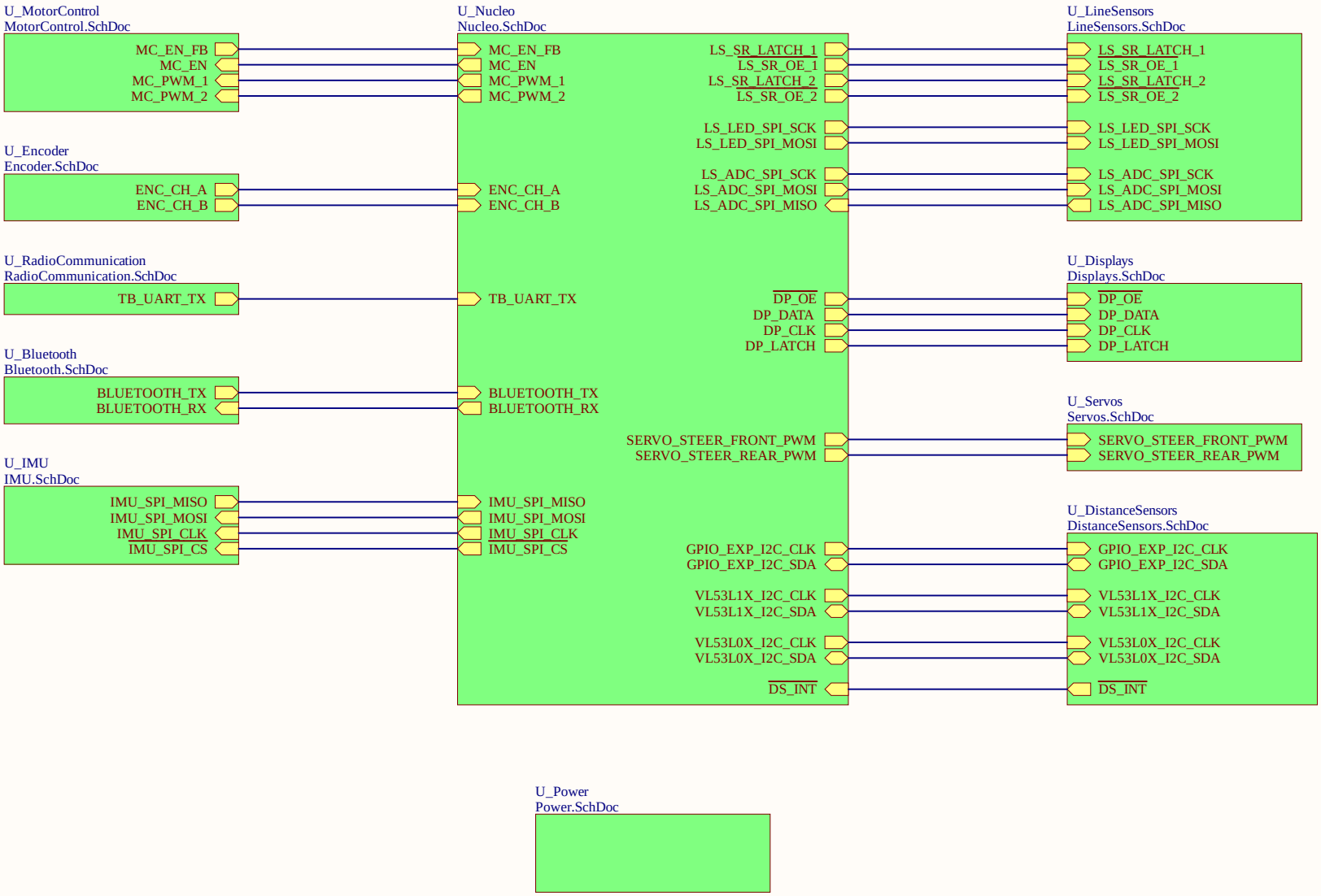

Title	***Top Level - Hierarchical View***		
Size: A4	Number: 1	Revision: 1.0	
Date: 2022 Fall		Sheet 1 of 14	
File: TopLevel.SchDoc			

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Feher Daniel
G. Varga Gabor

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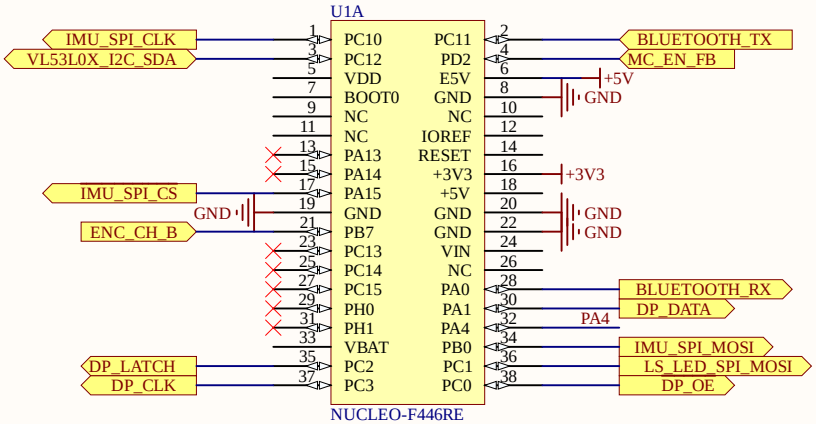
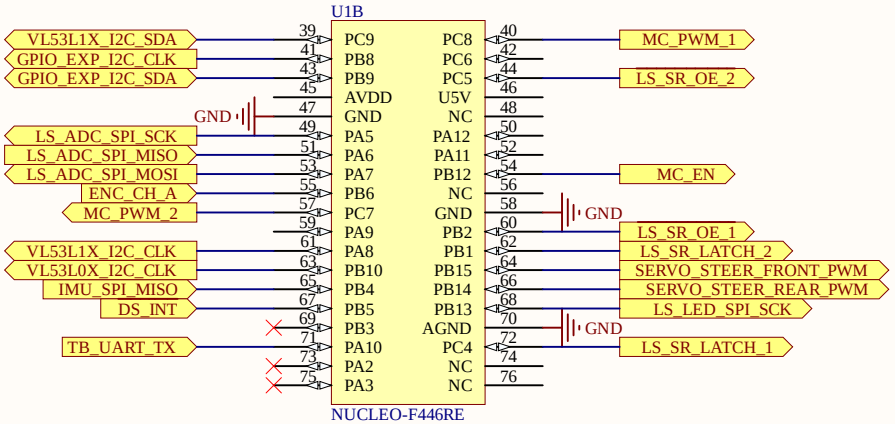
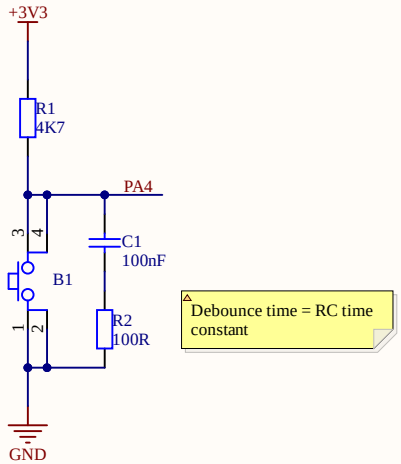
Reserved pins (do not connect anything):
PA2 - DBG UART TX
PA3 - DBG UART RX
PA5 - Green LED (?)
PA13 - SWDIO
PA14 - SWCLK
PB3 - SWO (?)
PC13 - Blue PushButton
PC14 - OSC 32.768 kHz
PC15 - OSC 32.768 kHz
PH0 - OSC 8 MHz
PH1 - OSC 8 MHz







Debounce time = RC time constant

Nucleo Connector (2 pcs are needed):
Supplier: Lomex
Reference: 43-06-67
Name: HÜVELY 20x2 P FHDH2.54-40
(T-T) 1# h=8,5mm AU

Title **Nucleo**			
Size: A4	Number: 2	Revision: 1.0	
Date: 2022 Fall		Sheet 2 of 14	
File: Nucleo.SchDoc			

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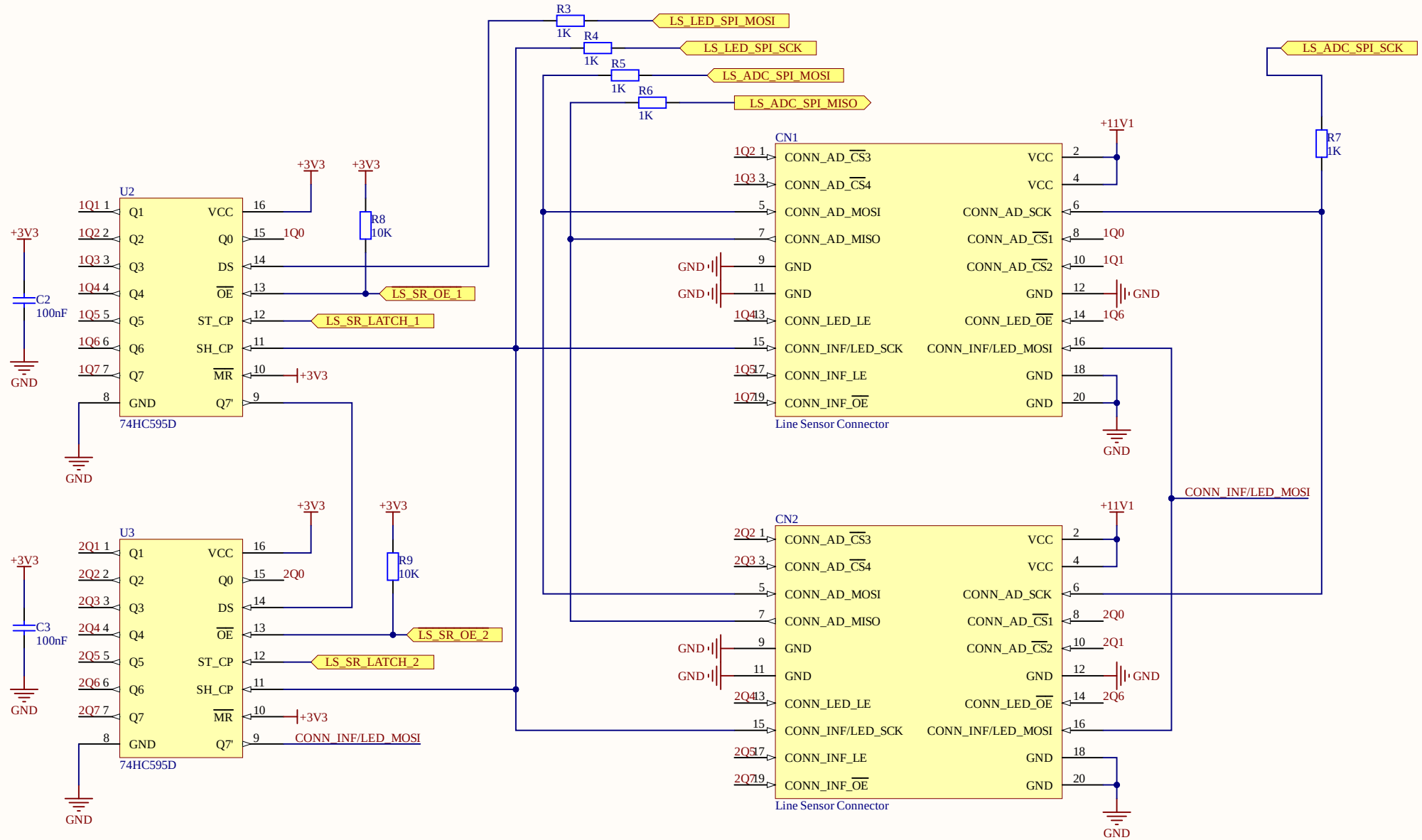

Title	***Line Sensors***		
Size: A4	Number: 3	Revision: 1.0	
Date: 2022 Fall		Sheet 3 of 14	
File: LineSensors.SchDoc			

Designed by:
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G. Varga Gabor

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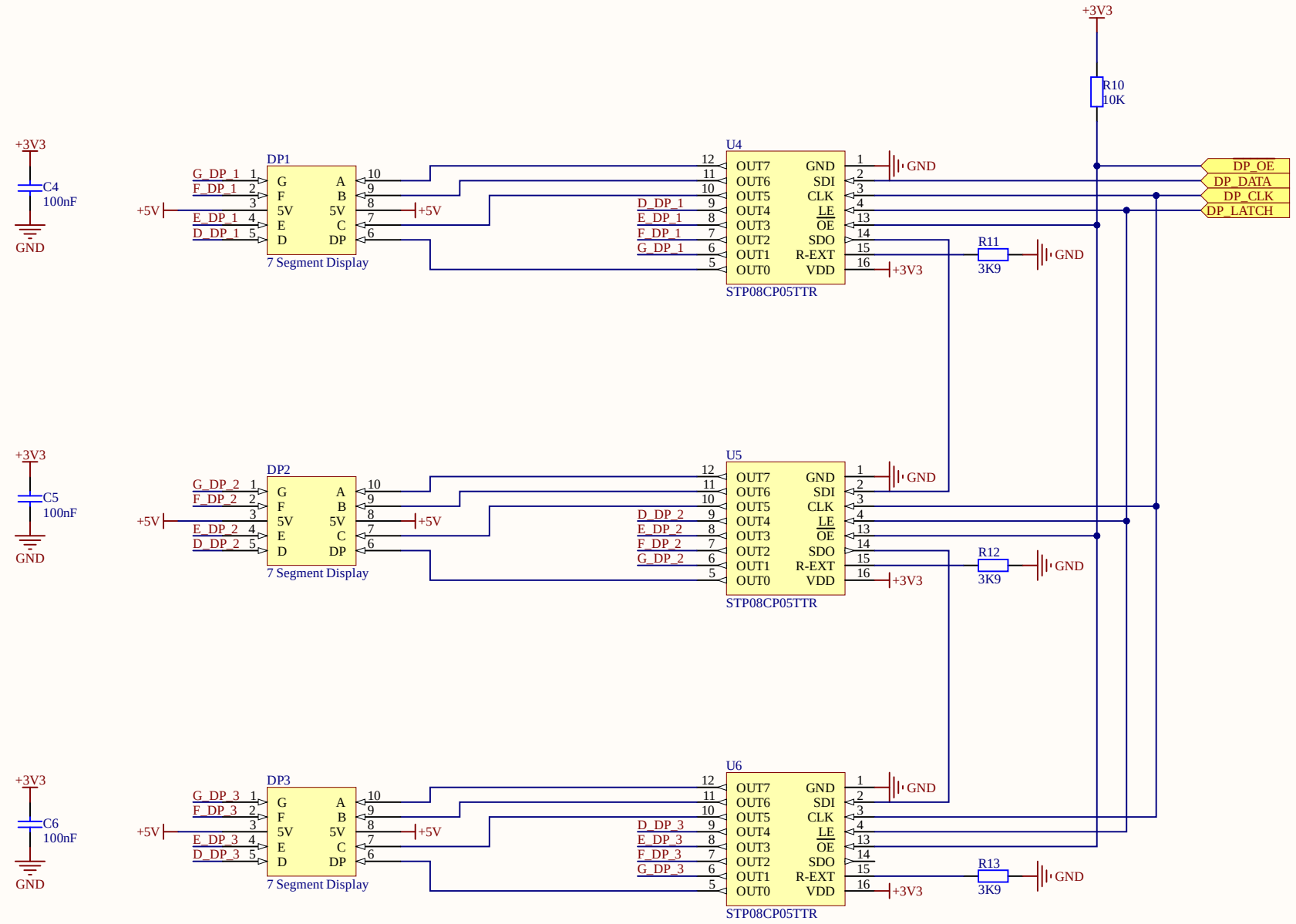

Title **Displays**			
Size: A4	Number: 4	Revision: 1.0	
Date: 2022 Fall		Sheet 4 of 14	
File: Displays.SchDoc			

Designed by:
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Bagoly Zoltan
Feher Daniel
G. Varga Gabor

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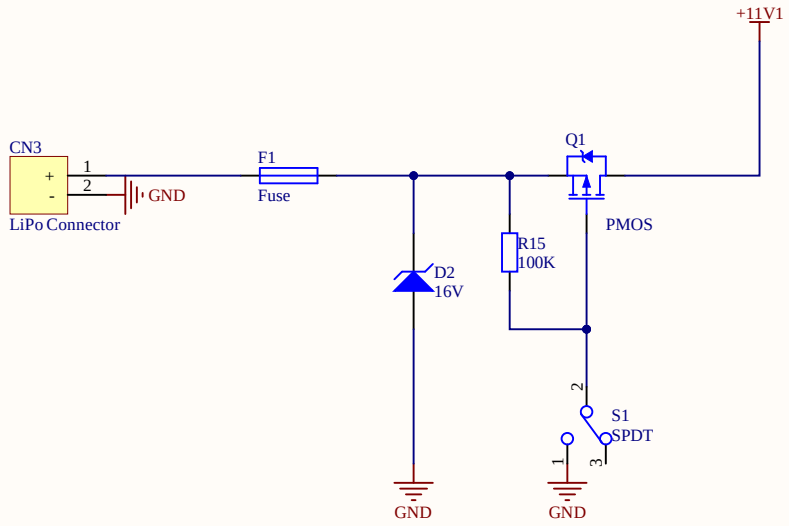
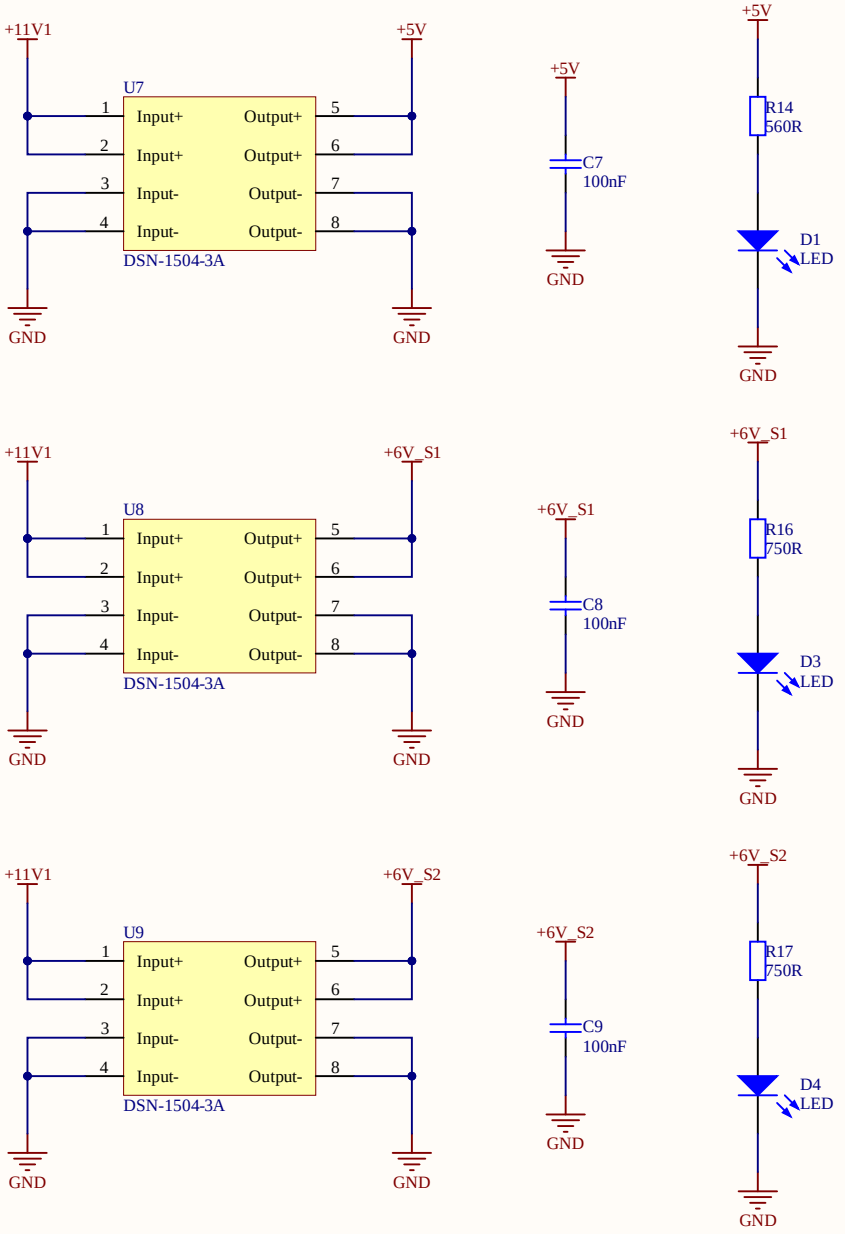
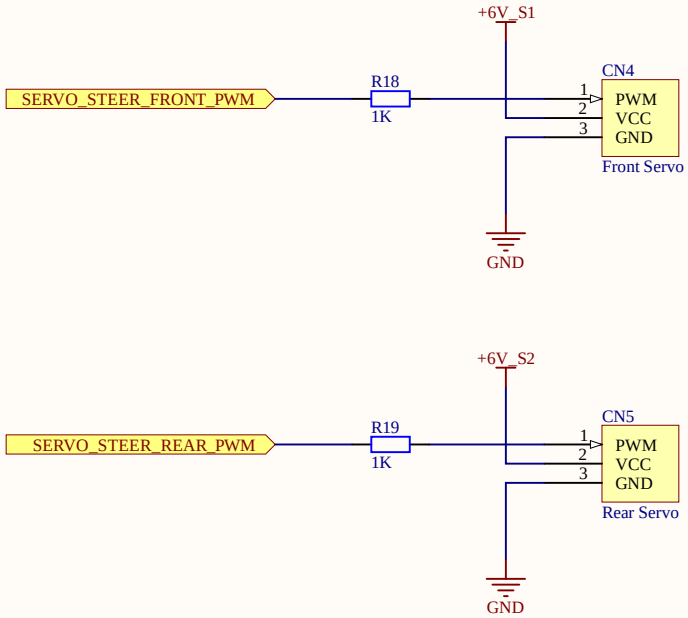




Title **Power**			Designed by: LK Bulls, Bagoly Zoltan, Feher Daniel, G. Varga Gabor
Size: A4	Number: 5	Revision: 1.0	RobonAUT 2023
Date: 2022 Fall		Sheet 5 of 14	
File: Power.SchDoc			



Servo type:
Name: MG-995 servo
Supplier: Hestore
Reference: 100.358.11

Title **Servos**			Designed by: *LK Bulls* *Bagoly Zoltan* *Feher Daniel* *G. Varga Gabor*
Size: A4	Number: 6	Revision: 1.0	
Date: 2022 Fall		Sheet 6 of 14	
File: Servos.SchDoc			

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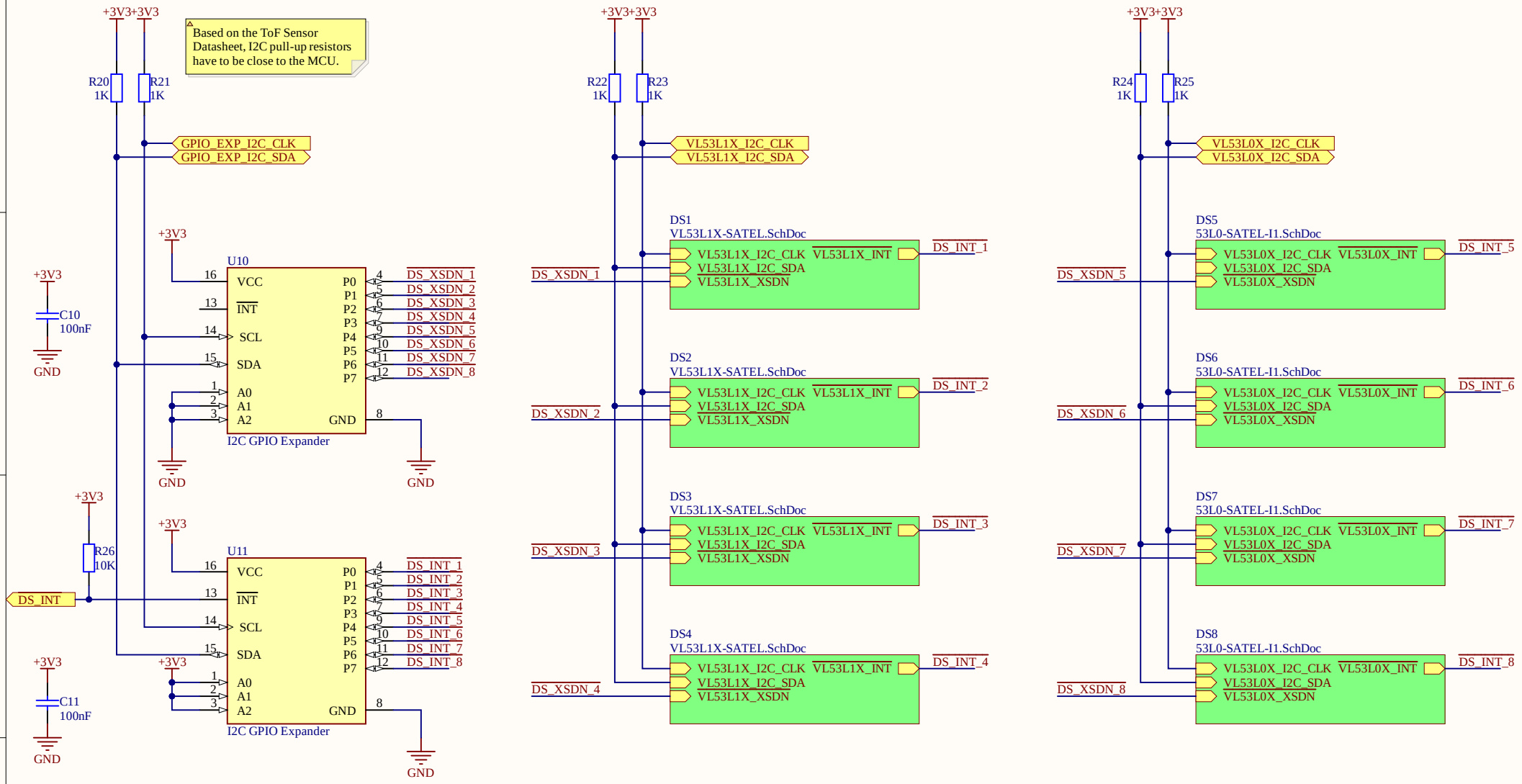

Title	**Distance Sensors**		
Size: A4	Number: 7	Revision: 1.0	
Date: 2022 Fall		Sheet 7 of 14	
File: DistanceSensors.SchDoc			

Designed by:
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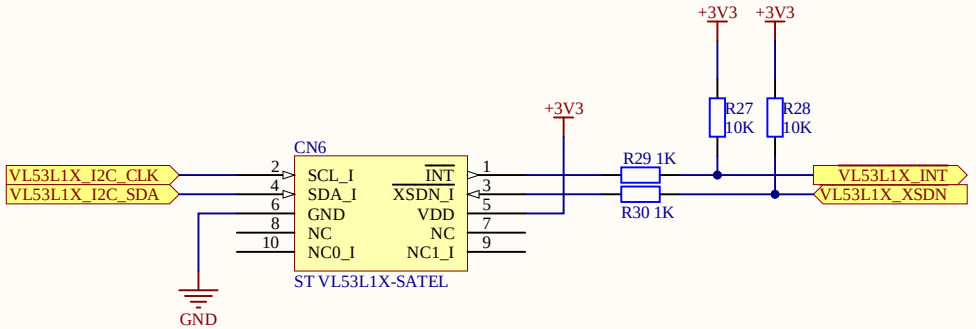

Cable Connector:
Lomex:
2x3 female: 43-00-12
2x5 female: 43-00-57

Connector for the Sensor:
2x5 male: 43-05-85

Title	***VL53L1X Satellite Board***		
Size: A4	Number: 8	Revision: 1.0	
Date: 2022 Fall		Sheet 8 of 14	
File: VL53L1X-SATEL.SchDoc			

Designed by:
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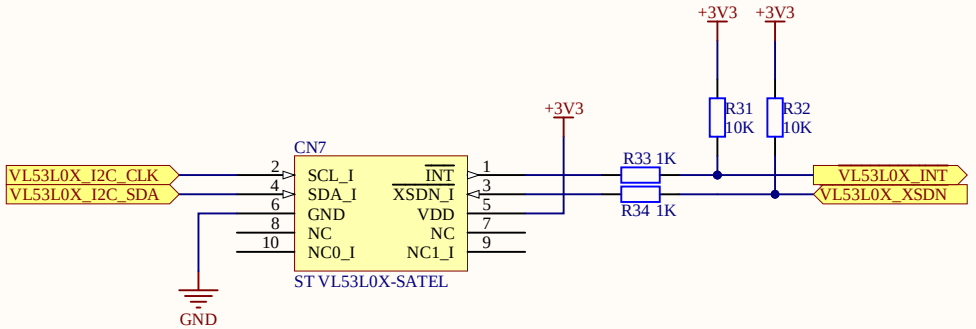

Cable Connector:
Lomex:
2x3 female: 43-00-12
2x5 female: 43-00-57

Connector for the Sensor:
2x5 male: 43-05-85

Title	***VL53L0X Satellite Board***		
Size: A4	Number: 9	Revision: 1.0	
Date: 2022 Fall		Sheet 9 of 14	
File: 53L0-SATEL-I1.SchDoc			

Designed by:
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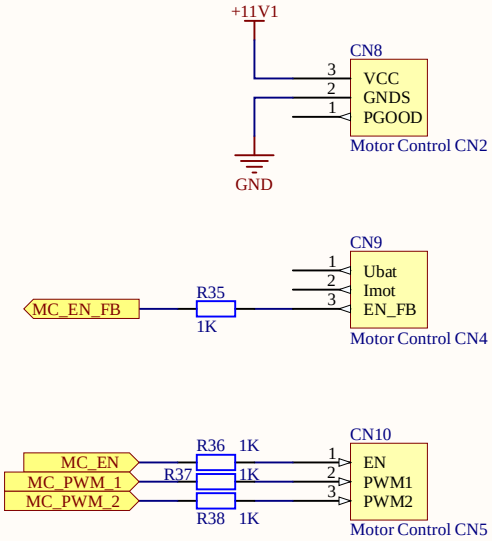

Title **Motor Control**			Designed by: *LK Bulls* *Bagoly Zoltan* *Feher Daniel* *G. Varga Gabor*
Size: A4	Number: 10	Revision: 1.0	
Date: 2022 Fall		Sheet 10 of 14	
File: MotorControl.SchDoc			

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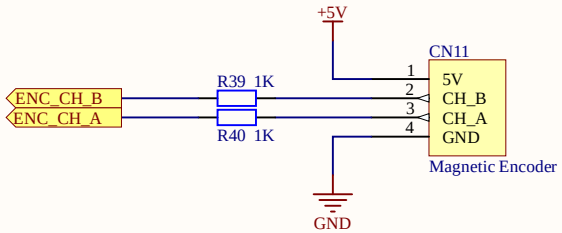

Encoder cable (2 pieces):
Supplier: Lomex
Reference: 43-09-08
Name: TÁPCSATL. 2.54mm 4P
ANYA HÁZ NCH254-04 (G-S)

Title	***Magnetic Encoder***		
Size: A4	Number: 11	Revision: 1.0	
Date: 2022 Fall		Sheet 11 of 14	
File: Encoder.SchDoc			

Designed by:
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Bagoly Zoltan
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G. Varga Gabor

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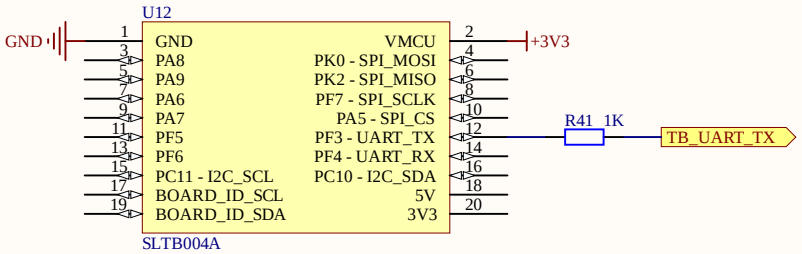

Purpose of the 1K resistor:
Making UART TX foolproof.

Title **Radio Communication**			Designed by: *LK Bulls* *Bagoly Zoltan* *Feher Daniel* *G. Varga Gabor*
Size: A4	Number: 12	Revision: 1.0	
Date: 2022 Fall		Sheet 12 of 14	
File: RadioCommunication.SchDoc			

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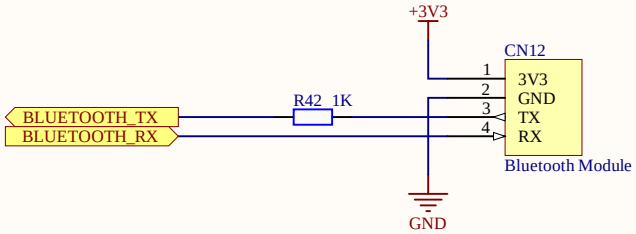

Purpose of the 1K resistor:
Making UART TX foolproof.

Bluetooth cable (2 pieces):
Supplier: Lomex
Reference: 43-09-08
Name: TÁPCSATL. 2.54mm 4P
ANYA HÁZ NCH254-04 (G-S)

Title	***Bluetooth Communication***		
Size: A4	Number: 13	Revision: 1.0	
Date: 2022 Fall		Sheet 13 of 14	
File: Bluetooth.SchDoc			

Designed by:
LK Bulls
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Feher Daniel
G. Varga Gabor

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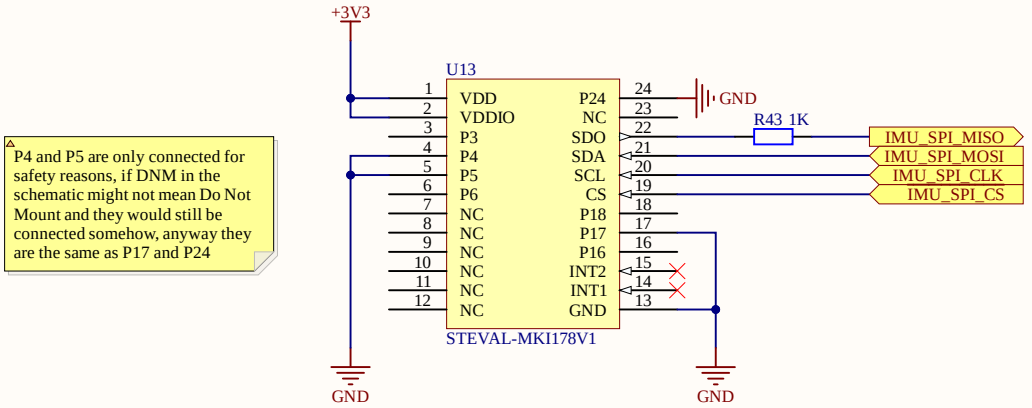

P4 and P5 are only connected for safety reasons, if DNM in the schematic might not mean Do Not Mount and they would still be connected somehow, anyway they are the same as P17 and P24

Purpose of the 1K resistor:
Making SPI MISO foolproof.

Title	***Inertial Measurement Unit***		
Size: A4	Number: 14	Revision: 1.0	
Date: 2022 Fall		Sheet 14 of 14	
File: IMU.SchDoc			

Designed by:
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Feher Daniel
G. Varga Gabor

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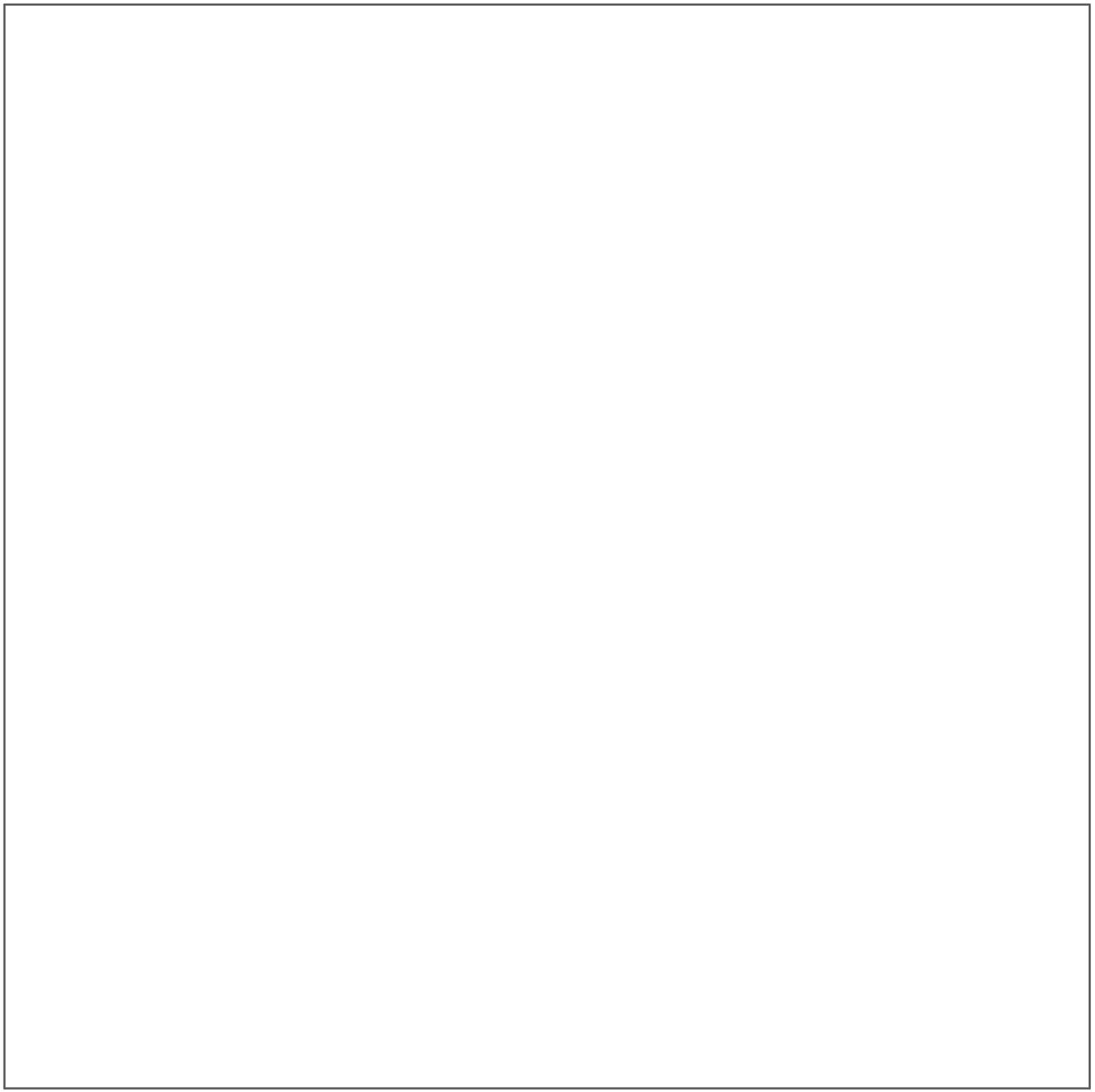

LKBulls2023_PCB.PcbDoc

Designator	Reference	Quantity	Footprint	Supplier	Name
R3, R4, R5, R6, R7, R18, R19, R20, R21, R22, R23, R24, R25, R29_DS1, R29_DS2, R29_DS3, R29_DS4, R30_DS1, R30_DS2, R30_DS3, R30_DS4, R33_DS5, R33_DS6, R33_DS7, R33_DS8, R34_DS5, R34_DS6, R34_DS7, R34_DS8, R35, R36, R37, R38, R39, R40, R41, R42, R43	81-10-99, 81-10-87	38	FP_0805_RES	Lomex	1K00 0805 5% CR-05JL7----1K 0.125W (VIK)
R11, R12, R13	81-10-94	3	FP_0805_RES	Lomex	3K90 0805 5% CR-05JL7---3K9 0.125W (VIK)
R1	81-10-95	1	FP_0805_RES	Lomex	4K70 0805 5% CR-05JL7---4K7 0.125W (VIK)
F1	44-03-11	1	FP_MULTIFUSE_1812	Lomex	6A 30V 30R600UF POLYFUSE 16.5x16.5mm (LFS)
R8, R9, R10, R27_DS1, R27_DS2, R27_DS3, R27_DS4, R28_DS1, R28_DS2, R28_DS3, R28_DS4, R31_DS5, R31_DS6, R31_DS7, R31_DS8, R32_DS5, R32_DS6, R32_DS7, R32_DS8	81-10-99	19	FP_0805_RES	Lomex	10K0 0805 5% CR-05JL7---10K 0.125W (VIK)
R26	81-10-99	1	FP_0603_RES	Lomex	10K0 0805 5% CR-05JL7---10K 0.125W (VIK)
D2	85-00-88	1	FP_SMA	Lomex	16V 0.5W SMSZ1600-35 (MOT) MMSZ5246BT1 SOD-123 ˝J1˝
U2, U3	87-01-20	2	SO16 (PI.:Shift-registerhez)	Lomex	74HC595D,118 (NXP) 8-BIT SHIFT-REGISTER WITH OUTPUT LATCH SO-16
R15	81-11-11	1	FP_0805_RES	Lomex	100K 0805 5% CR-05JL7--100K 0.125W (VIK)
C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, C11	82-13-46	11	FP_0805_CAP_085	Lomex	100nF 0805 10% 50V X7R 0805B104K500NT (FNG)
R2	81-34-71	1	FP_0805_RES	Lomex	100R 0805 5% RC0805JR-10100RL 0.125W (YAG
R14	81-10-84	1	FP_0805_RES	Lomex	560R 0805 5% CR-05JL7--560R 0.125W (VIK)
R16, R17	81-12-65	2	FP_0805_RES	Lomex	750R 0805 5% CR-05JL7--750R 0.125W (VIK)
D1, D3, D4	95-00-57	3	FP_0805_LED_GREEN	Lomex	2012 GREEN 568nm 70mcd KP-2012MGC (KIN) W.CLEAR 2x1.2x1.1mm 0805 120°
U4, U5, U6	Tanszék	3	SOP127P600-sajat_0095-015	Tanszék	Counter Shift Registers Lo Vltg LoCurent Pwr 8B shift register
U7, U8, U9	100.381.18	3		Hestore	DSN-1504-3A, Kapcsolóüzemű step-down feszültségszabályzó, 4.5-28V/0.8-20V, 3A
DP1, DP2, DP3	35-03-94	3	FP_7_Segment_Display	Lomex	FYS-3911BUHR-21 (FYL) 7 SEG SRED COM.AN. 10mm 30mcd 10x13x7mm 640nm
U12	43-00-08	1	SLTB004A	Lomex	HÜVELY 20 P FHSH-2.54-20 (T-T) 1# h=8,5mm AU
U13	43-03-71	1	FP_STEVAL_IMU	Lomex	HÜVELY 40 P FHSH-2.54-40 (T-T) 1# h=8,5mm AU
Q1	86-01-67	1	FP_DPAK-TO252	Lomex	IRFR9024NTRPBF (INF) P-POWERFET 55V 11A 38W Rds<0.175R DPAK
U1	NUCLEO	1	FP_NUCLEO-64	Tanszék	Nucleo F446RE
B1	TACT-64N-F	1	FP_BTN_SMD	Hestore	Nyomógomb, mikrokapcsoló TACT, SPST-NO, THT, 4.3mm, 6x6mm
CN8	43-09-55	1	DC_Drive_CN_Stelvio	Lomex	SORKAPOCS 3 P RM3.81 CPP3.81/3 (STE) LIFTES 1mmř 10A
CN9	43-09-55	1	DC_Drive_CN_Stelvio	Lomex	SORKAPOCS 3 P RM3.81 CPP3.81/3 (STE) LIFTES 1mmř 10A
CN10	43-09-55	1	DC_Drive_CN_Stelvio	Lomex	SORKAPOCS 3 P RM3.81 CPP3.81/3 (STE) LIFTES 1mmř 10A
CN6_DS1, CN6_DS2, CN6_DS3, CN6_DS4	43-26-63	4		Lomex	SZAL.KABEL 6 P APA BH-06 (T-T)
CN7_DS5, CN7_DS6, CN7_DS7, CN7_DS8	43-26-63	4		Lomex	SZAL.KABEL 6 P APA BH-06 (T-T)
CN1, CN2	43-01-11	2	CONNECTOR-20P	Lomex	SZAL.KABEL 20 P APA 90° BHR-20 (T-T)
CN11	43-08-97	1	FP_CONN4_TAP_254MM	Lomex	TÁPCSATL. 2.54mm 4P APA 180° NCW254-04S (G-S) FORR.
CN12	43-08-97	1	FP_CONN4_TAP_254MM_90	Hestore	TÁPCSATL. 2.54mm 4P APA 180° NCW254-04S (G-S) FORR.
U10, U11	595-TCA9534PWR	2	FP_TCA9534PWR	Mouser	TCA9534PWR 8 Bit I2C I/O Expander
S1	100.264.66	1		Hestore	TSSM-1022-A2, Kapcsoló, nyelves, 1A/250V AC, M5, SPDT, ON-ON
CN4	43-00-73	1	FP_CONN3_TUSKE_254MM	Lomex	TÜSKESOR 40 P PHSS-40- 6/3 (T-T) 2.54mm PIN 0.64x0.64 TÖRDELHETÖ
CN5	43-00-73	1	FP_CONN3_TUSKE_254MM	Lomex	TÜSKESOR 40 P PHSS-40- 6/3 (T-T) 2.54mm PIN 0.64x0.64 TÖRDELHETÖ
CN3	FD-W115M	1		https://shop.modell.hu/kabel-amass-xt60-cap-apa-csatlakozoval-szerelve	XT60 + CAP Apa