

Solderable Standoff Nuts (M3 4mm)

Mainboard

Overview

Author: Florian Baumgartner & Alain Keller

File: Mainboard_V1.0.SchDoc

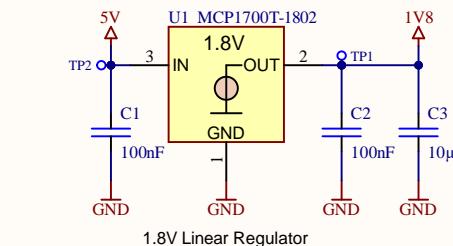


Date: 22.01.2024

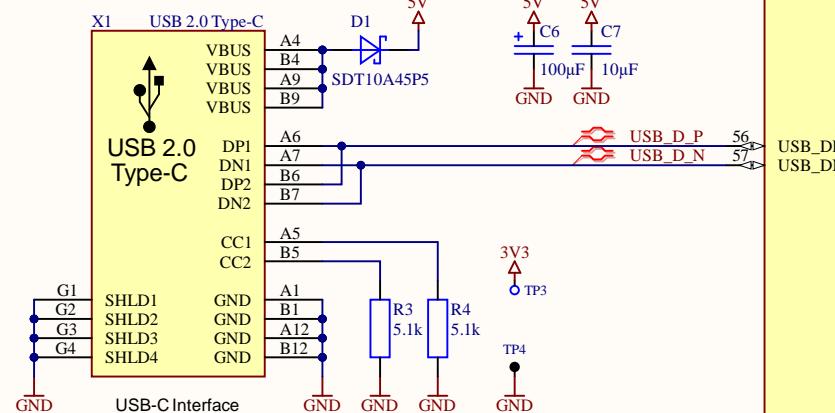
Rev: V1.0

Sheet 1 of 7

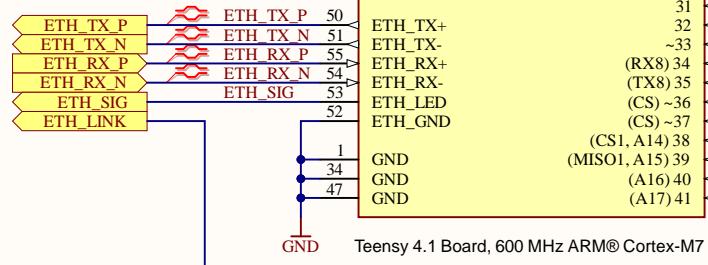
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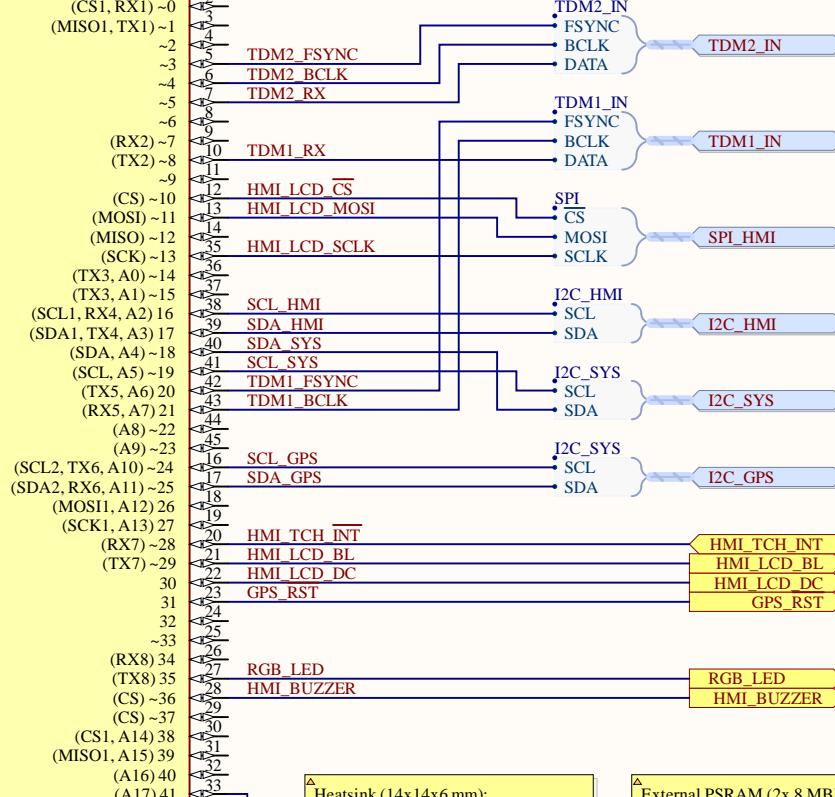
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Heatsinks (14x14x6 mm):
Type: HSB03-141406
Digikey: 2223-HSB03-141406-ND
Mouser: 490-HSB03-141406
AliExpress: 1005002344578456

External PSRAM (2x 8 MB):
Type: ESP-PSRAM64H (3.3V, 133MHz)
Digikey: 1528-4677-ND
Mouser: 485-4677
AliExpress: 1005001839058261

Pogo-Pins for USB-Connection (2x):
Type: P19-2221 (Ø1.5mm, 17.04mm)
Digikey: 952-2604-ND
Mouser: 855-P19-2221
Farnell: 9960171

Male Connector for Ethernet-Connection:
Type: 0877580616 (6-Pin, 2.0mm)
Digikey: WM18834-ND
Mouser: 538-87758-0616
Farnell: 2751441

Female Connector for Ethernet-Connection:
Type: ESQT-103-02-L-D-410 (6-Pin, 2.0mm)
Digikey: ESQT-103-02-L-D-410-ND
Mouser: 200-ESQT10302LD410
Farnell: 3733870

Mainboard

MCU

Author: Florian Baumgartner & Alain Keller

File: Mainboard_V1.0 MCU.SchDoc

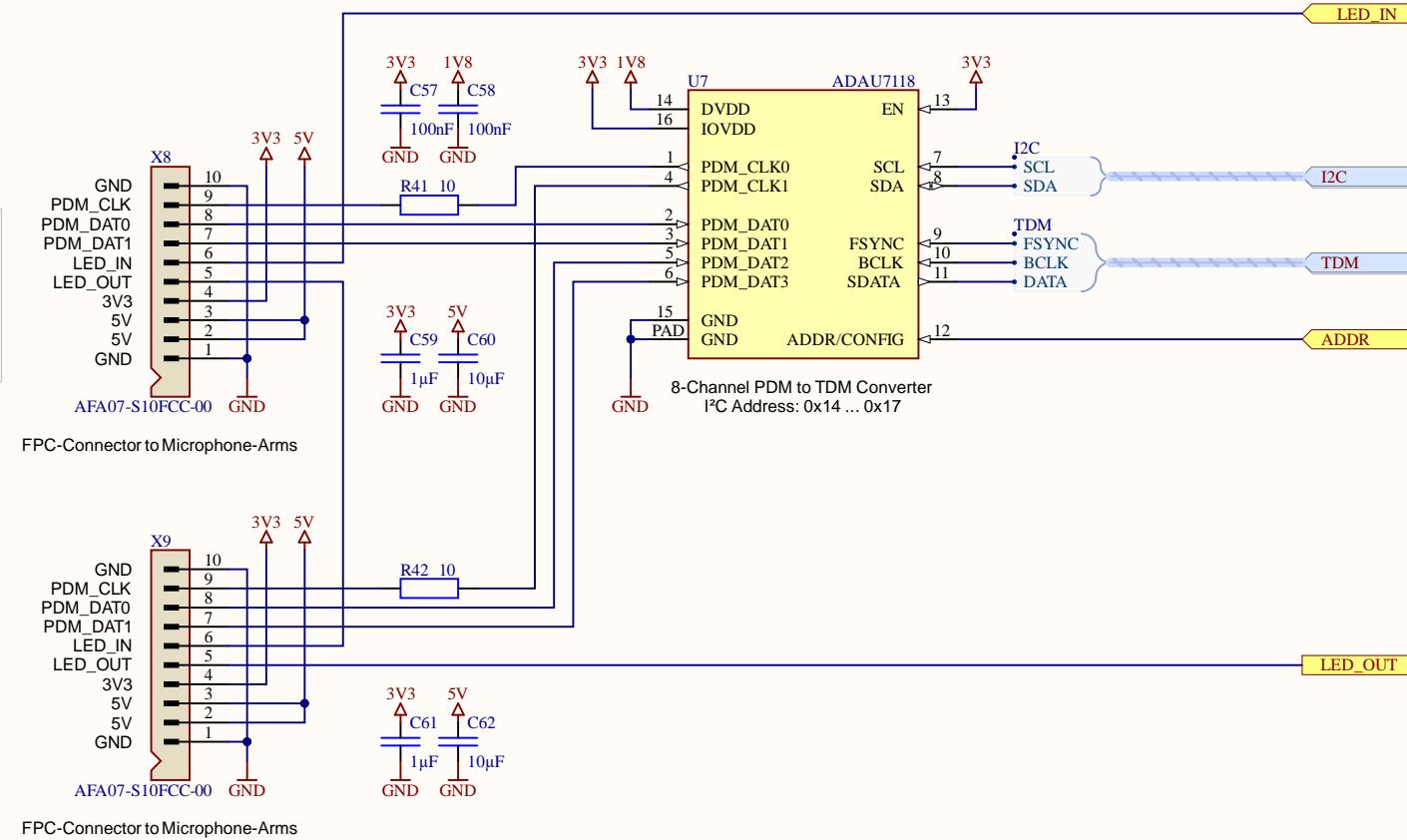


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Sheet 2 of 7

 FPC/FFC-Cable
Type: MOLEX 15167-0247
Pins: 10
Pin-Pitch: 1.0mm
Length: 51.0mm
Width: 11.0mm
Contacts: Same Side Contacts
Stiffner: 0.3mm



Title

MainboardSubtitle **PDM-Microphone Input**

Author: Florian Baumgartner & Alain Keller

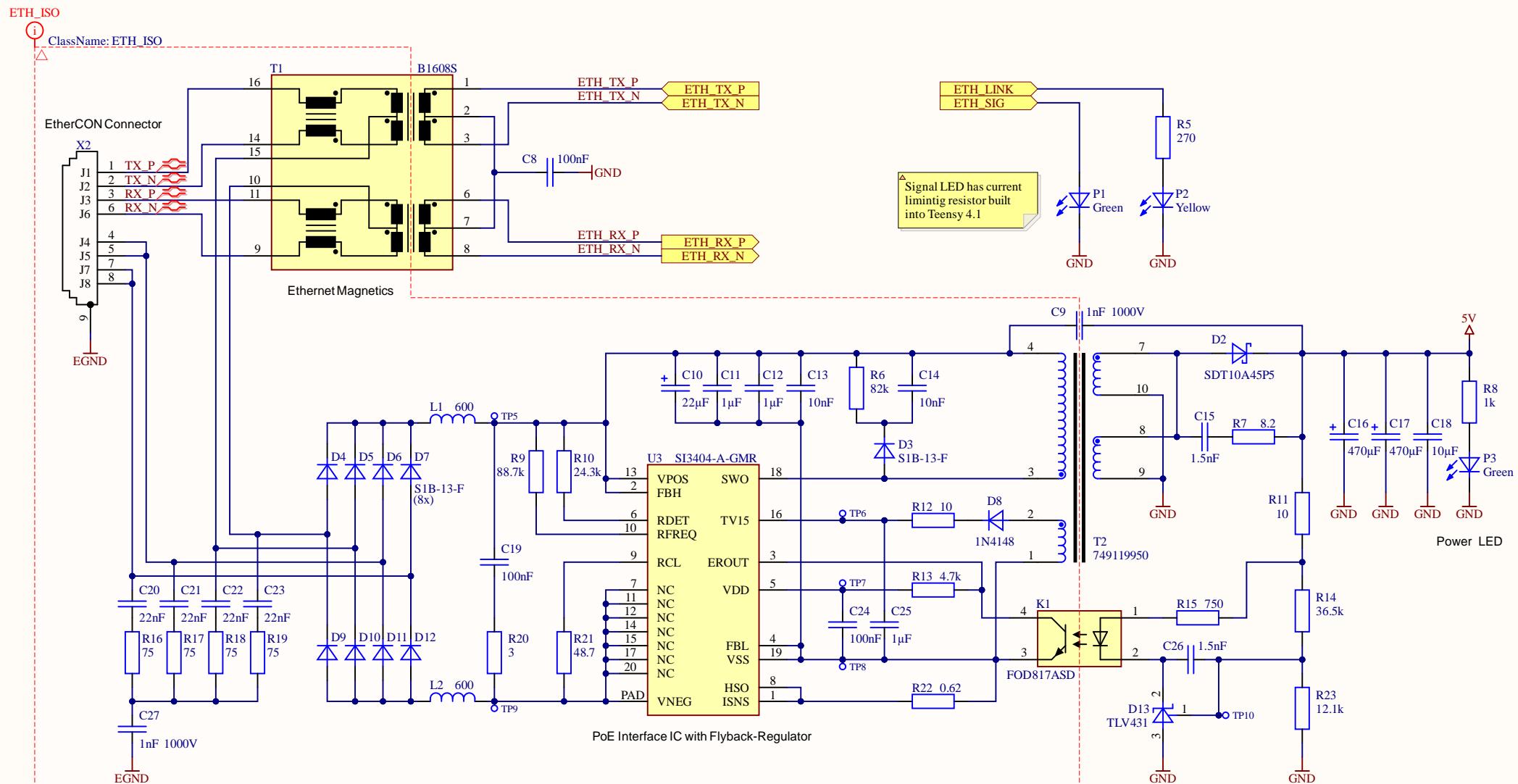
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Rev: V1.0

Sheet 3 of 7



Based on Reference Design: Si3404-ISO-FB-EVB (5V, 2.5A)
IEEE 802.3at Class-3 active PD (Max 12.95W)

Title Mainboard		OST Ostschweizer Fachhochschule	ICAI
Subtitle Ethernet PoE (IEEE 802.3at)			
Author: Florian Baumgartner & Alain Keller		Date: 22.01.2024	Rev: V1.0
File: Mainboard_V1.0_Ethernet.SchDoc		Sheet 4 of 7	

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**High-Precision GNSS RTK Module
Based on Sparkfun Reference Design**

I²C Address: 0x42

Power Supply Filter: L3 (600), C52 (100nF), C53 (10µF), C54 (1µF), C55 (100nF)

USB 2.0 Type-C Port (X6):

- VBUS (A4, A9, B4, B9)
- DPI (A6, A7, B6, B7)
- CC1 (A5, B5)
- CC2 (A1, B1)
- SHLD1 (G1, G2)
- SHLD2 (G3, G4)
- SHLD3 (GND)
- SHLD4 (GND)

NEO-M8P-2 Module (U6):

- VCC (Pin 23)
- VDD_USB (Pin 7)
- V_BCKP (Pin 22)
- RESET (Pin 8)
- EXTINT (Pin 4)
- RF_IN (Pin 11)
- LNA_EN (Pin 14)
- USB_DP (Pin 6)
- USB_DM (Pin 2)
- VCC_RF (Pin 9)
- SCL/SCLK (Pin 19)
- SDA/CS (Pin 18)
- TXD/MISO (Pin 20)
- RXD/MOSI (Pin 21)
- GND (Pin 10)
- GND (Pin 12)
- GND (Pin 13)
- GND (Pin 24)
- TIMEPULSE (Pin 3)
- RTK_STAT (Pin 15)
- GEOFENCE_STAT (Pin 16)

External Components:

- SMA Antenna Connector:** X7 BWSMA-KE-Z001
- GPS RST:** GPS_RST
- I²C:** I²C (SCL, SDA)
- Status LEDs:** P22 Yellow, P21 Red

Annotations:

- Active GNSS-Antenna Requirements:
 - Type: ANN-MB1-00
 - Digikey: 672-ANN-MB1-00-N
 - Mouser: 377-ANN-MB1-00
- Custom SMA-Connector:
 - Type: Amphenol 132114
 - Cable: RG174
 - Digikey: ACX1202-ND
 - Mouser: 523-132114
 - Farnell: 2112459



Active GNSS-Antenna Required
Type: ANN-MB1-00
Digikey: 672-ANN-MB1-00-ND
Mouser: 377-ANN-MB1-00

Custom SMA-Connector
Type: Amphenol 132114
Cable: RG174
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Subtitle GPS

Author: *Florian Baumgartner & Alain Keller*

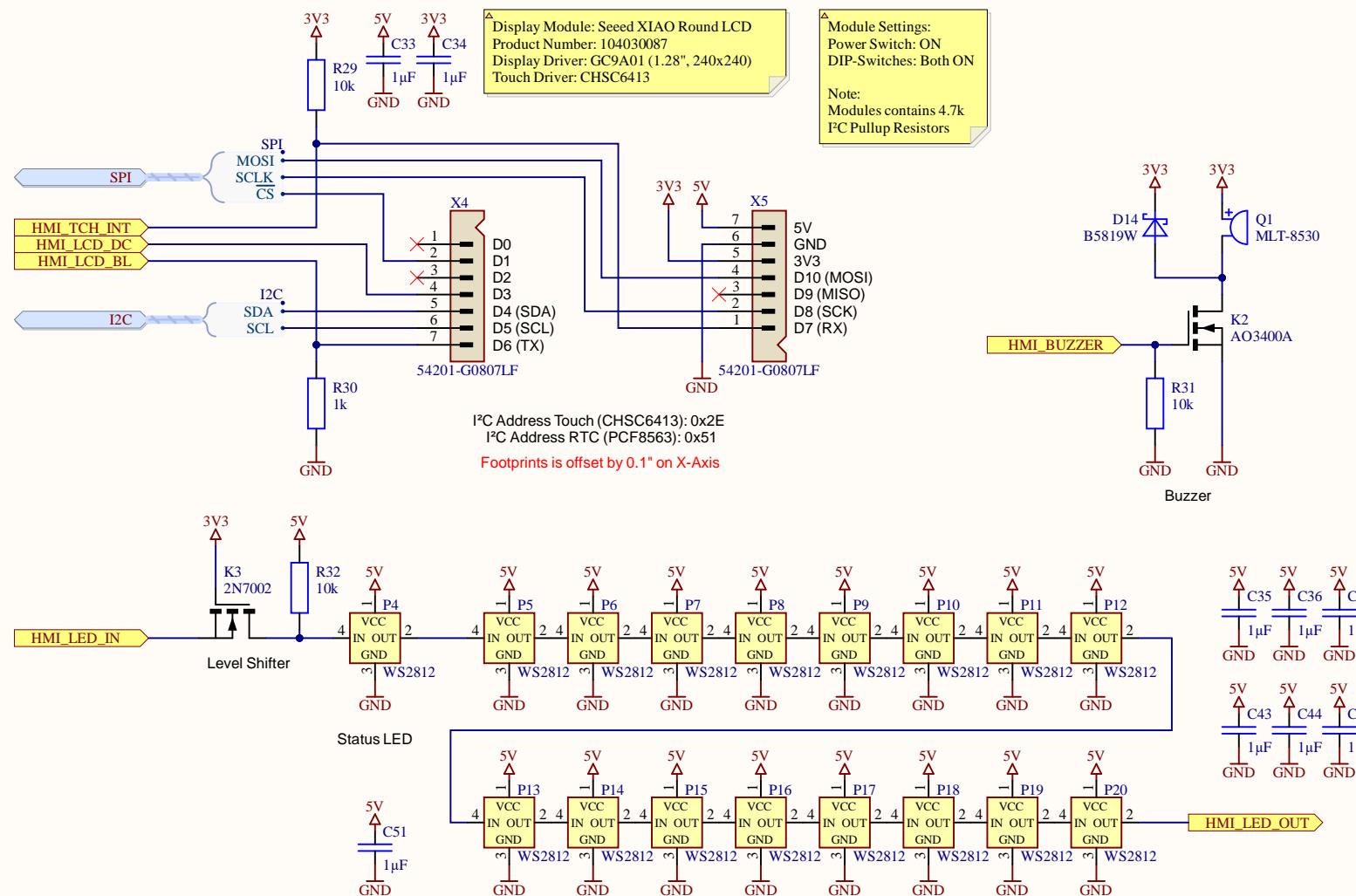
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Title **Mainboard**

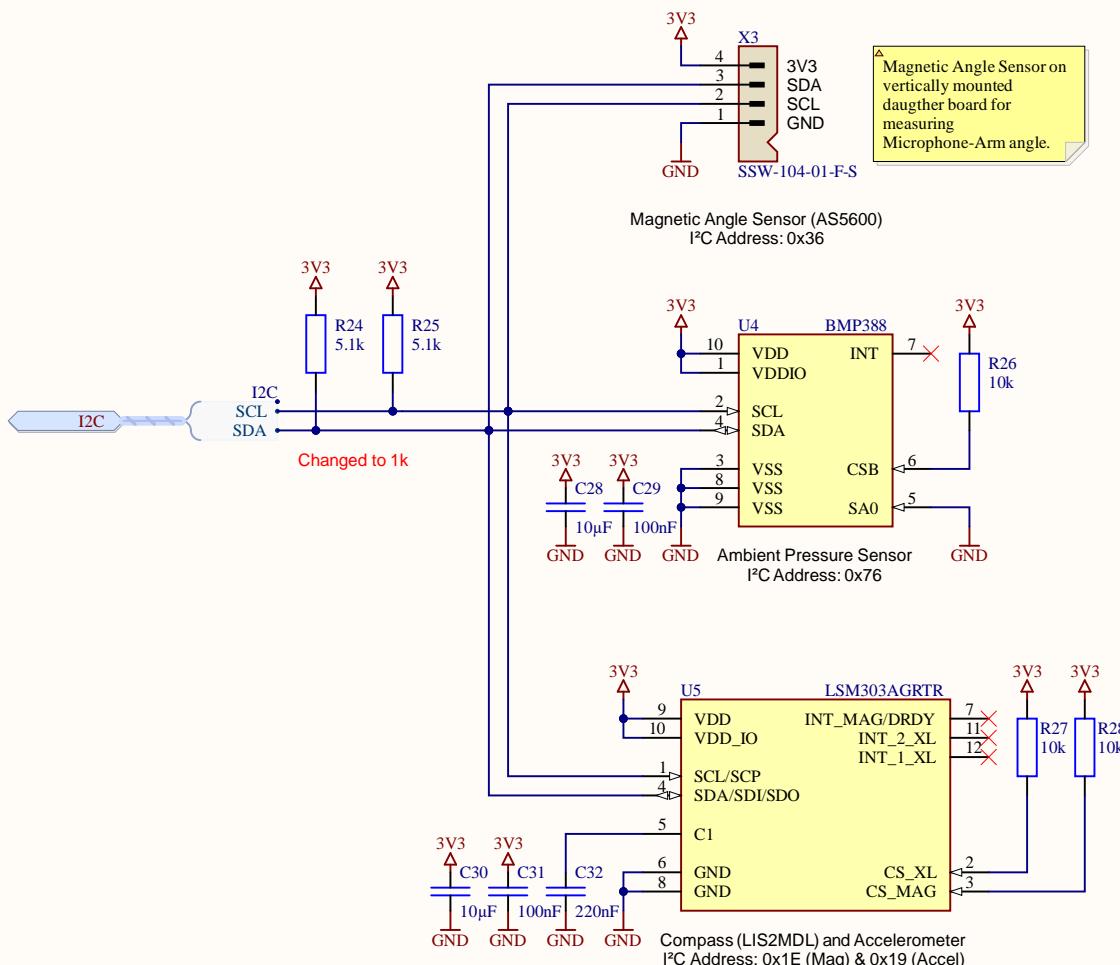
Subtitle **HMI**

Author: *Florian Baumgartner & Alain Keller*

File: Mainboard_V1.0_HMI_SchDoc

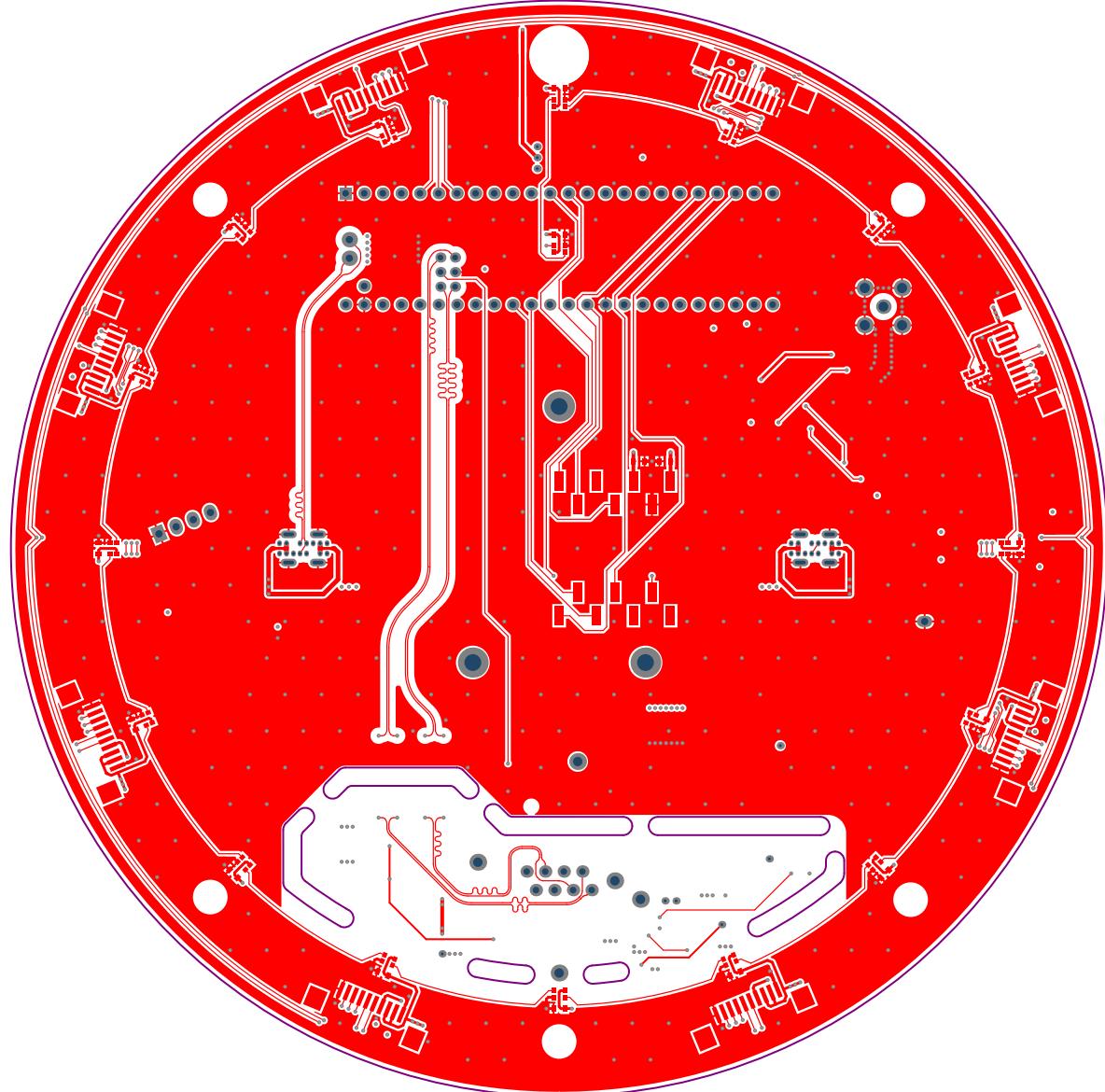


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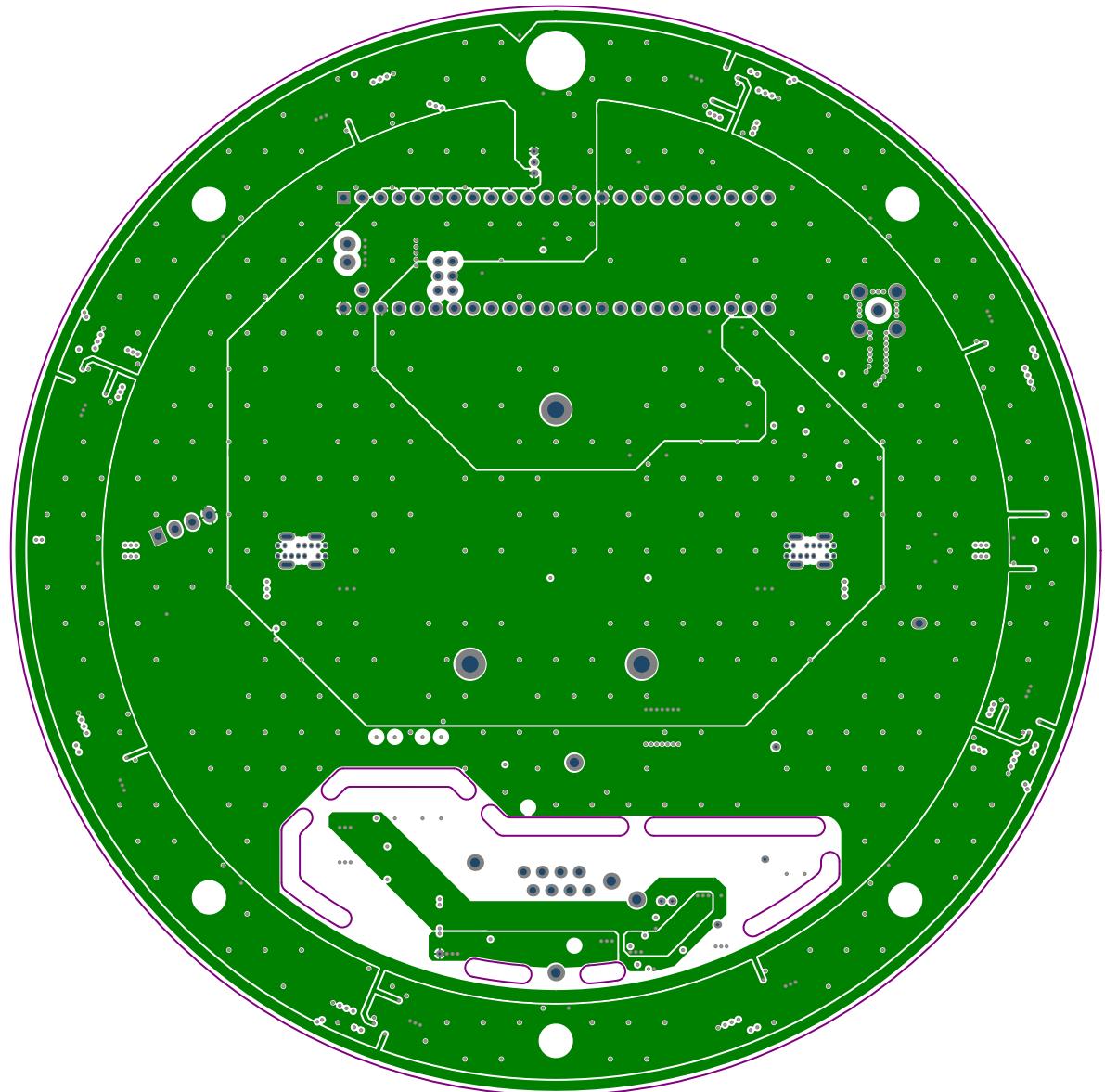


Title

MainboardSubtitle **Sensors**Author: *Florian Baumgartner & Alain Keller*File: *Mainboard_V1.0_Sensors.SchDoc*Date: *22.01.2024*Rev: *V1.0*Sheet *7* of *7*



ENGINEER: Florian Baumgartner	TITLE: Mainboard	
PCB DESIGNER: Florian Baumgartner		
DATE: 02.12.2023	PART NO.: 1/1	REV: V1.1
FILE NAME: Mainboard_V1.0.PcbDoc	DWG NO.: 1/1	SCALE: 1:1



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Florian Baumgartner

PCB DESIGNER:
Florian Baumgartner

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02.12.2023

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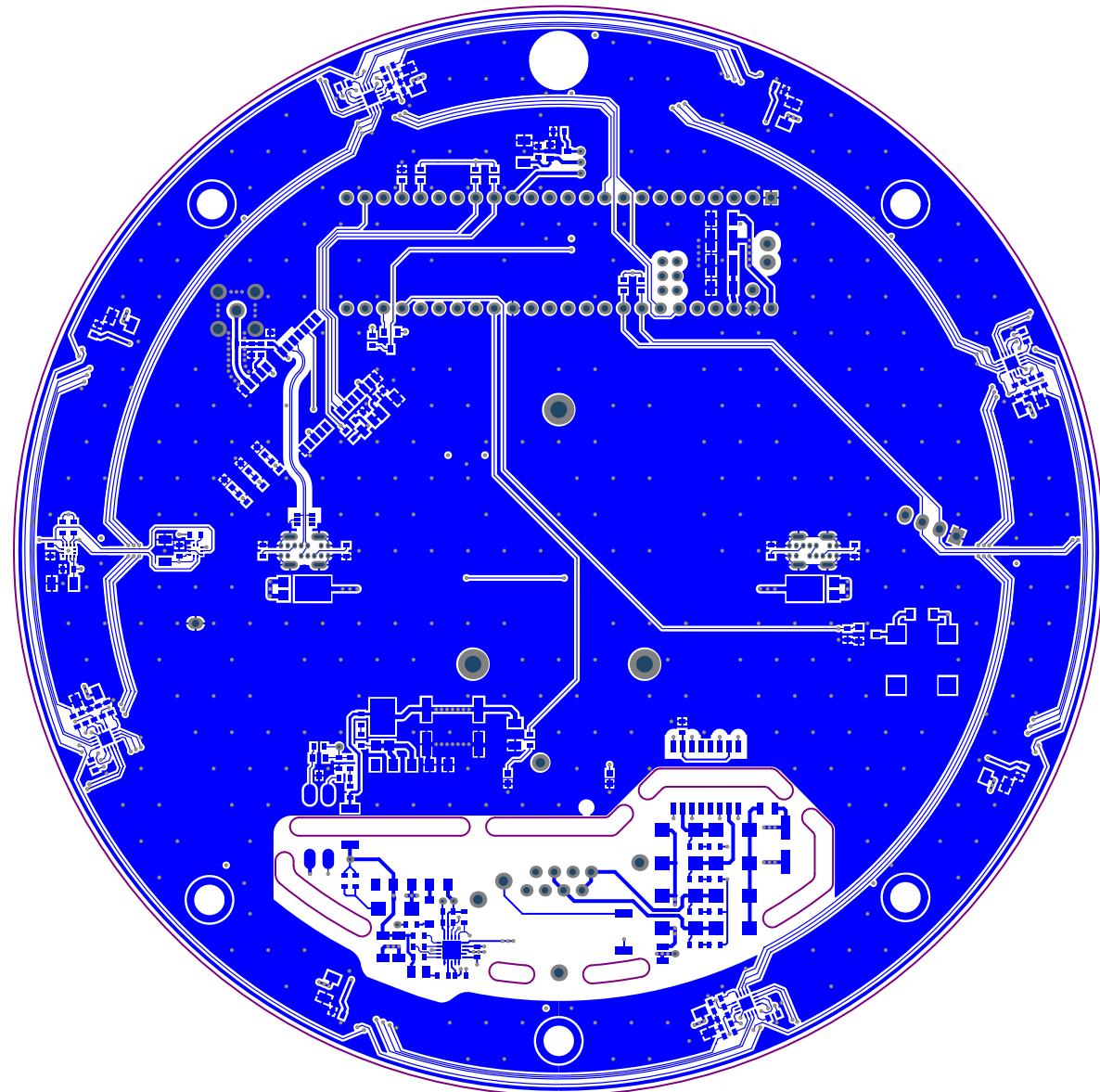
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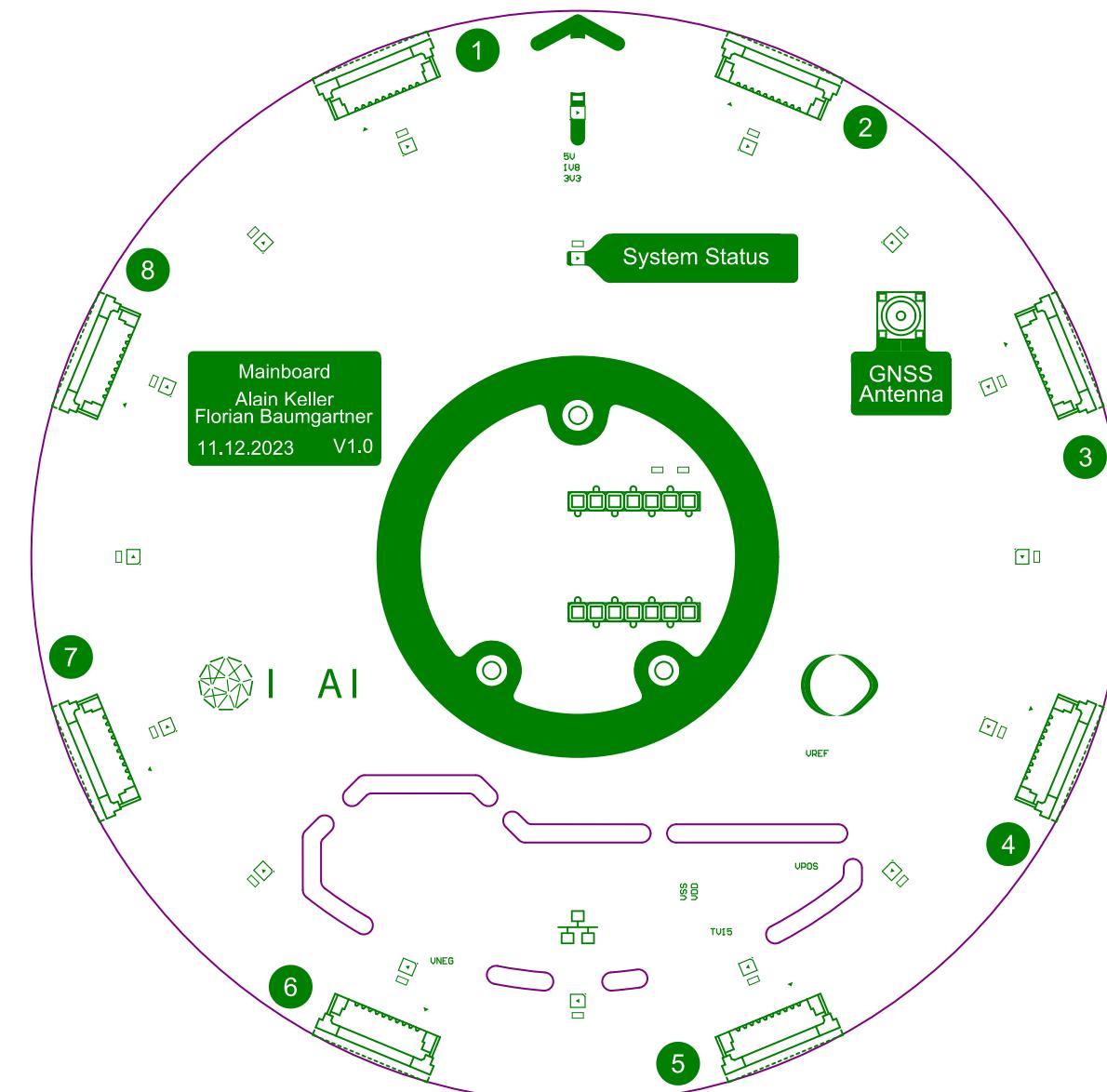
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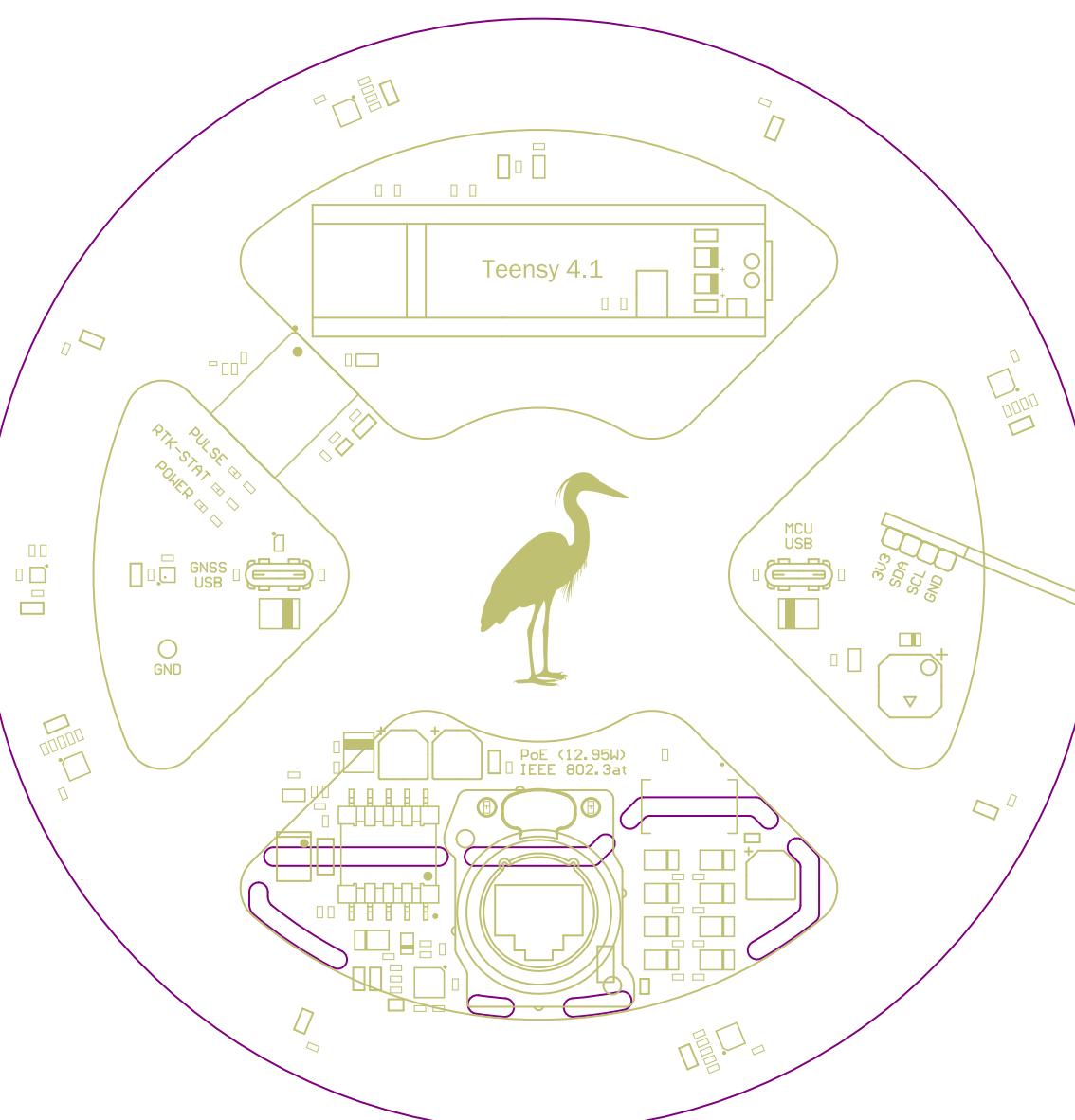
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PCB DESIGNER: Florian Baumgartner			
DATE: 02.12.2023	PART NO.: 1/1	REV: V1.1	
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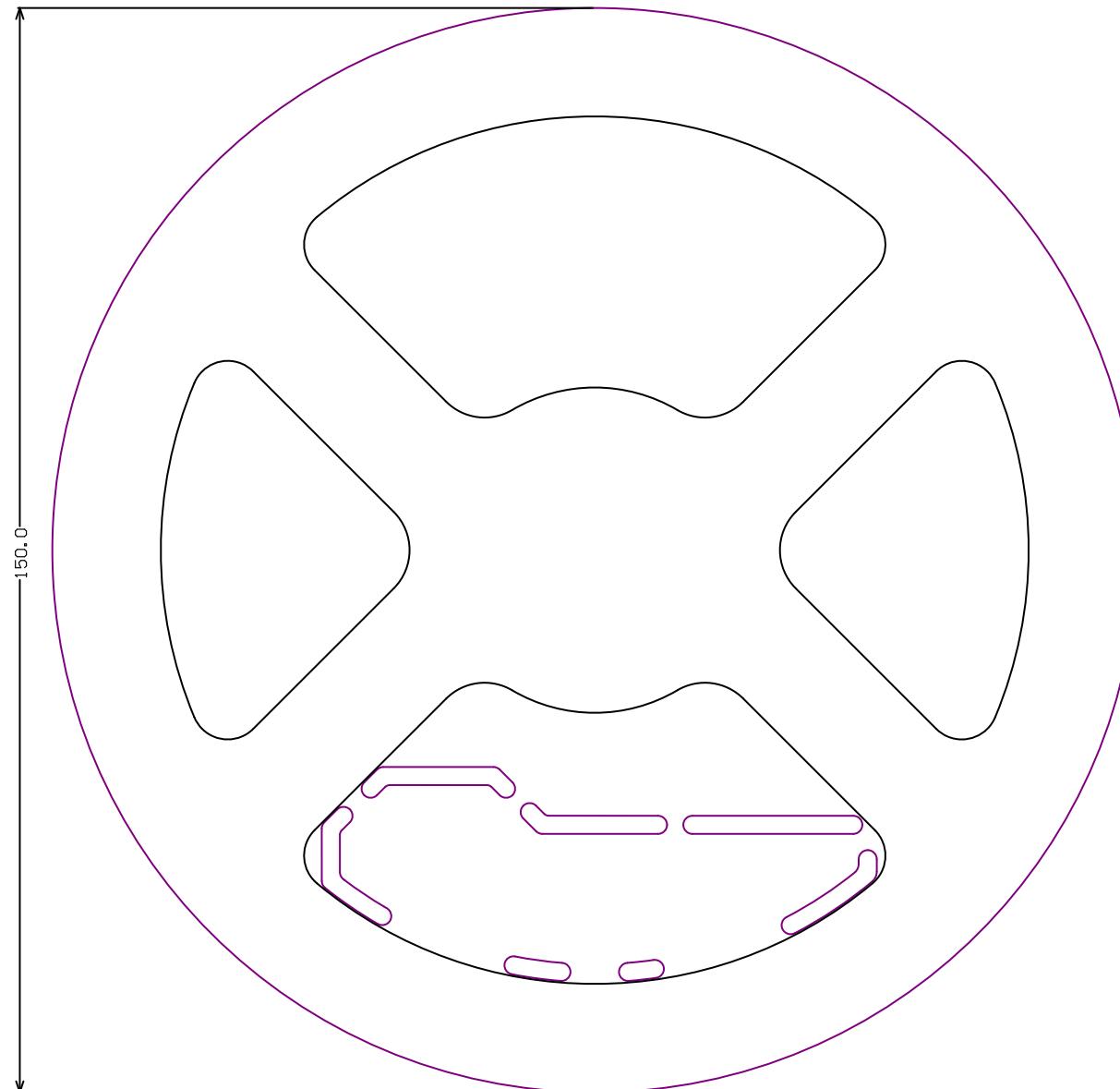
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