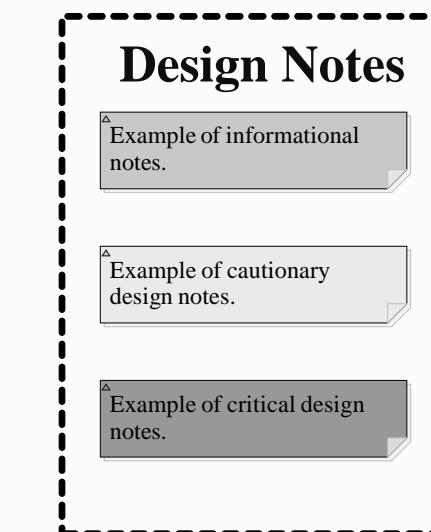


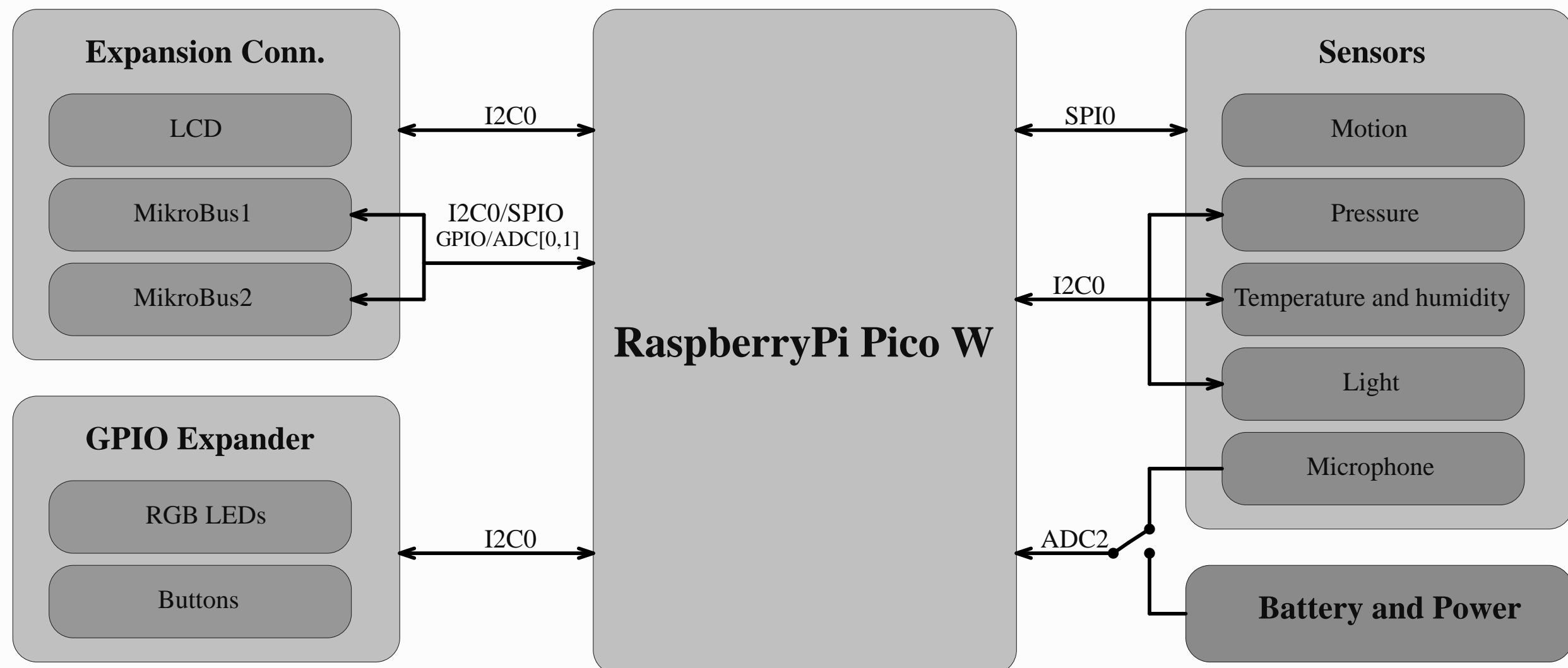
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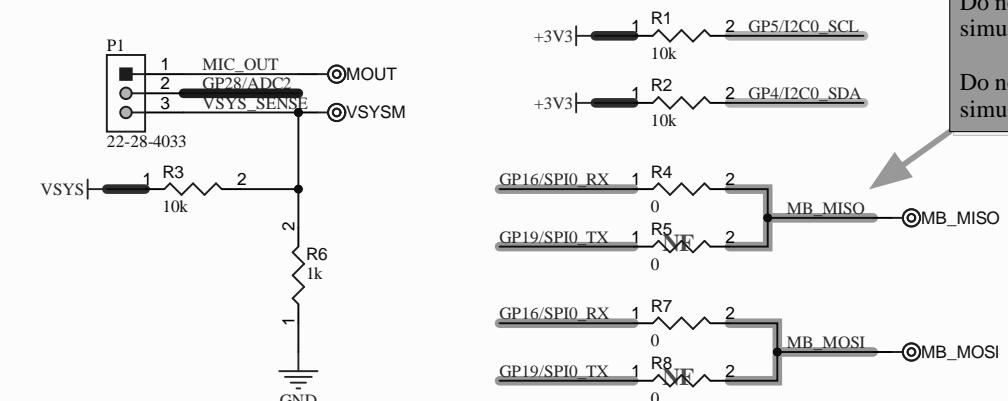
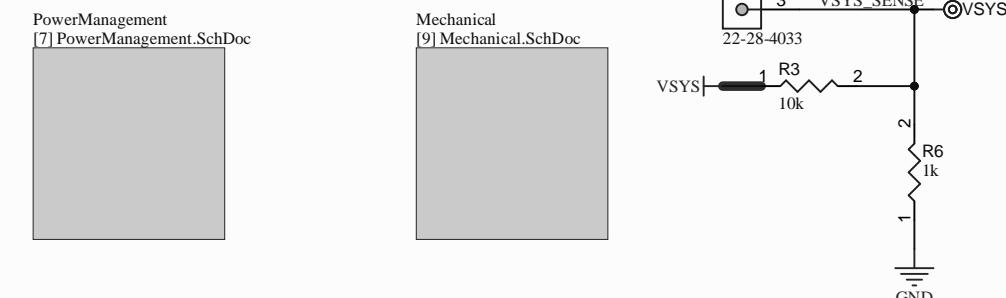
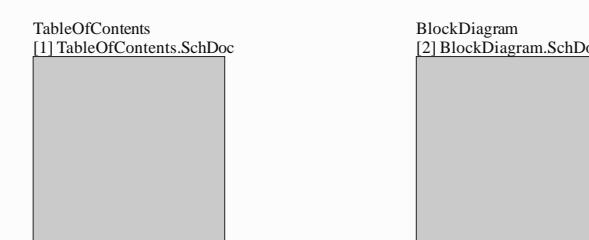
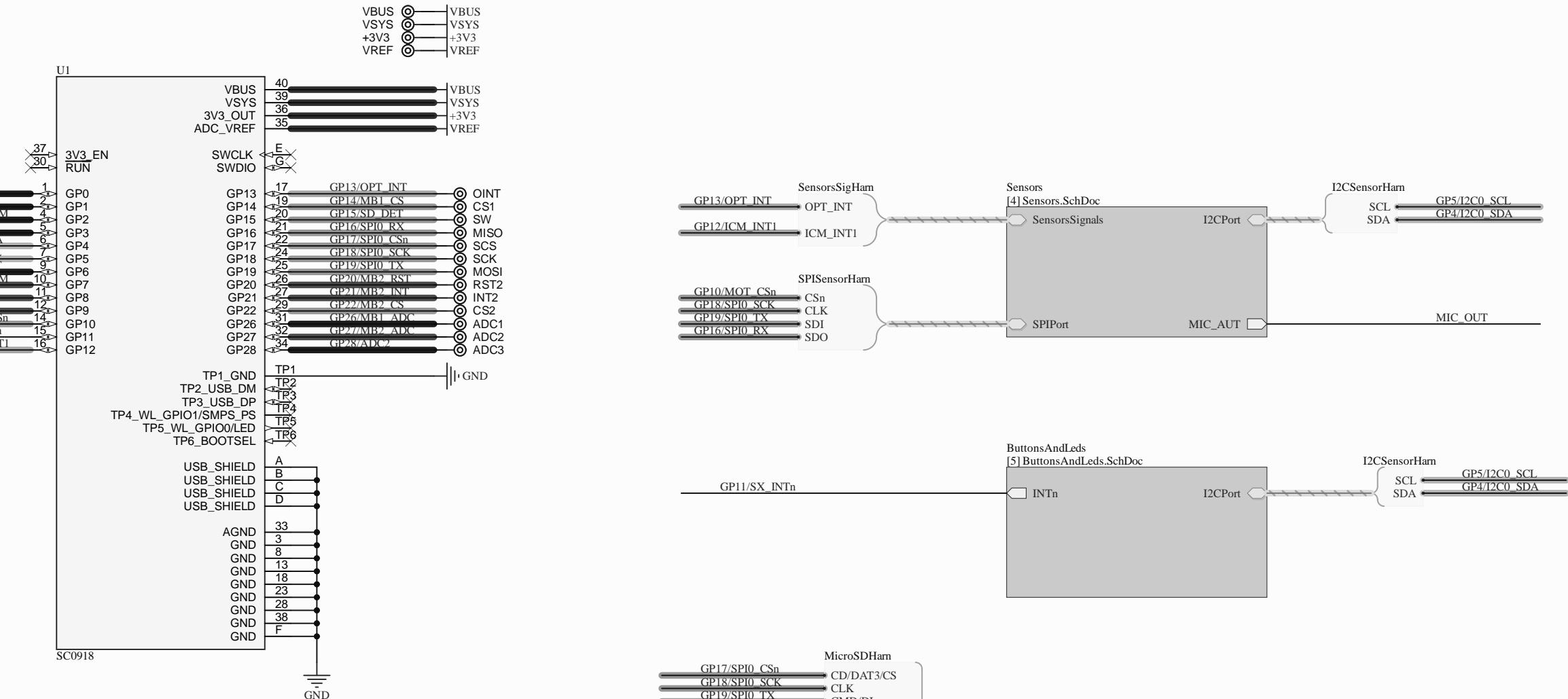
Projeto de Circuitos Eletrônicos para IoT V1.0.0

Released 22/05/2025

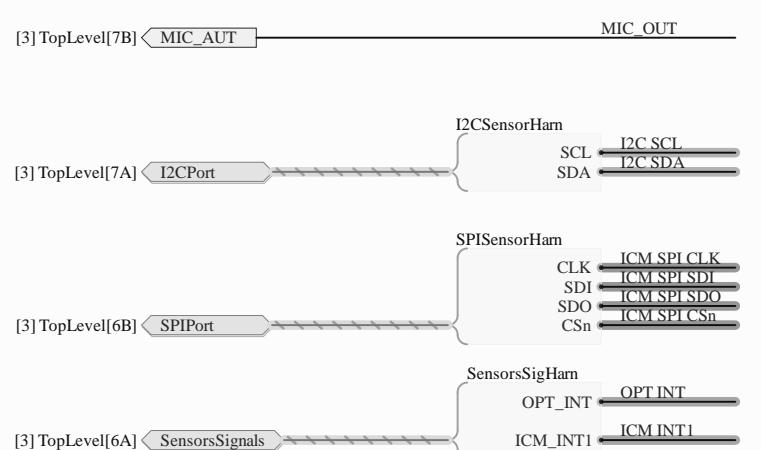
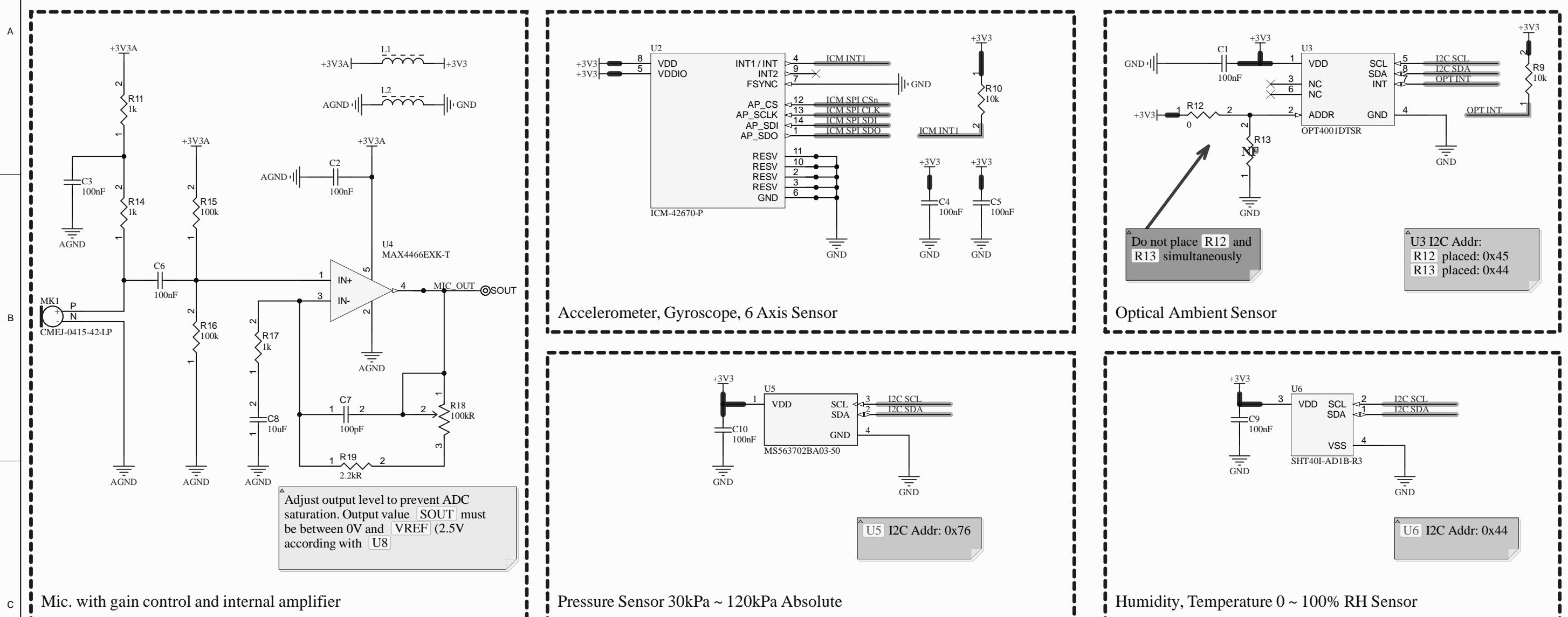
Page	Contents
1	Table of contents
2	System block diagram
3	Top level hierarchical connections
4	Sensors
5	Board buttons and LEDs
6	RGB LED
7	Battery power management
8	Connectors
9	Mechanical components



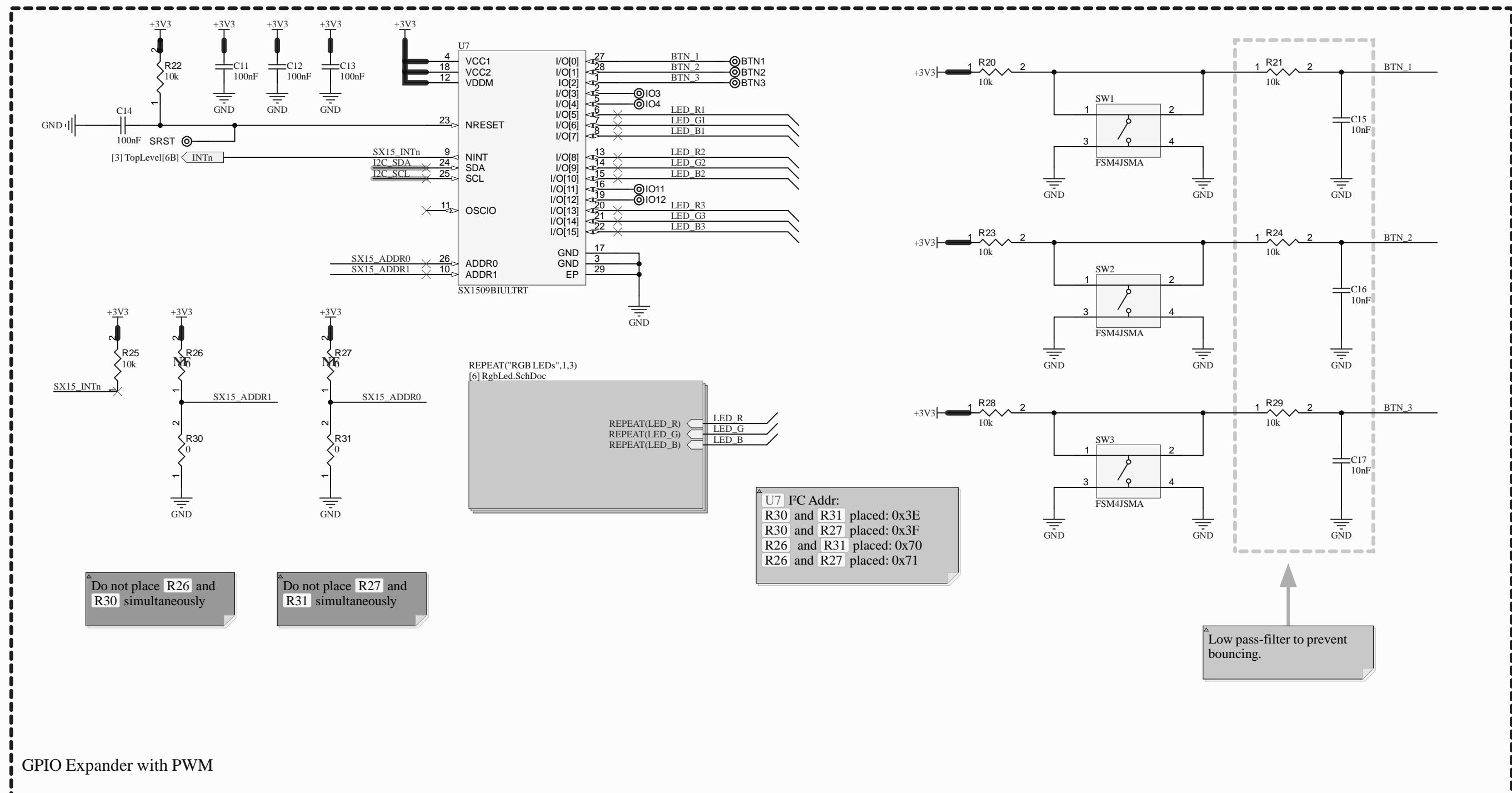




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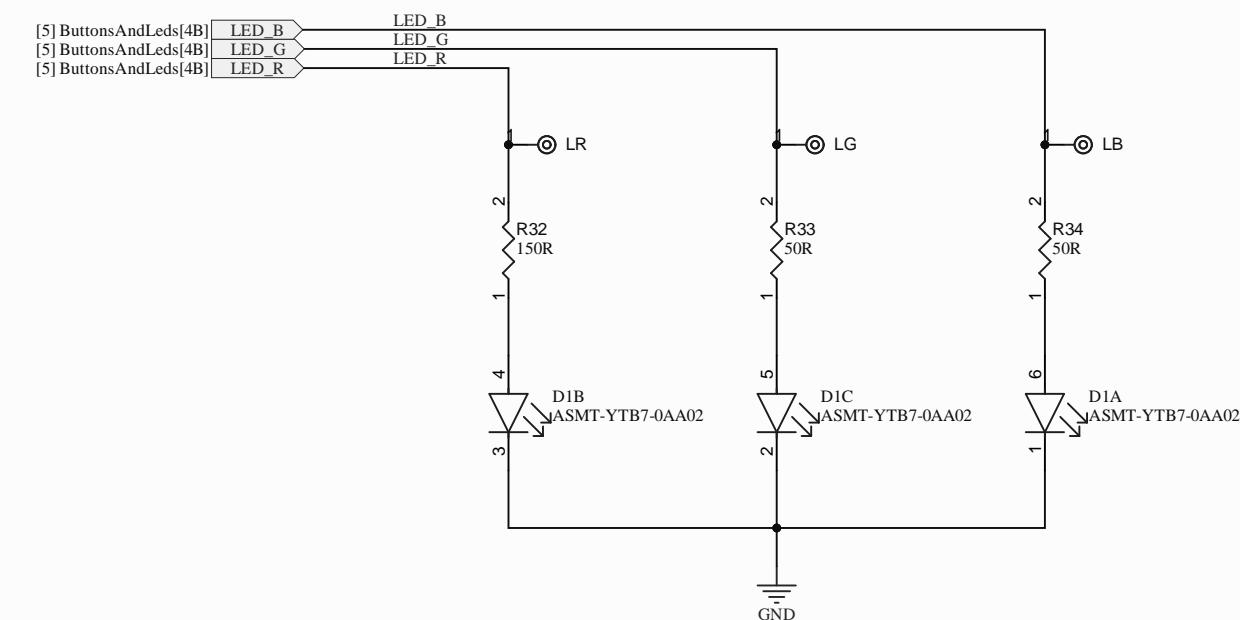
VIRTUS CC	ADDRESS R. Aprígio Veloso, 882, Universitário Campina Grande - PB 58429-900
PROJECT PCEIoT	VERSION V1.0.0
TITLE [4] Sensors.SchDoc	SIZE A3 SCALE 1:1
DOCUMENT NAME: [4] Sensors.SchDoc	SHEET:
DOCUMENT REVISION: Not in Version Control	4 OF 9
PROJECT REVISION: Not in Version Control	



[3] TopLevel[7B] I^CPort {
 SCL I^C SCL
 SDA I^C SDA}

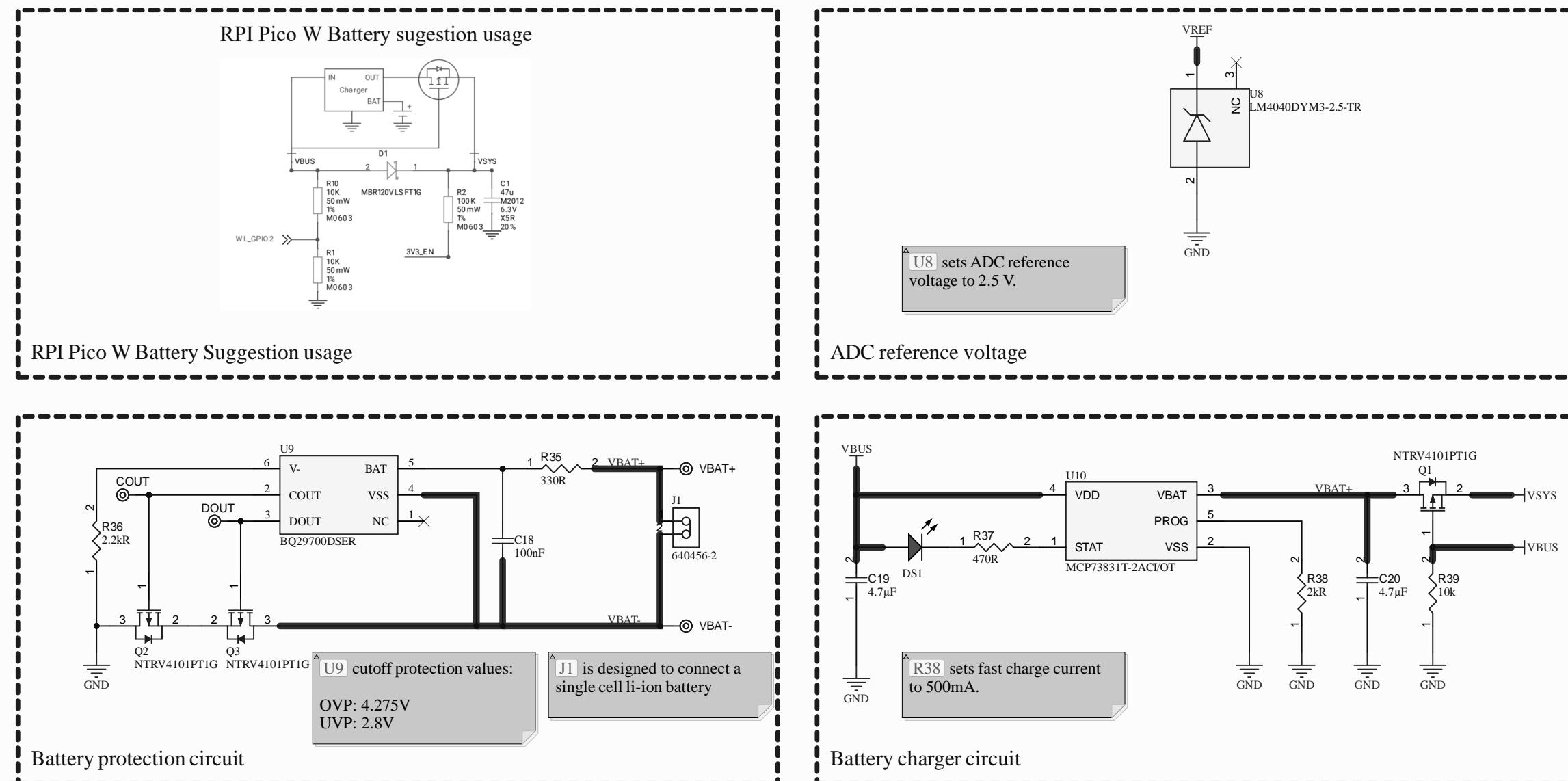
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	R. Aprígio Veloso, 882, Universitário Campina Grande - PB 58429-900	
PROJECT	PCEIoT	VERSION
TITLE	[5] ButtonsAndLeds.SchDoc	V1.0.0
DOCUMENT NAME:	[5] ButtonsAndLeds.SchDoc	SIZE
DOCUMENT REVISION:	Not in Version Control	SCALE
PROJECT REVISION:	Not in Version Control	SHEET:
		5 OF 9

REVISION	DESCRIPTION	DATE	APPROVED



▲ R32, R33 and R34 calculated based on voltage drops for each LED for a same current amount of 10mA.

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PROJECT PCEIoT	VERSION V1.0.0
TITLE [6] RgbLed.SchDoc	SIZE A3 SCALE 1:1
DOCUMENT NAME: [6] RgbLed.SchDoc	SHEET: 6 OF 9
DOCUMENT REVISION: Not in Version Control	
PROJECT REVISION: Not in Version Control	



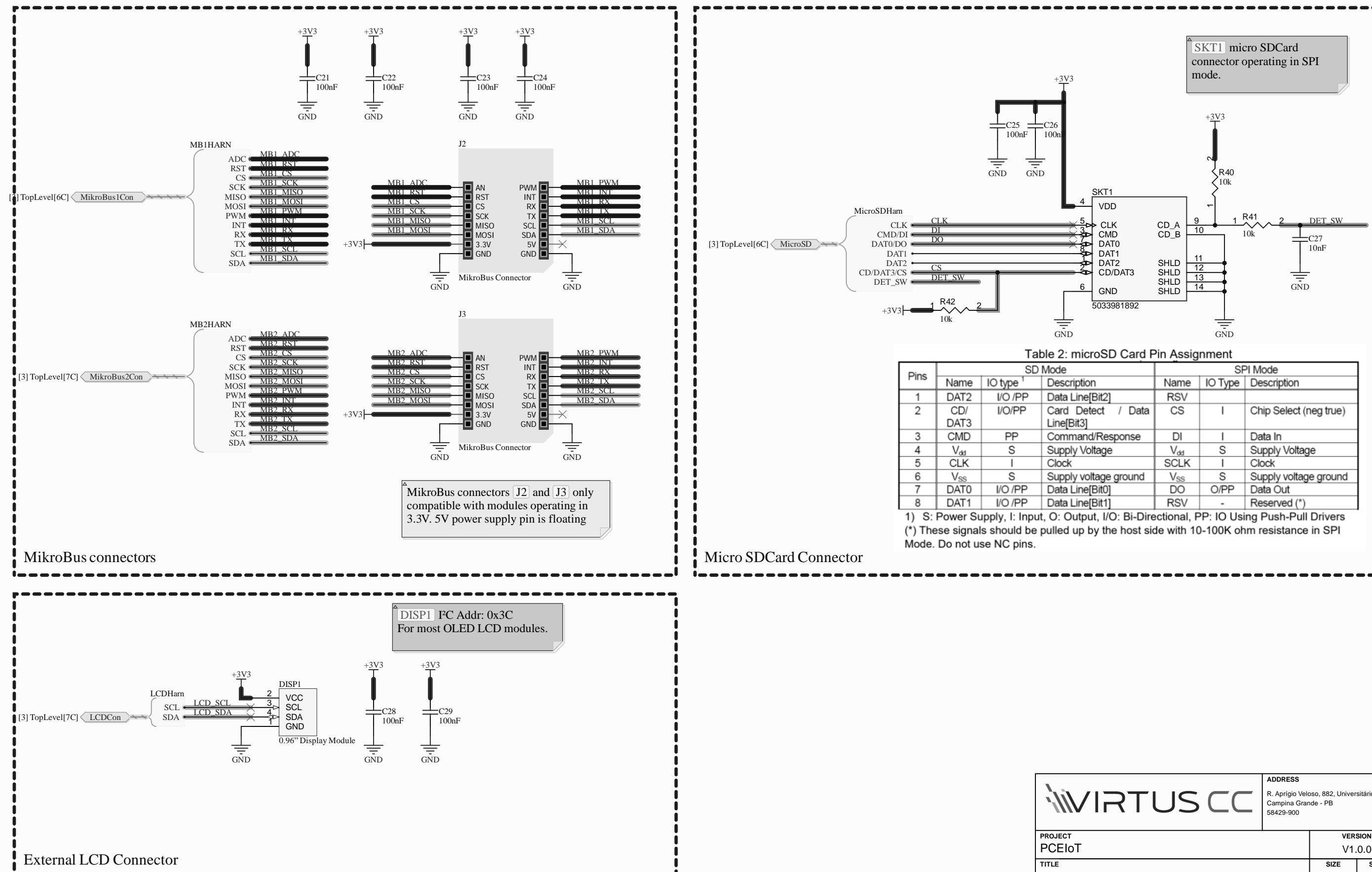


Table 2: microSD Card Pin Assignment

Pins	SD Mode			SPI Mode		
	Name	IO type ¹	Description	Name	IO Type	Description
1	DAT2	I/O /PP	Data Line[Bit2]	RSV		
2	CD/ DAT3	I/O/PP	Card Detect / Data Line[Bit3]	CS	I	Chip Select (neg true)
3	CMD	PP	Command/Response	DI	I	Data In
4	V _{dd}	S	Supply Voltage	V _{dd}	S	Supply Voltage
5	CLK	I	Clock	SCLK	I	Clock
6	V _{ss}	S	Supply voltage ground	V _{ss}	S	Supply voltage ground
7	DAT0	I/O /PP	Data Line[Bit0]	DO	O/PP	Data Out
8	DAT1	I/O /PP	Data Line[Bit1]	RSV	-	Reserved (*)

1) S: Power Supply, I: Input, O: Output, I/O: Bi-Directional, PP: IO Using Push-Pull Drivers

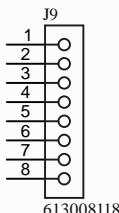
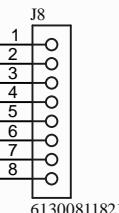
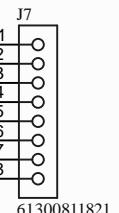
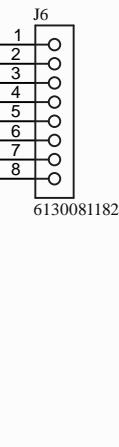
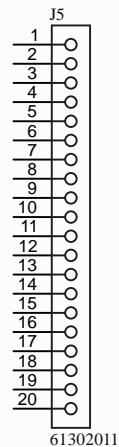
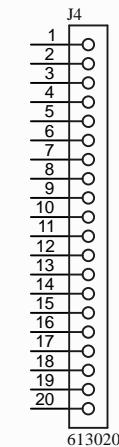
(*) These signals should be pulled up by the host side with 10-100K ohm resistance in SPI Mode. Do not use NC pins.



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PROJECT	VERSION	
PCEIoT	V1.0.0	
TITLE	SIZE	SCALE
[8] Conectors.SchDoc	A3	1:1
DOCUMENT NAME:	[8] Conectors.SchDoc	SHEET:
DOCUMENT REVISION:	Not in Version Control	8 OF 9
PROJECT REVISION:	Not in Version Control	

A



B



709670110



709670110



970080354



970080354



MPMS 003 0005 PH

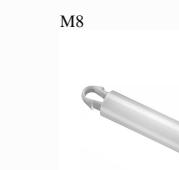


MPMS 003 0005 PH

C



709670110



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MPMS 003 0005 PH



MPMS 003 0005 PH

D

<p>VIRTUS CC</p>	ADDRESS	
	R. Aprígio Veloso, 882, Universitário Campina Grande - PB 58429-900	
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	DOCUMENT REVISION:	SHEET:
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A

B

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G

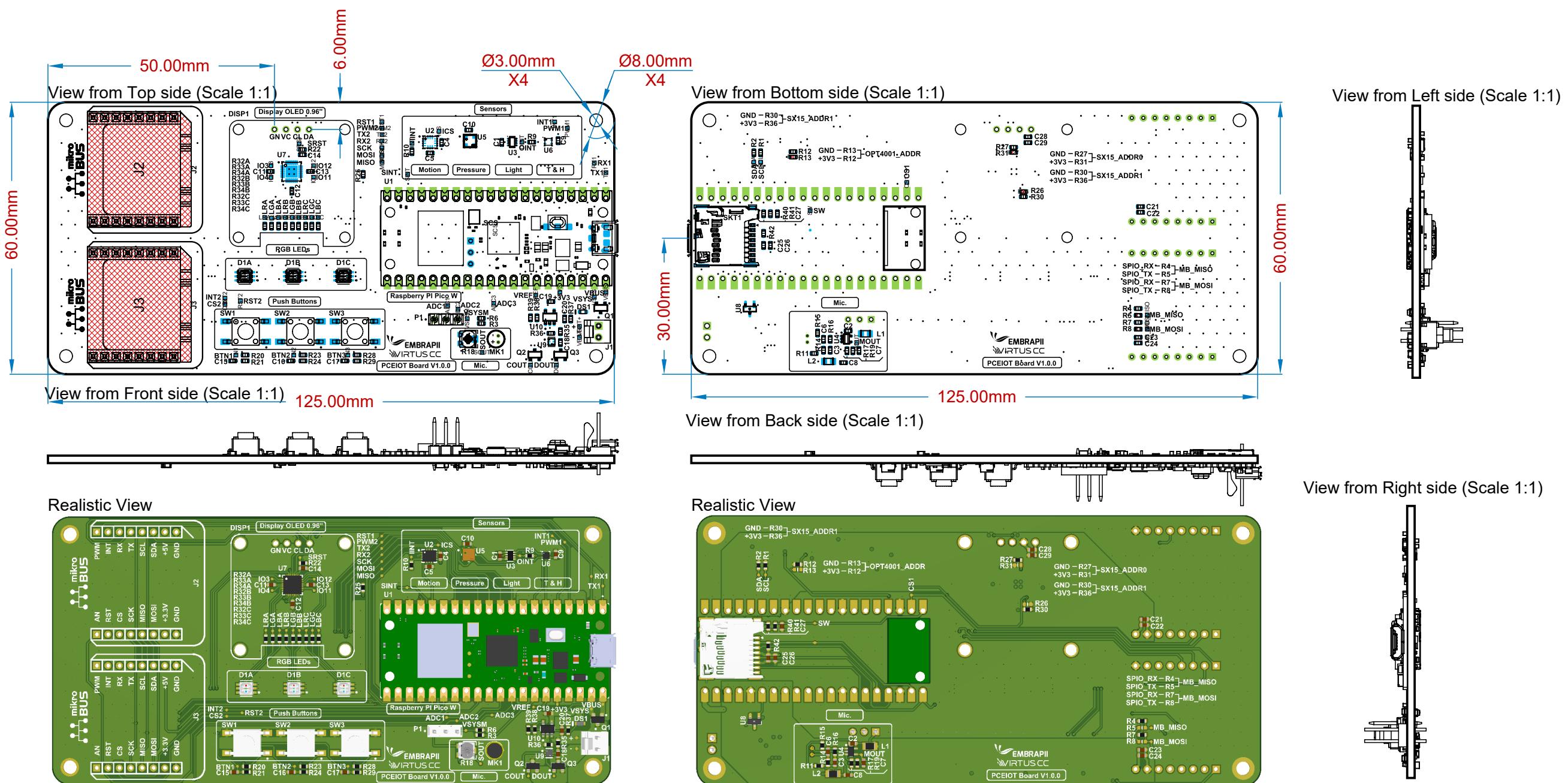
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PCEIoT V1.0.0

Variant: Fabricação

Board View

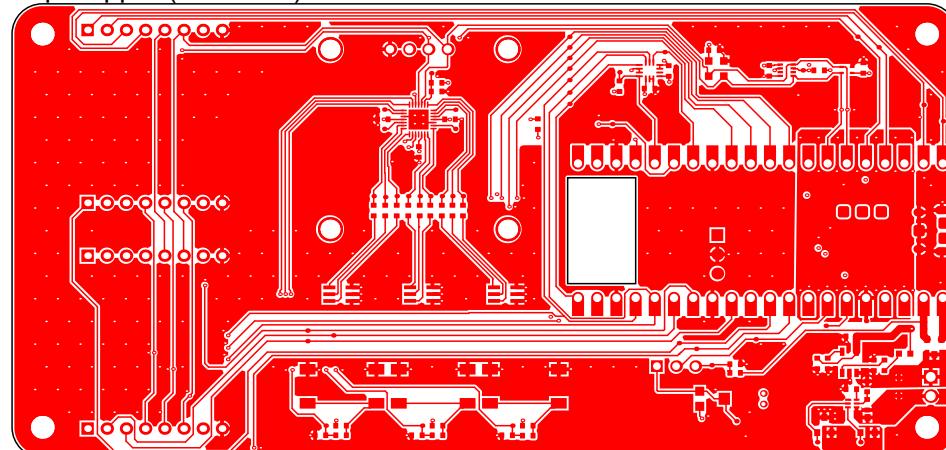


VIRTUS CC	ADDRESS R. Aprígio Veloso, 882, Universitário Campina Grande - PB 58429-900
PROJECT Lucas Emanuel - PCEIoT.PrjPcb	VERSION V1.0.0
TITLE draftsman.PCDBdwf	SIZE A3 SCALE 1:1
DOCUMENT NAME: draftsman.PCDBdwf	SHEET:
DOCUMENT REVISION:	1 OF 3
PROJECT REVISION: V1.0.0Control_ProjFolderRevNumberShort	

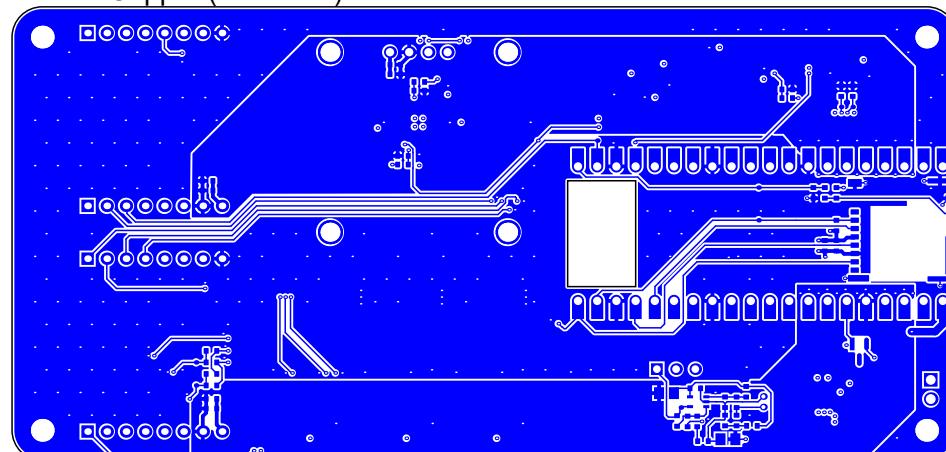
REVISION	DESCRIPTION	DATE	APPROVED

Layers, Stack and Drill Drawings

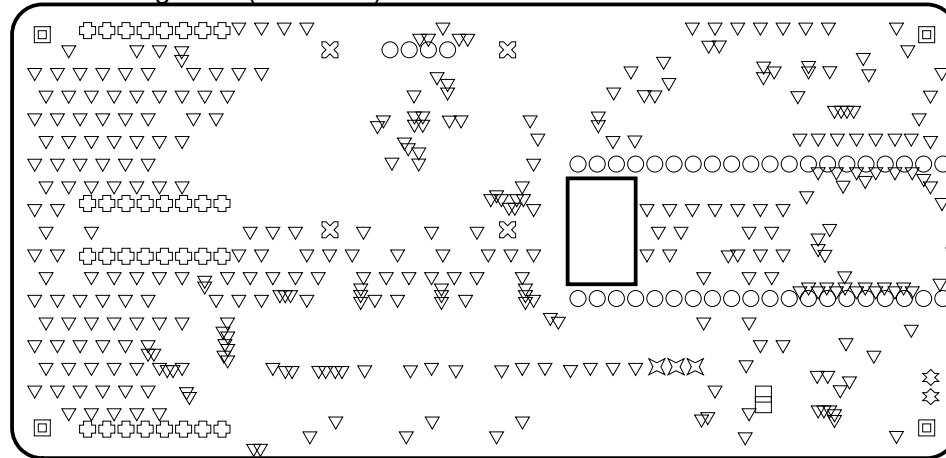
Top Copper (Scale 1:1)



Bottom Copper (Scale 1:1)



Drill Drawing View (Scale 1:1)



Layer Stack Legend

Material	Layer	Thickness	Dielectric Material	Type	Gerber
Surface Material	Top Overlay			Legend	GTO
Copper	Top Mask	0.03mm	Solder Resist	Solder Mask	GTS
Prepreg	Top Copper	0.04mm		Signal	GTL
Copper	Top Ref	0.21mm	7628	Dielectric	
Core		0.02mm		Internal Plane GP1	
Copper	Bottom Ref	1.06mm	FR-4	Dielectric	
Prepreg		0.02mm		Internal Plane GP2	
Copper	Bottom Copper	0.21mm	7628	Dielectric	
Surface Material	Bottom Mask	0.04mm	Solder Resist	Signal	GBL
	Bottom Overlay	0.03mm		Solder Mask	GBS
				Legend	GBO

Total thickness: 1.65mm

Drill Table

Symbol	Count	Hole Size	Plated	Hole Tolerance
▽	350	0.20mm	Plated	
□	2	0.55mm	Plated	
+	32	0.89mm	Plated	
✗	3	1.02mm	Plated	
○	44	1.10mm	Plated	
✳	2	1.30mm	Plated	
✗	4	2.50mm	Plated	
□	4	3.00mm	Plated	
441 Total				

VIRTUS CC	ADDRESS	
	R. Aprígio Veloso, 882, Universitário Campina Grande - PB 58429-900	
PROJECT	VERSION	
Lucas Emanuel - PCEIoT.PjrPcb		V1.0.0
TITLE	SIZE	
draftsman.PCDBdwf		SCALE
DOCUMENT NAME:	A3	
DOCUMENT REVISION:	1:1	
SHEET:		
2 OF 3		
PROJECT REVISION: V1.0.0Control_ProjFolderRevNumberShort		

A	B	C	D	E	F	G	H		
						REVISION	DESCRIPTION	DATE	APPROVED

Bill of Materials

Fitted

Bill Of Materials

Line #	Designator	Name	Quantity
	DS1	19-217/R6C-AL1M2VY/3T	1
	P1	22-28-4033	1
	J1	640456-2	1
	M1, M2, M7, M8	709670110	4
	M3, M4, M9, M10	970080354	4
	SKT1	5033981892	1
	J6, J7, J8, J9	61300811821	4
	J4, J5	61302011821	2
	D1A, D1B, D1C	ASMT-YTB7-0AA02	3
	L1, L2	BLM21PG331SN1D	2
	U9	BQ29700DSER	1
	C7	C0603C101K5GACTU	1
	C19, C20	Capacitor 4.7µF +/-20% 10V 0603	2
	MK1	CMEJ-0415-42-LP	1
	R19, R36	CRCW06032K20FKEA	2
	R33A, R33B, R33C, R34A, R34B, R34C	CRCW060350R0FKEA	6
	R32A, R32B, R32C	CRCW0603150RFKEA	3
	R37	CRCW0603470RJNEA	1
	R38	ERJ-3EKF2001V	1
	R35	ERJ-3EKF3300V	1
	SW1, SW2, SW3	FSM4JSMA	3
	C8	GRM188R60J106ME47D	1
	U8	LM4040DYM3-2.5-TR	1
	U4	MAX4466EXK-T	1
	U10	MCP73831T-2ACI/OT	1
	M5, M6, M11, M12	MPMS 003 0005 PH	4
	U5	MS563702BA03-50	1
	Q1, Q2, Q3	NTRV4101PT1G	3
	U3	OPT4001DTSR	1
	R4, R7, R12, R30, R31	Resistor 0R +/- 5% 0603 100 mW	5
	R6, R11, R14, R17	Resistor 1k +/-1% 0603 100 mW	4
	R1, R2, R3, R9, R10, R20, R21, R22, R23, R24, R25, R28, R29, R39, R40, R41, R42	Resistor 10k +/-1% 0603 100 mW	17
	R15, R16	Resistor 100k +/-1% 0603 100 mW	2
	U1	SC0918	1
	U6	SHT40I-AD1B-R3	1
	U7	SX1509BIULTRT	1
	R18	TC33X-2-104E	1
	C15, C16, C17, C27	VJ0603Y103KXAAC	4
	C1, C2, C3, C4, C5, C6, C9, C10, C11, C12, C13, C14, C18, C21, C22, C23, C24, C25, C26, C28, C29	VJ0603Y104MXJCW1BC	21
	U2	ICM-42670-P	1

Not Fitted

Bill Of Materials

Line #	Designator	Name	Quantity
	DISP1	0.96" Display Module	0
	J2, J3	MikroBus Connector	0
	R5, R8, R13, R26, R27	Resistor 0R +/- 5% 0603 100 mW	0

	ADDRESS	
	R. Aprígio Veloso, 882, Universitário Campina Grande - PB 58429-900	
PROJECT	Lucas Emanuel - PCEIoT.PpjPcb	VERSION
TITLE	draftsman.PCBDwf	SIZE A3 SCALE 1:1
DOCUMENT NAME:	draftsman.PCBDwf	
DOCUMENT REVISION:	3 OF 3	
PROJECT REVISION:	V1.0.0Control_ProjFolderRevNumberShort	

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