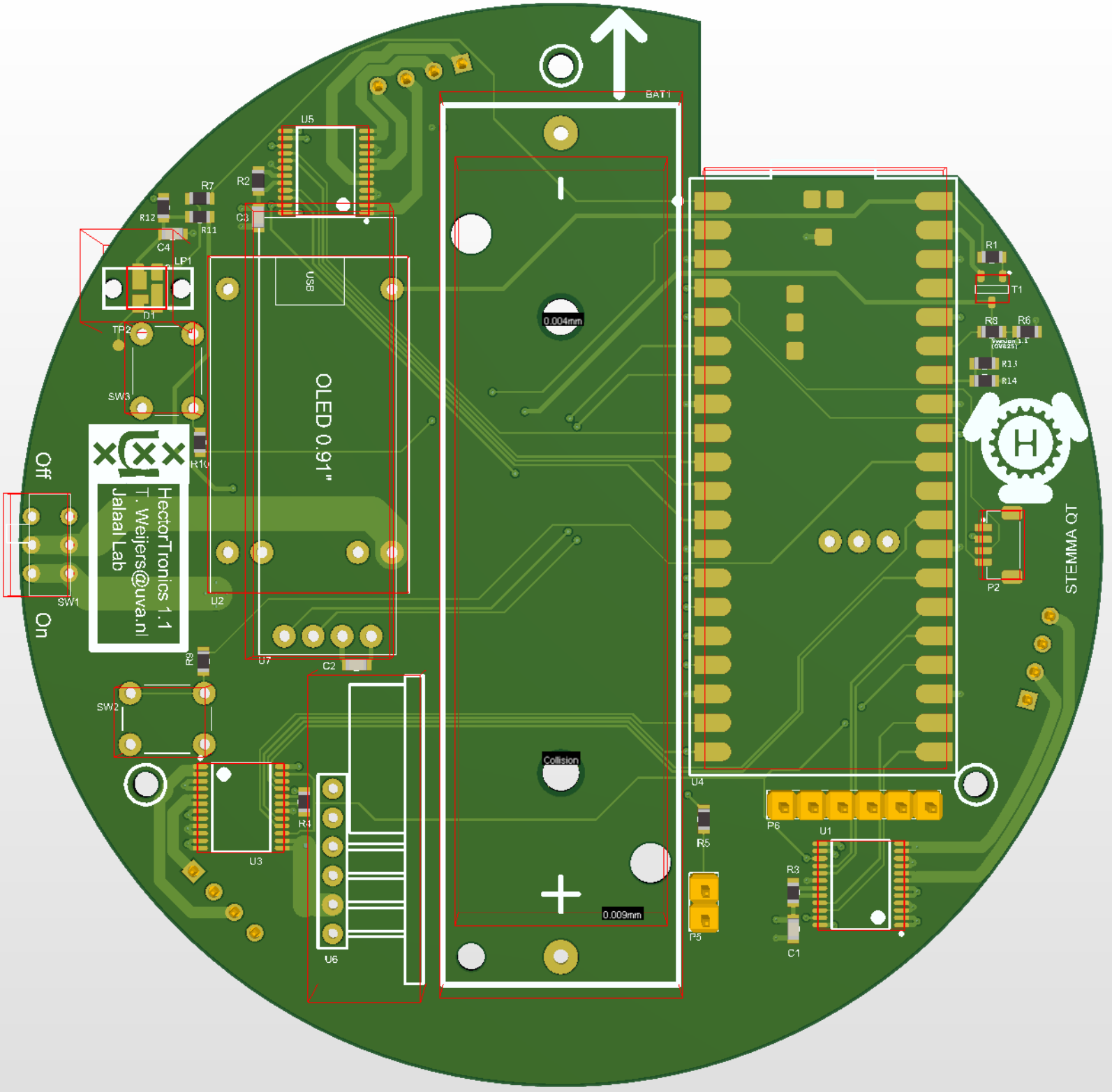
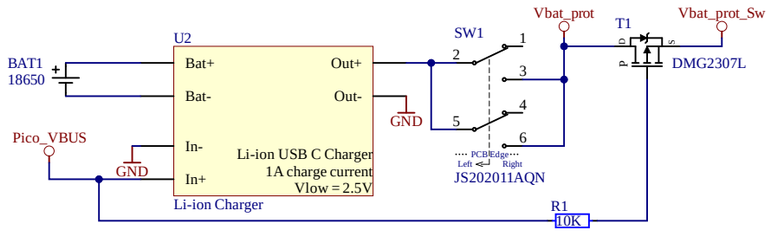
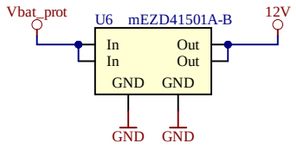
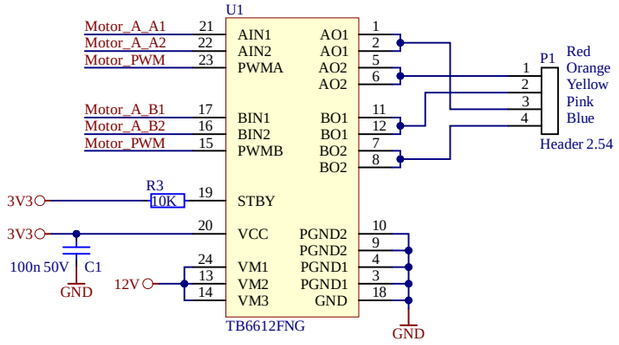

BAT1
U5
R7
R2
R12
R11
C3
C4
LP1
D1
TP2
SW3
USB
OLED 0.91"
R10
Off
On
SW1
HectorTronics 1.1
T. Weijers@uva.nl
Jalaal Lab
U2
U7
C2
R9
SW2
U3
R4
U6
0.004mm
Collision
0.009mm
U4
R5
P5
P6
U1
R3
C1
R1
T1
R8
R6
R13
R14
P2
STEMMA QT

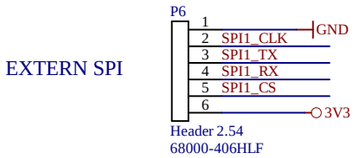
18650 + Charge + Protection

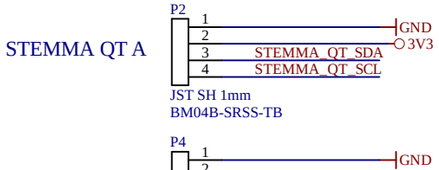


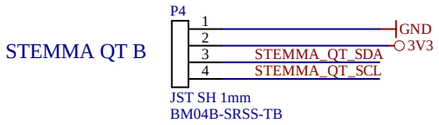
Step up converter

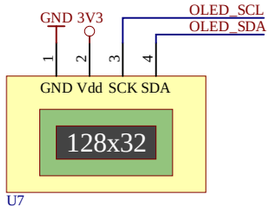


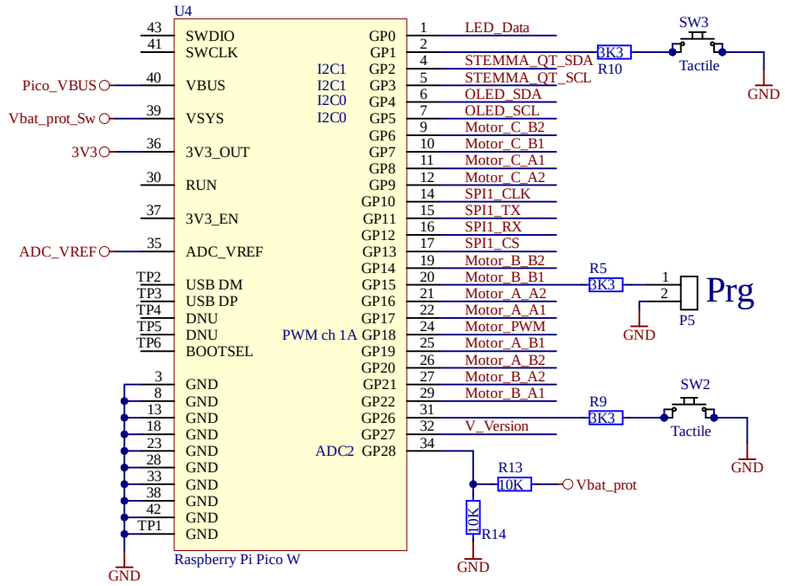


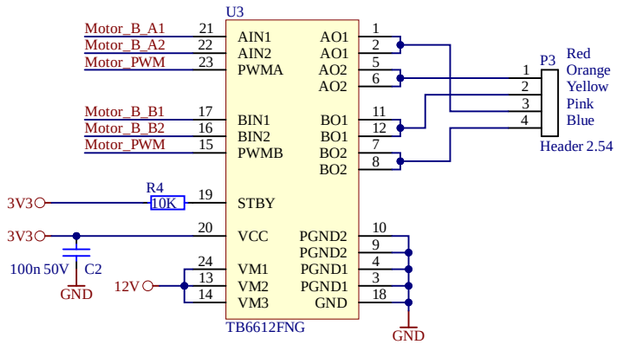


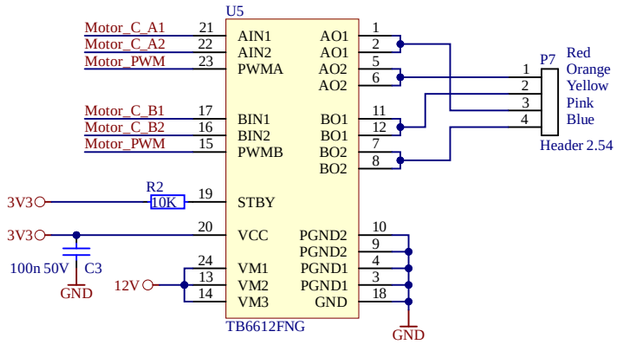






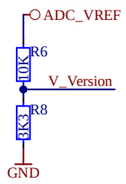




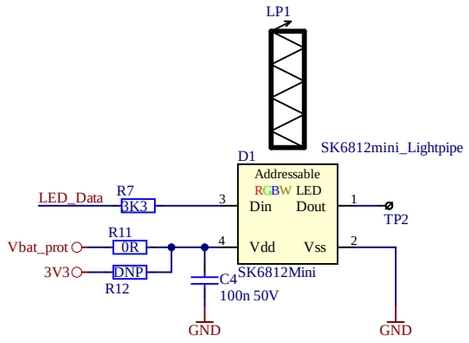


3V3 power budget
Pico can deliver max 300mA
3x TB6612 = 4mA
OLED = 20mA

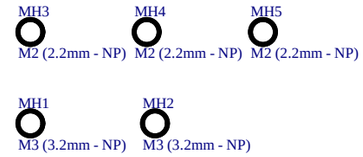
Version



v1.0: Vbat/2 = 1.25 - 2.1
v1.1: VREF/4 = 0.825

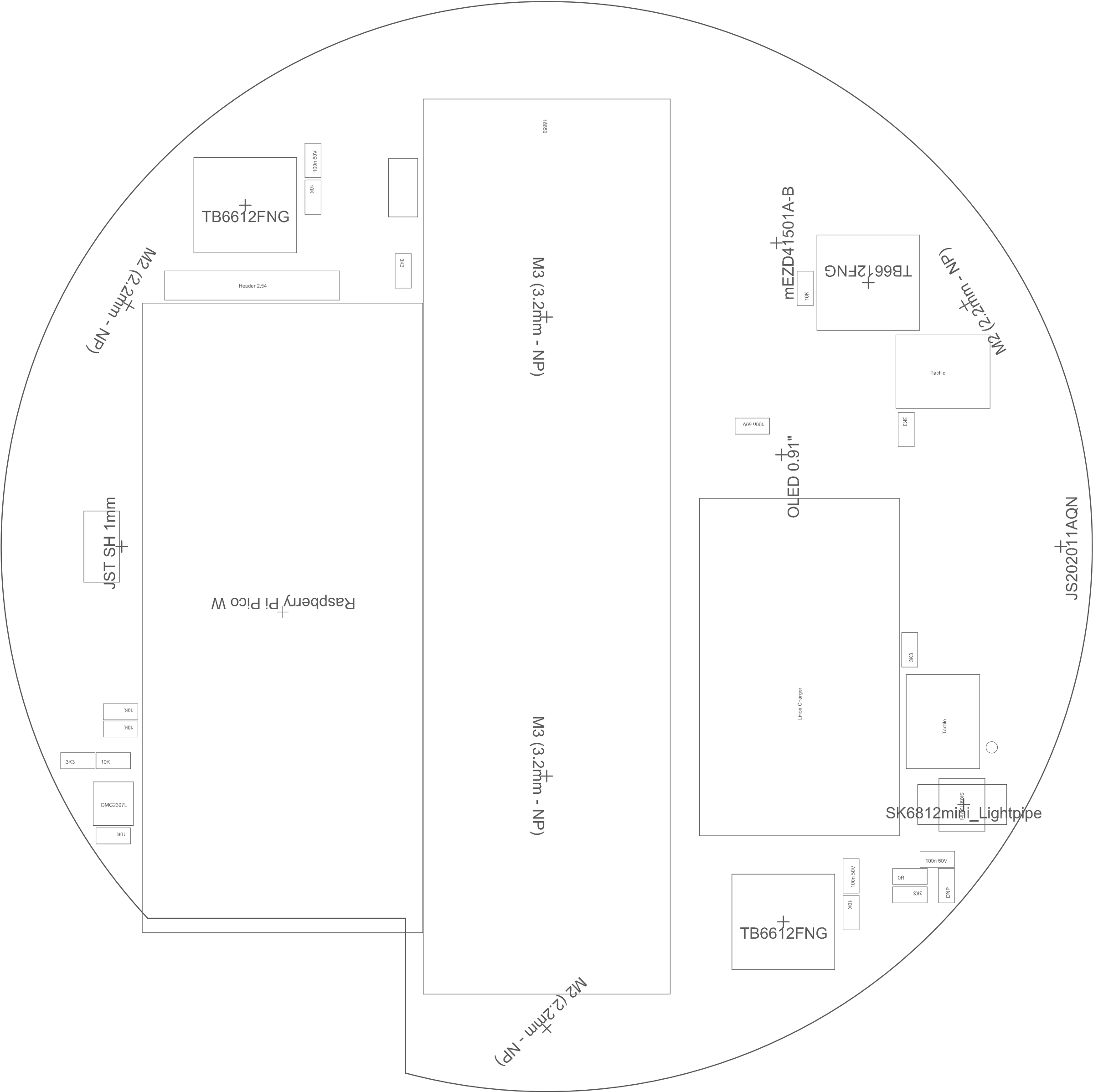


Shine-a-bRiGht-B



Project: HectorTronics		*University of Amsterdam*
Customer: Mazi Jalaal		*Technology Centre*
Sheet: HectorTronics.SchDoc		*Tjeerd Weijers / 1.1:TvR*
Sheet 1 of 1	Revision: 1.1	*06/03/2025*

Designator	Footprint	Comment	Description	Manufacturer Part Number 1	Supplier 1	Supplier Part Number 1
BAT1	Keystone_1043	18650	18650 Battery Holder Through hole		Mouser	543-1043
C1	CAP0603MD	100n 50V			Farnell	2581046
C2	CAP0603MD	100n 50V			Farnell	2581046
C3	CAP0603MD	100n 50V			Farnell	2581046
C4	CAP0603MD	100n 50V			Farnell	2581046
D1	SK6812Mini	SK6812Mini	Addressable RGBW LED 3.5x3.7x0.95mm		Mouser	485-2659
Graph1	UVA_LOGO_SMALL_HOR	UvA Logo	University of Amsterdam Logo		<no part>	
Graph2	Hector_Logo	Hector Logo	Hector Logo		<no part>	
LP1	SK6812mini_Lightpipe	SK6812mini_Lightpipe	SK6812mini_Lightpipe		Farnell	
MH1	MountHole M3 NP keepout 6_5mm	M3 (3.2mm - NP)	MountingHole NP for M3, drill 3.2mm, keepout dia 6.5		Farnell	
MH2	MountHole M3 NP keepout 6_5mm	M3 (3.2mm - NP)	MountingHole NP for M3, drill 3.2mm, keepout dia 6.5		Farnell	
MH3	MountHole M2 NP No keepout	M2 (2.2mm - NP)	MountingHole NP for M2, drill 2mm, NO keepout		Farnell	
MH4	MountHole M2 NP No keepout	M2 (2.2mm - NP)	MountingHole NP for M2, drill 2mm, NO keepout		Farnell	
MH5	MountHole M2 NP No keepout	M2 (2.2mm - NP)	MountingHole NP for M2, drill 2mm, NO keepout		Farnell	
P1	Header254-1x4	Header 2.54	Header 2.54p 1x4		Farnell	1022250
P2	BM04B-SRSS-TB	JST SH 1mm	JST SH 1mm 4 pin, Stemma QT		Farnell	1679129
P3	Header254-1x4	Header 2.54	Header 2.54p 1x4		Farnell	1022250
P4	BM04B-SRSS-TB	JST SH 1mm	JST SH 1mm 4 pin, Stemma QT		Farnell	1679129
P5	Header254-1x2		Header 2.54p 1x2			
P6	Header254-1x6	Header 2.54	Header 2.54p 1x6		Farnell	2751384
P7	Header254-1x4	Header 2.54	Header 2.54p 1x4		Farnell	1022250
R1	RES0603MD	10K			Farnell	2446547
R2	RES0603MD	10K			Farnell	2446547
R3	RES0603MD	10K			Farnell	2446547
R4	RES0603MD	10K			Farnell	2446547
R5	RES0603MD	3K3			Farnell	9331026
R6	RES0603MD	10K			Farnell	2446547
R7	RES0603MD	3K3			Farnell	9331026
R8	RES0603MD	3K3			Farnell	9331026
R9	RES0603MD	3K3			Farnell	9331026
R10	RES0603MD	3K3			Farnell	9331026
R11	RES0603MD	0R			Farnell	2447743
R12	RES0603MD	DNP				DNP_R
R13	RES0603MD	10K			Farnell	2446547
R14	RES0603MD	10K			Farnell	2446547
SW1	JS202011AQN	JS202011AQN	Slide Switch, DPDT, Right Angle, TH 9x3.5x3.3mm, 0.3A@6V		Farnell	2435145
SW2	FSM8JH	Tactile	Tactile Switch, Non Illuminated, 24 V, 50 mA, 1.6 N		Farnell	1555985
SW3	FSM8JH	Tactile	Tactile Switch, Non Illuminated, 24 V, 50 mA, 1.6 N		Farnell	1555985
T1	SOT95P230X110-3N	DMG2307L	P Channel, MOSFET, 30 V, 2.5 A, 0.07 ohm, SOT-23, Surface Mount		Farnell	3127316
U1	TSOP65P760X160-24N	TB6612FNG	Dual H-bridge motor driver 15V 1.2A		Mouser	757-TB6612FNGC8EL
U2	TP4056_PCB	Li-ion Charger	TP4056 USB-c Li-ion 1A			
U3	TSOP65P760X160-24N	TB6612FNG	Dual H-bridge motor driver 15V 1.2A		Mouser	757-TB6612FNGC8EL
U4	Raspberry_Pi_Pico_W	Raspberry Pi Pico W	Raspberry Pi Pico W		Mouser	358-SC0918
U5	TSOP65P760X160-24N	TB6612FNG	Dual H-bridge motor driver 15V 1.2A		Mouser	757-TB6612FNGC8EL
U6	mEZD4150XX-X	mEZD41501A-B	2.7V - 10V Input, 12V Output, 1A, Step-Up Power Supply		Digi-Key	1589-1490-ND
U7	OLED_0.91"	OLED 0.91"	AliExpress 0.91" OLED		AliExpress	OLED 0.91


18650
TB6612FNG
100n 50V
10K
3K3
Header 2.54
M2 (2.2mm - NP)
M3 (3.2mm - NP)
mEZD41501A-B
TB6612FNG
10K
M2 (2.2mm - NP)
Tactile
3K3
100n 50V
OLED 0.91"
JST SH 1mm
Raspberry Pi Pico W
Li-ion Charger
JS202011AQN
3K3
Tactile
10K
10K
3K3
10K
DMG2307L
10K
M3 (3.2mm - NP)
SK6812mini_Lightpipe
100n 50V
0R
3K3
DNP
100n 50V
10K
TB6612FNG
M2 (2.2mm - NP)

Header 2.54

Header 2.54

JST SH 1mm

Header 2.54

BAT1

U1

C1

R3

P5

R5

P6

MH4

MH2

U6

U3

R4

MH3

SW2

R9

C2

U7

SW1

P2

U4

U2

R10

SW3

MH1

LP1

R14

R13

R8

R6

T1

R1

C4

R11

R7

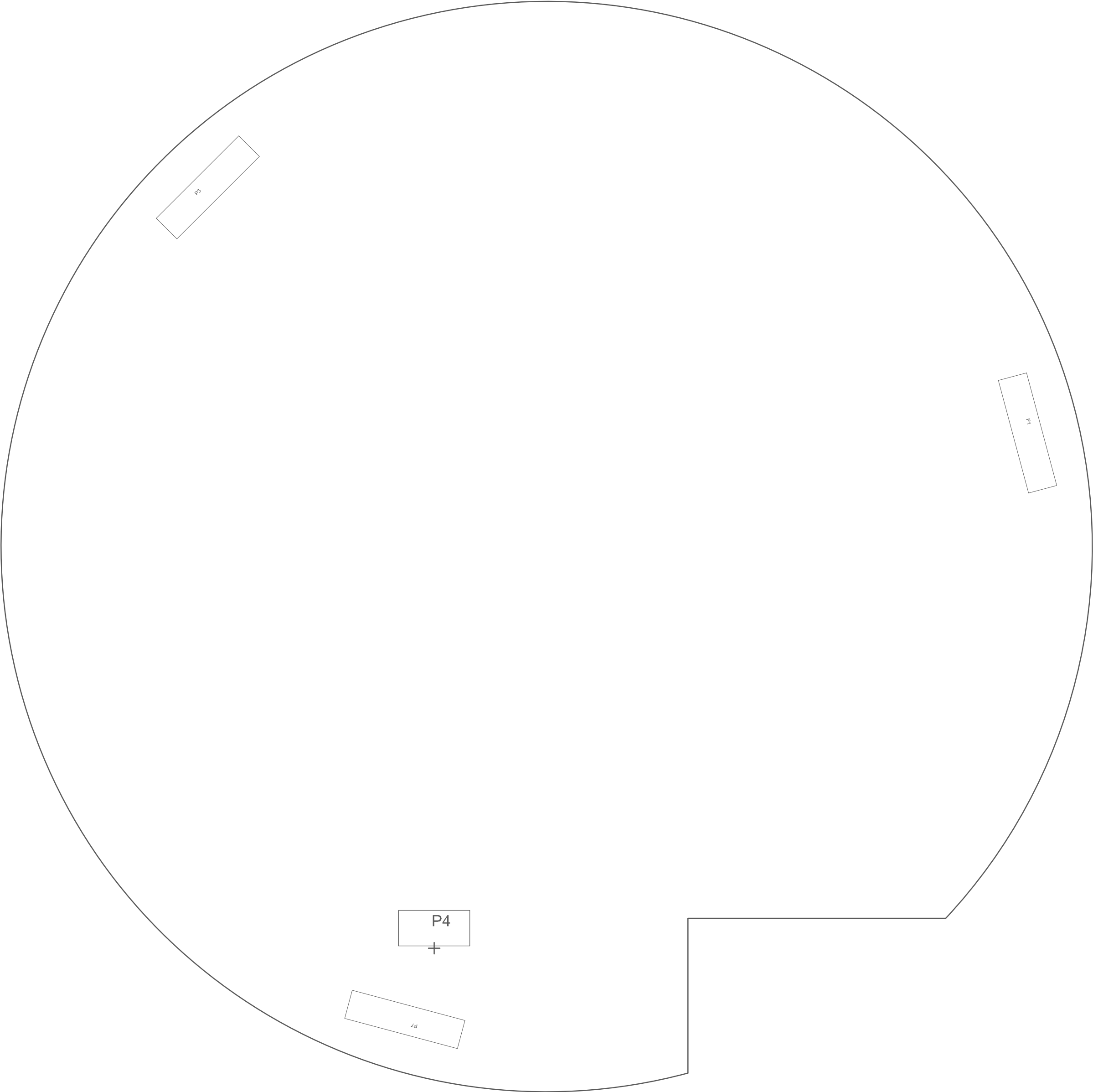
R12

C3

R2

U5

MH5


P3
P1
P4
P7