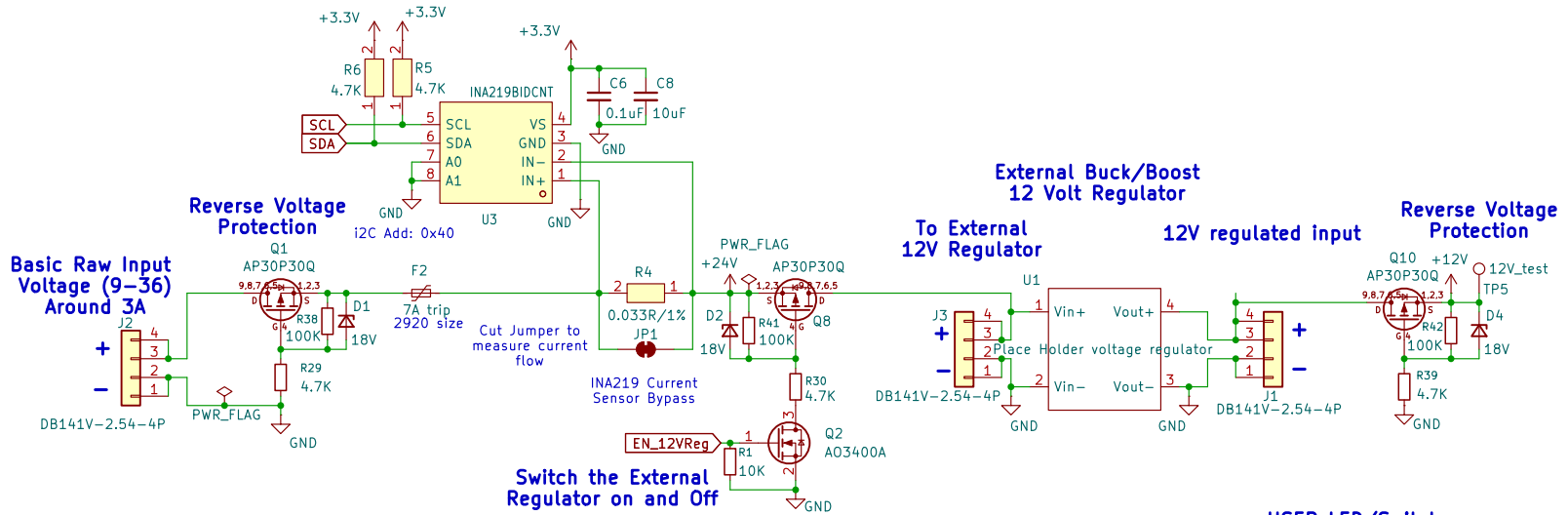
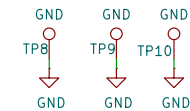
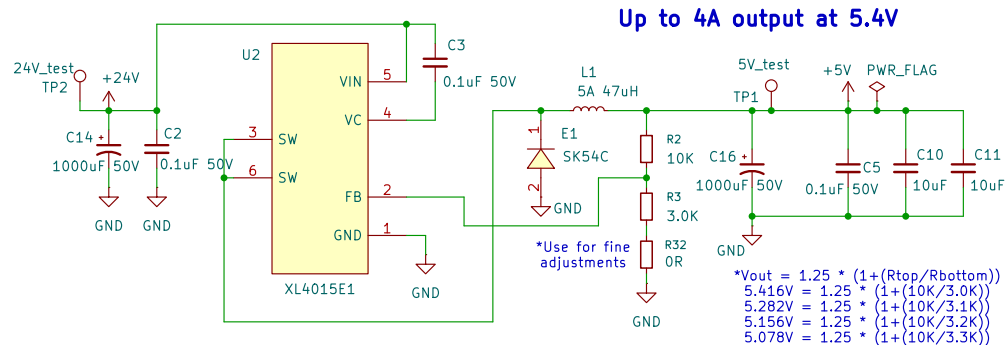


1	2	3	4	5
A				
B	<div>Power</div> <div></div> <div>File: Power.kicad_sch</div>	<div>GPS and Switches and Light Sensor</div> <div></div> <div>File: GPS.kicad_sch</div>	<div>RPI5</div> <div></div> <div>File: RPI5.kicad_sch</div>	
C	<div>camera battery and mechanical</div> <div></div> <div>File: camera.kicad_sch</div>	<div>Photo LED's</div> <div></div> <div>File: Photo_LEDs.kicad_sch</div>	<div>UV LED PCB</div> <div></div> <div>File: UV_LED_PCB.kicad_sch</div>	
D	<div><div></div><div>Digital Naturalism Laboritories</div><div>Sheet: /</div><div>File: Mothbox_5.0.4.kicad_sch</div><div><div>Title: MothBox</div><div><div>Size: A4</div><div>Date: 2025-12-17</div><div>Rev: 5.0.4</div></div><div>KiCad E.D.A. 9.0.6</div><div>Id: 1/7</div></div></div>			
1	2	3	4	5

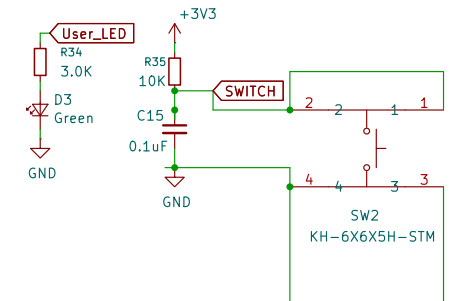
Current and Voltage measurement



Buck Converter (Input <9V–36V> PWR to +5.4V)



USER LED/Switch



Digital Naturalism Laboritories

Sheet: /Power/
File: Power.kicad_sch

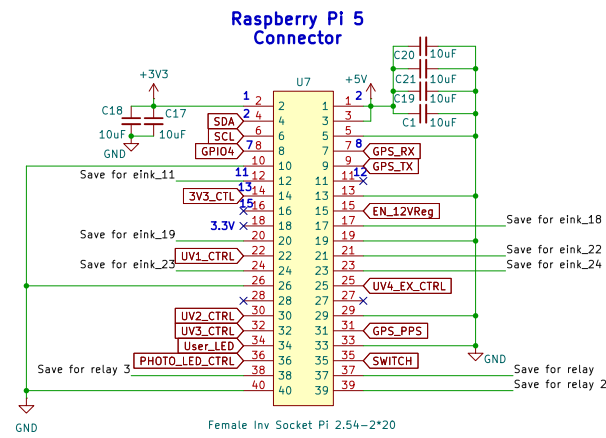
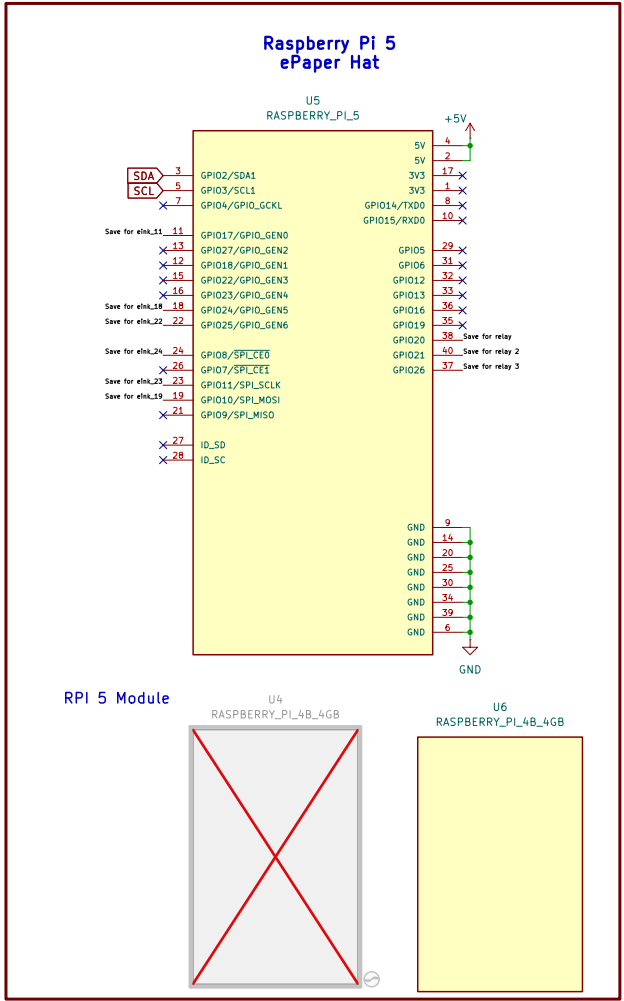
Title: MothBox

Size: A4 Date: 2025-12-17

KiCad E.D.A. 9.0.6

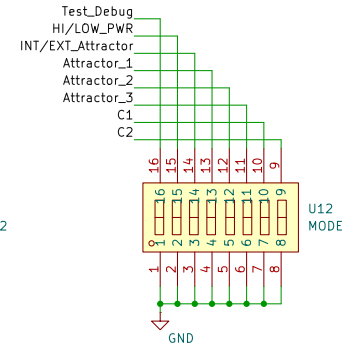
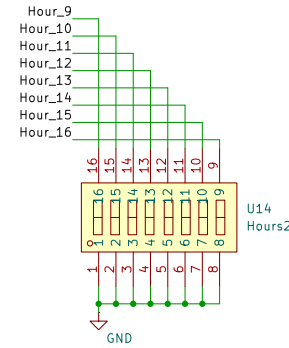
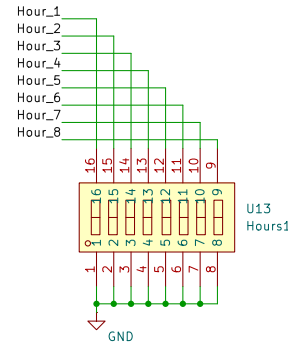
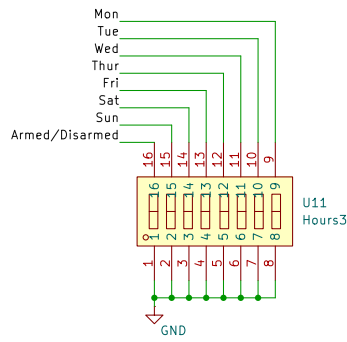
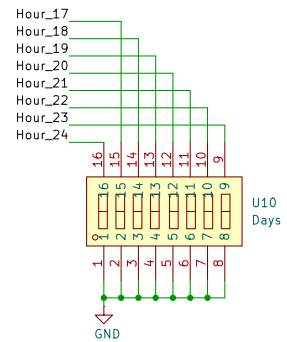
Rev: 5.0.4

Id: 2/7



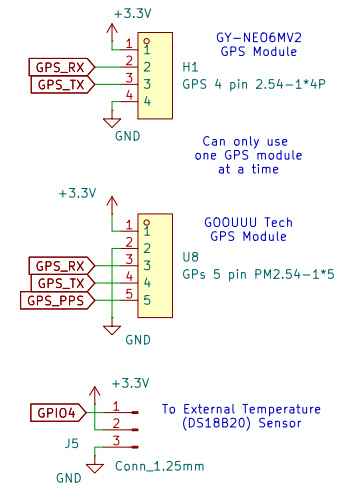
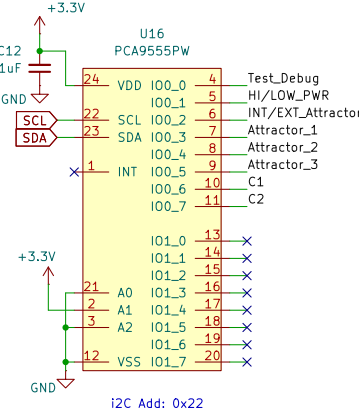
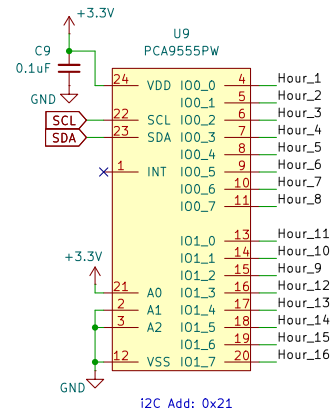
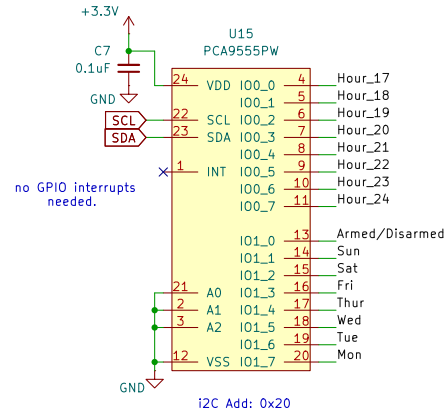
**NOTE: The connector is in back-to-front.
But it's wired up so it works.**

SWITCHES

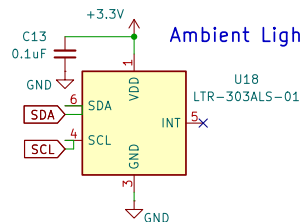


GPS connects

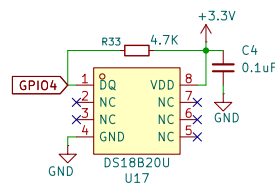
GPIO MUX



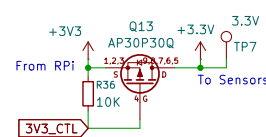
The PCA9555PW has built in 100K ohm pullup resistors on the GPIO

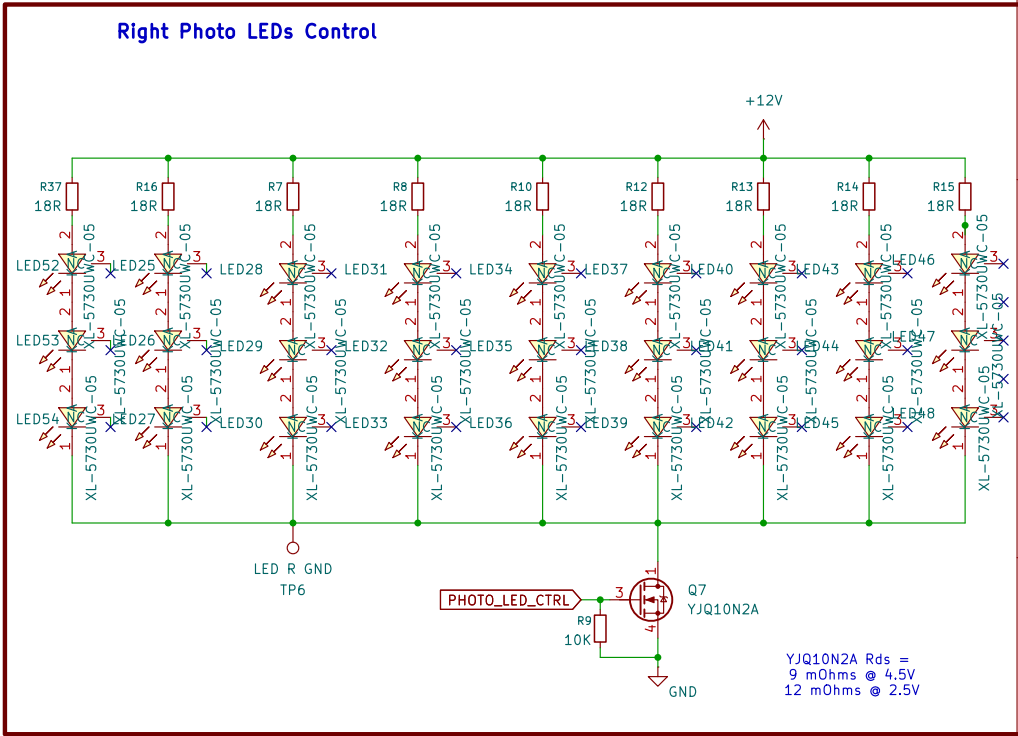
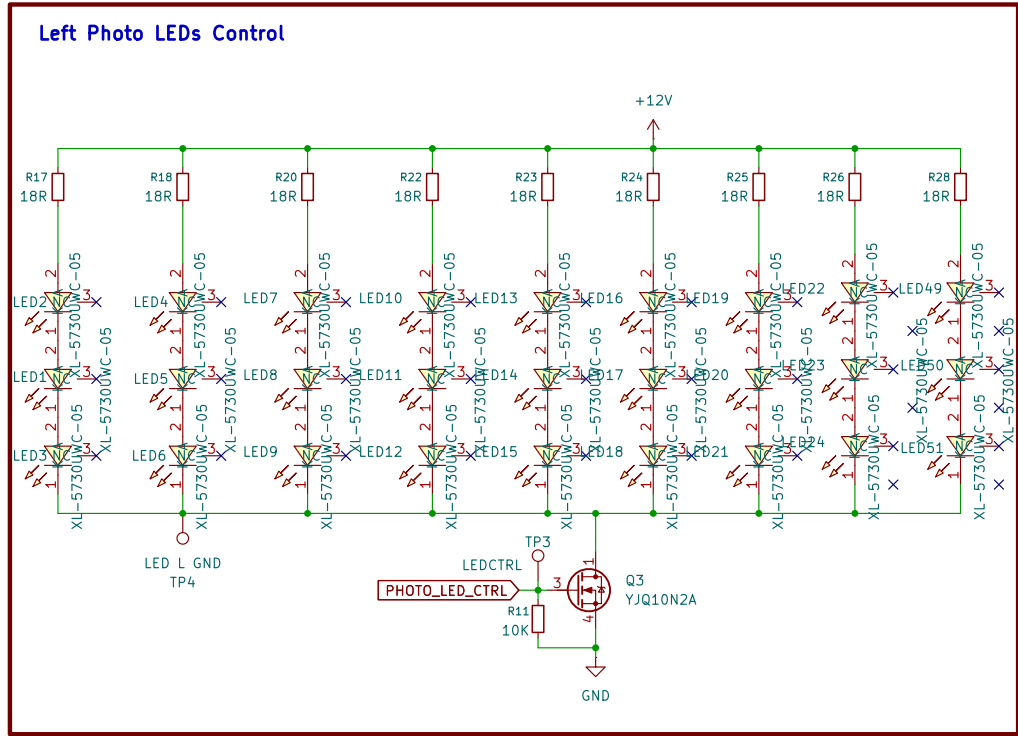


PCB Temperature



Switched 3V3





v5.0.1+ used the XL-2835UWC-02
it should draw around 133mA at 12V
therefore each bank should draw 1.072A, or 2.144A total

(144mA-149mA @ 11.89V measured through two strings: 2025-10-02)

v5.0.0 used XINGLIGHT XL-2835UWC-02

60mA 6000K-7500K Yellow lens -20°+85C Positive Stick White 120° 200mW 3.4V SMD2835 LED Indication - Discrete ROH

Figure out:
Each string used around 83mA

how many batches per transistor thing

what is the light angle of these LEDs (if any) without lens is cheaper

Current per led = 60mA
Total current = 8(columns) x 60mA
= 480mA
Total Luminous required = ?? lm
Per led luminous = ??? lm
10 led Luminous = ??? lm

Digital Naturalism Laboratories

Sheet: /Photo LED's/
File: Photo_LEDs.kicad_sch

Title: MothBox

Size: A4 Date: 2025-12-17

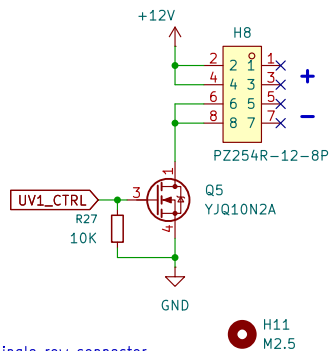
KiCad E.D.A. 9.0.6

Rev: 5.0.4

Id: 5/7

UV PCB1 Control Circuit

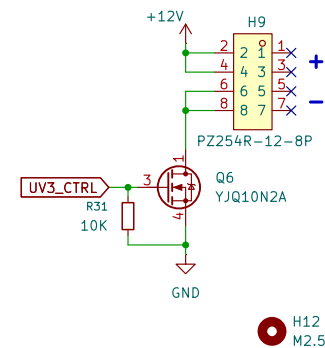
UV PCB1 current consumtiom = 500mA



v5.0.0 used the: PZ254R-11-04P single row connector

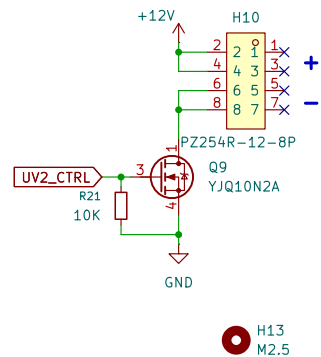
UV PCB3 Control Circuit

UV PCB3 current consumtiom = 500mA

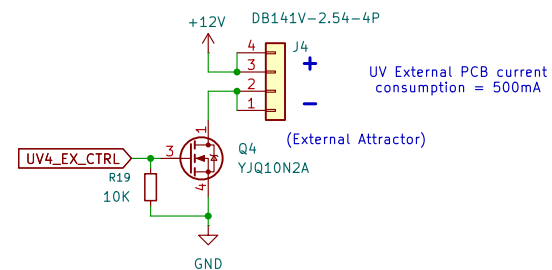


UV PCB2 Control Circuit

UV PCB2 current consumtiom = 500mA



UV External Attractor



Digital Naturalism Laboritories

Sheet: /UV_LED_PCB/
File: UV_LED_PCB.kicad_sch

Title: **MothBox**

Size: A4 Date: 2025-12-17

KiCad E.D.A. 9.0.6

Rev: **5.0.4**

Id: 6/7

