  
Connector PIN 5



Directly convertible from RJ45 to RJ11  
for use on EVOM Meter and vise-versa

Channel 16 (pins 121-128) is reserved for internal calibration of currents via an onboard 1k ohm resistor



REV: 2.0

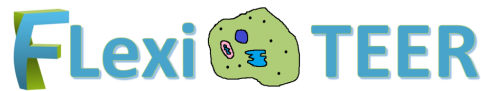
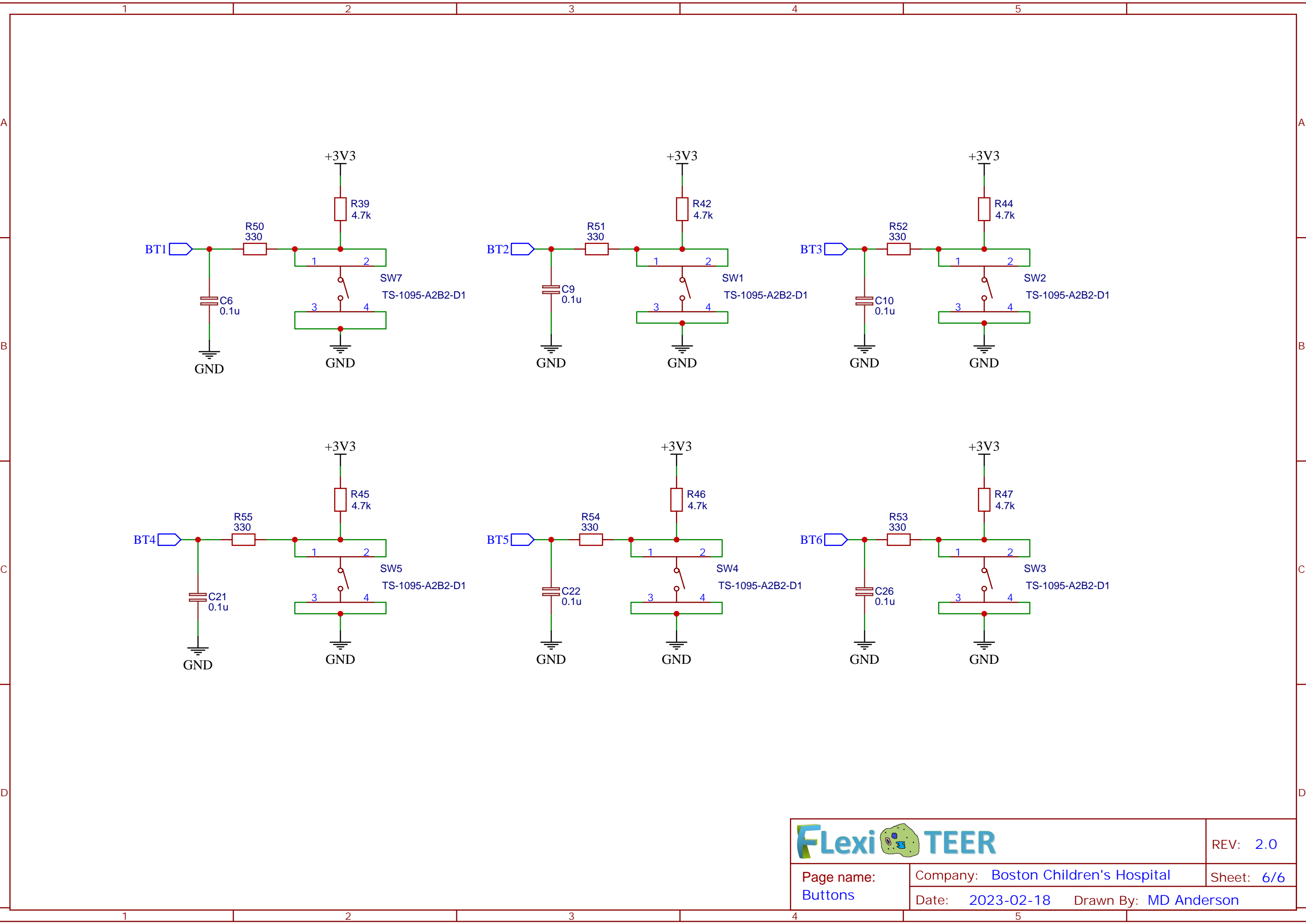
Page name:  
Electrodes

Company: Boston Children's Hospital

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Date: 2022-9-29

Drawn By: MD Anderson



REV: 2.0

Page name:  
Buttons

Company: Boston Children's Hospital

Sheet: 6/6

Date: 2023-02-18 Drawn By: MD Anderson