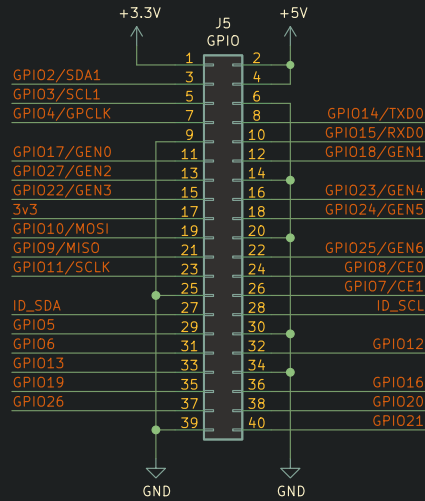
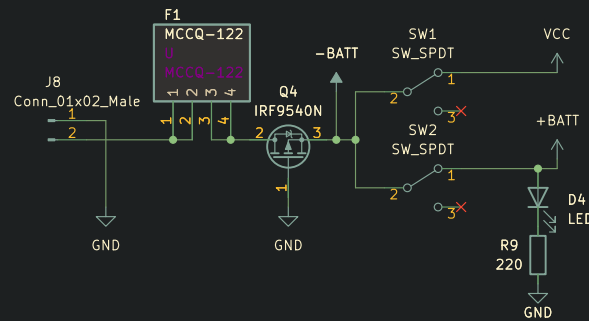


## Raspberry Pi Header

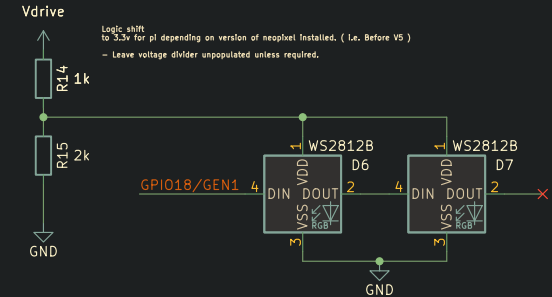


## Power Supply

PMOS Reverse Polarity Protection (Hsieh, 2019)



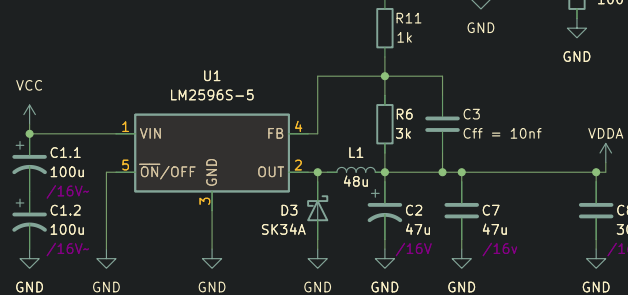
## NEO-PIXELS



## Voltage Regulators

### Raspberry Pi Voltage Regulator (ST, 2018)

\*2x 10V rated Caps Stacked for combined rating 32V (C1.1 & C1.2)

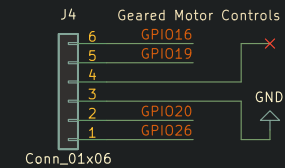


## Pinouts

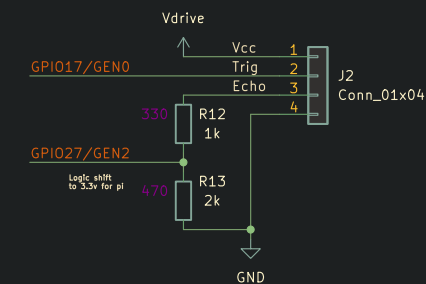
### Servo Motor Output



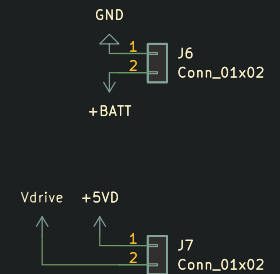
### Motor Controller



### Ultrasonic Sensor Output/Input

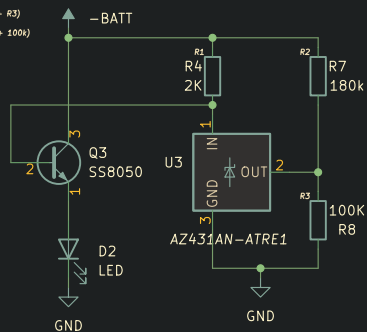


### Jumper Pins



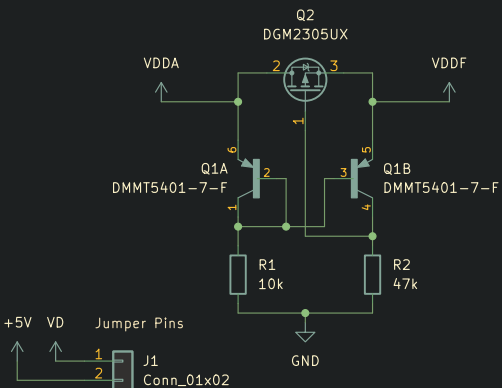
## Battery Low Voltage Indicator

$V_{light} = 2.5/R3 * (R2 + R3)$   
 $7v = 2.5/100k * (180k + 100k)$



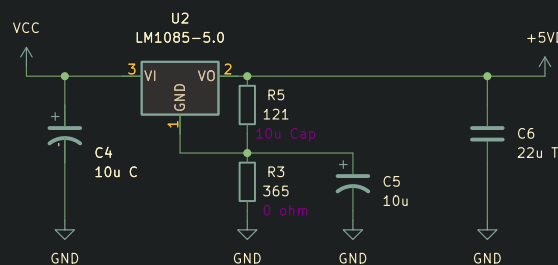
REF: [https://www.pcbway.com/project/shareproject/Lithium\\_battery\\_low\\_battery\\_indicator\\_module.html](https://www.pcbway.com/project/shareproject/Lithium_battery_low_battery_indicator_module.html)

## Back Power Protection – 'Ideal Diode'



REF: <https://github.com/raspberrypi/hats/blob/master/designguide.md>

### Servo Voltage Regulator (ST, 2018)



# ROBOTS101 PI-HAT

By Phoenix Seybold & Stephen Wardle  
**QUT Robotics Club**

Additional pin functions:  
<https://pinout.xyz/>

Sheet: /  
 File: RPI.kicad\_sch

### Title: Robots101 Pi-Hat

Size: A4 Date: 06 / 08 / 2023  
 KiCad E.D.A. kicad (6.0.7)

Rev: 2.12  
 Id: 1/1