Power supply section (top left):

J1 — Wurth_THR_Terminal_M4
J2 — Wurth_THR_Terminal_M4
GNDREF

D2
+12V
U1 — TPS7B8733
+3.3V
IN — OUT
DELAY — PG
GND
C35 22uF
C1 1uF
C2 10uF
GNDREF

RS485 section (top right):

RS485
U2 — MAX33071
+3.3V
C3 0.1uF
C4 1uF
GNDREF

RS485_DATA_ENABLE
DE
RE#
DI
RO
VCC
A — RS485_A
B — RS485_B
GND
R1 10K
UART5_TX
UART5_RX
R2 120
Conn_01x02 J28
GNDREF
GNDREF

Sub-sheets:

Signals
File: signals.kicad_sch

MCU
File: mcu.kicad_sch

J10 — Conn_02x20_Odd_Even:

+12V — 1 2 — +12V
3 4
R6 GNDREF — 5 6 — GNDREF R97
0 — 7 8 — 0
RS485_A — 9 10 — RS485_B
11 12
CAB_SIGNAL_1 — 13 14 — CAB_SIGNAL_5
15 16
CAB_SIGNAL_2 — 17 18 — CAB_SIGNAL_6
19 20
CAB_SIGNAL_3 — 21 22 — CAB_SIGNAL_7
23 24
CAB_SIGNAL_4 — 25 26 — CAB_SIGNAL_8
27 28
29 30
31 32
33 34
GNDREF — 35 36 — GNDREF
37 38
+12V — 39 40 — +12V

J3 — Conn_02x08_Odd_Even:

R98 — FLOOD_D_EN
R99 DNP — FLOOD_R_EN
R100 — FLOOD_P_EN
DNP

J5 — Conn_02x08_Odd_Even:

COMP_1_LGT_EN
COMP_2_LGT_EN
COMP_3_LGT_EN
COMP_4_LGT_EN
COMP_5_LGT_EN

J4 — Conn_02x08_Odd_Even:

MARKER_LGT_EN
BACKUP_CHIME_EN
R101 DNP — FOG_LGT_EN
ISECT_D_EN
ISECT_P_EN

J6 — Conn_02x08_Odd_Even:

AUX_1_EN
AUX_2_EN
AUX_3_EN
AUX_4_EN
AUX_5_EN
AUX_6_EN

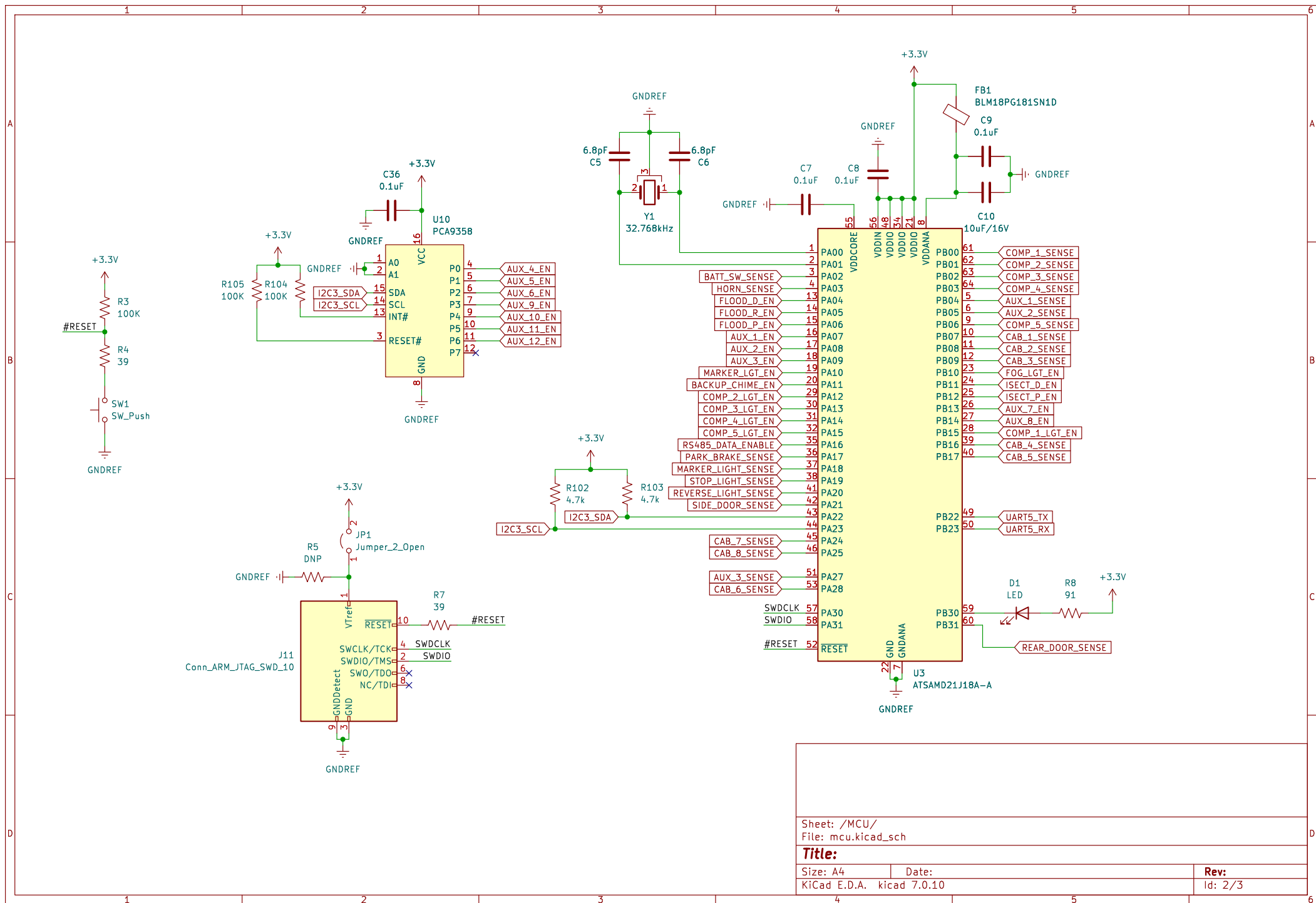**J7 — Conn_02x08_Odd_Even:**

AUX_7_EN
AUX_8_EN
AUX_9_EN
AUX_10_EN
AUX_11_EN
AUX_12_EN

Sheet: /
File: control.kicad_sch
Title: Toadly Control
Size: A4   Date:
KiCad E.D.A. kicad 7.0.10
Rev: B
Id: 1/3

U10 PCA9358

Pin	Signal
16	VCC
1	A0
2	A1
15	SDA — I2C3_SDA
14	SCL — I2C3_SCL
13	INT#
3	RESET#
4	P0 — AUX_4_EN
5	P1 — AUX_5_EN
6	P2 — AUX_6_EN
7	P3 — AUX_9_EN
9	P4 — AUX_10_EN
10	P5 — AUX_11_EN
11	P6 — AUX_12_EN
12	P7
8	GND

C36 0.1uF +3.3V

R105 100K R104 100K

+3.3V
R3 100K
#RESET
R4 39
SW1 SW_Push
GNDREF

J11 Conn_ARM_JTAG_SWD_10
+3.3V
JP1 Jumper_2_Open
R5 DNP
GNDREF
R7 39 RESET — #RESET (10)
VTref (1)
SWCLK/TCK (4) — SWDCLK
SWDIO/TMS (2) — SWDIO
SWO/TDO (6)
NC/TDI (8)
GNDDetect (9)
GND (3)
GNDREF

Y1 32.768kHz
6.8pF C5   6.8pF C6
GNDREF

C7 0.1uF   C8 0.1uF
GNDREF

+3.3V
FB1 BLM18PG181SN1D
C9 0.1uF
GNDREF
C10 10uF/16V

U3 ATSAMD21J18A-A

Pin	Signal		Pin	Signal
55	VDDCORE		61	PB00 — COMP_1_SENSE
56	VDDIN		62	PB01 — COMP_2_SENSE
48	VDDIO		63	PB02 — COMP_3_SENSE
34	VDDIO		64	PB03 — COMP_4_SENSE
21	VDDIO		5	PB04 — AUX_1_SENSE
8	VDDANA		6	PB05 — AUX_2_SENSE
1	PA00		9	PB06 — COMP_5_SENSE
2	PA01		10	PB07 — CAB_1_SENSE
3	PA02 — BATT_SW_SENSE		11	PB08 — CAB_2_SENSE
4	PA03 — HORN_SENSE		12	PB09 — CAB_3_SENSE
13	PA04 — FLOOD_D_EN		23	PB10 — FOG_LGT_EN
14	PA05 — FLOOD_R_EN		24	PB11 — ISECT_D_EN
15	PA06 — FLOOD_P_EN		25	PB12 — ISECT_P_EN
16	PA07 — AUX_1_EN		26	PB13 — AUX_7_EN
17	PA08 — AUX_2_EN		27	PB14 — AUX_8_EN
18	PA09 — AUX_3_EN		28	PB15 — COMP_1_LGT_EN
19	PA10 — MARKER_LGT_EN		39	PB16 — CAB_4_SENSE
20	PA11 — BACKUP_CHIME_EN		40	PB17 — CAB_5_SENSE
29	PA12 — COMP_2_LGT_EN		49	PB22 — UART5_TX
30	PA13 — COMP_3_LGT_EN		50	PB23 — UART5_RX
31	PA14 — COMP_4_LGT_EN		59	PB30
32	PA15 — COMP_5_LGT_EN		60	PB31 — REAR_DOOR_SENSE
35	PA16 — RS485_DATA_ENABLE		22	GND
36	PA17 — PARK_BRAKE_SENSE		7	GNDANA
37	PA18 — MARKER_LIGHT_SENSE			
38	PA19 — STOP_LIGHT_SENSE			
41	PA20 — REVERSE_LIGHT_SENSE			
42	PA21 — SIDE_DOOR_SENSE			
43	PA22 — I2C3_SDA			
44	PA23 — I2C3_SCL			
45	PA24 — CAB_7_SENSE			
46	PA25 — CAB_8_SENSE			
51	PA27 — AUX_3_SENSE			
53	PA28 — CAB_6_SENSE			
57	PA30 — SWDCLK			
58	PA31 — SWDIO			
52	RESET — #RESET			

+3.3V
R102 4.7k   R103 4.7k
I2C3_SDA
I2C3_SCL

D1 LED   R8 91   +3.3V
REAR_DOOR_SENSE

GNDREF

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J12 Park Brake Sense — R10 3.3k — U4A TCMT4600 — R19 DNP — +3.3V — PARK_BRAKE_SENSE — R20 1.1k — C12 1uF — GNDREF

J13 Marker Light Sense — R11 3.3k — U4B TCMT4600 — R21 DNP — +3.3V — MARKER_LIGHT_SENSE — R22 1.1k — C13 1uF — GNDREF

J14 Reverse Light Sense — R12 3.3k — U4C TCMT4600 — R23 DNP — +3.3V — REVERSE_LIGHT_SENSE — R24 1.1k — C14 1uF — GNDREF

J15 Stop Light Sense — R9 3.3k — U4D TCMT4600 — R17 DNP — +3.3V — STOP_LIGHT_SENSE — R18 1.1k — C11 1uF — GNDREF

J16 Battery Switch Sense — R32 3.3k — U6A TCMT4600 — R43 DNP — +3.3V — BATT_SW_SENSE — R44 1.1k — C20 1uF — GNDREF

J17 Horn Sense — R29 3.3k — U6B TCMT4600 — R37 DNP — +3.3V — HORN_SENSE — R38 1.1k — C17 1uF — GNDREF

J18 Aux 1 Sense — R30 3.3k — U6C TCMT4600 — R39 DNP — +3.3V — AUX_1_SENSE — R40 1.1k — C18 1uF — GNDREF

J19 Aux 2 Sense — R31 3.3k — U6D TCMT4600 — R41 DNP — +3.3V — AUX_2_SENSE — R42 1.1k — C19 1uF — GNDREF

J24 Compartment 1 Sense — R52 DNP — R59 3.3k — U9A TCMT4600 — R69 DNP — +3.3V — +12V — COMP_1_SENSE — R70 1.1k — C27 1uF — GNDREF

J25 Compartment 2 Sense — R53 DNP — R60 3.3k — U9B TCMT4600 — R71 DNP — +3.3V — +12V — COMP_2_SENSE — R72 1.1k — C28 1uF — GNDREF

J20 Compartment 5 Sense — R54 DNP — R58 3.3k — U8A TCMT4600 — R67 DNP — +3.3V — +12V — COMP_5_SENSE — R68 1.1k — C26 1uF — GNDREF

J21 Rear Door Sense — R51 DNP — R57 3.3k — U8B TCMT4600 — R65 DNP — +3.3V — +12V — REAR_DOOR_SENSE — R66 1.1k — C25 1uF — GNDREF

J26 Compartment 3 Sense — R80 DNP — R84 3.3k — U9C TCMT4600 — R95 DNP — +3.3V — +12V — COMP_3_SENSE — R96 1.1k — C34 1uF — GNDREF

J27 Compartment 4 Sense — R79 DNP — R83 3.3k — U9D TCMT4600 — R93 DNP — +3.3V — +12V — COMP_4_SENSE — R94 1.1k — C33 1uF — GNDREF

J22 Side Door Sense — R76 DNP — R82 3.3k — U8C TCMT4600 — R91 DNP — +3.3V — +12V — SIDE_DOOR_SENSE — R92 1.1k — C32 1uF — GNDREF

J23 AUX Sense 3 — R75 3.3k — R81 DNP — U8D TCMT4600 — R89 DNP — +3.3V — +12V — AUX_3_SENSE — R90 1.1k — C31 1uF — GNDREF

CAB_SIGNAL_1 — R14 DNP — R16 3.3k — U5D TCMT4600 — R27 DNP — +3.3V — +12V — CAB_1_SENSE — R28 1.1k — C16 1uF — GNDREF

CAB_SIGNAL_2 — R13 DNP — R15 3.3k — U5C TCMT4600 — R25 DNP — +3.3V — +12V — CAB_2_SENSE — R26 1.1k — C15 1uF — GNDREF

CAB_SIGNAL_3 — R34 DNP — R36 3.3k — U5B TCMT4600 — R47 DNP — +3.3V — +12V — CAB_3_SENSE — R48 1.1k — C22 1uF — GNDREF

CAB_SIGNAL_4 — R33 DNP — R35 3.3k — U5A TCMT4600 — R45 DNP — +3.3V — +12V — CAB_4_SENSE — R46 1.1k — C21 1uF — GNDREF

CAB_SIGNAL_5 — R50 DNP — R56 3.3k — U7A TCMT4600 — R63 DNP — +3.3V — +12V — CAB_5_SENSE — R64 1.1k — C24 1uF — GNDREF

CAB_SIGNAL_6 — R49 DNP — R55 3.3k — U7B TCMT4600 — R61 DNP — +3.3V — +12V — CAB_6_SENSE — R62 1.1k — C23 1uF — GNDREF

CAB_SIGNAL_7 — R74 DNP — R78 3.3k — U7C TCMT4600 — R87 DNP — +3.3V — +12V — CAB_7_SENSE — R88 1.1k — C30 1uF — GNDREF

CAB_SIGNAL_8 — R73 DNP — R77 3.3k — U7D TCMT4600 — R85 DNP — +3.3V — +12V — CAB_8_SENSE — R86 1.1k — C29 1uF — GNDREF

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