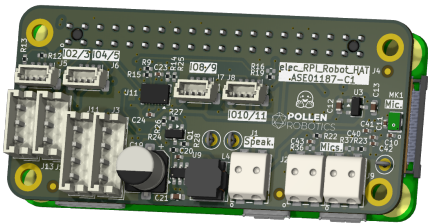
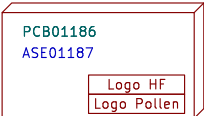
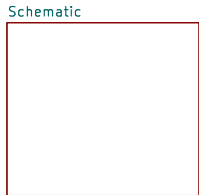


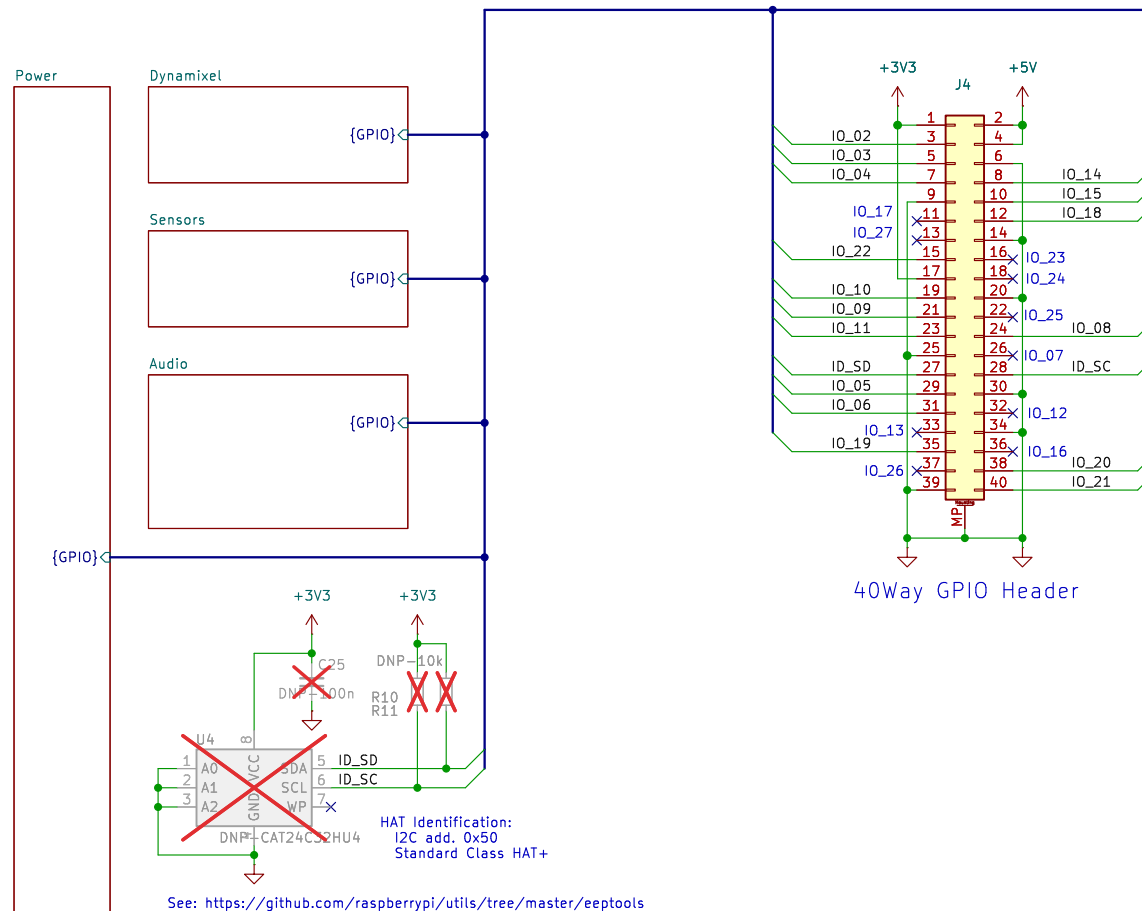
"RPI_Robot_HAT" is a raspberry PI HAT designed for small/medium size robots. It has an IMU, Dynamixel connectors and audio. Its dimensions fits a raspberry PI zero

Release	Date	Designer	Check	Comments
A1	06/03/2026	EB	SN	Initial drawing
B1	06/05/2026	EB	SN	[fixed] Acc. is at 0x19 I2C address [fixed] Soft reset of the audio DAC [fixed] Ideal diode [fixed] Know position of IMU [update] Dynamixel_dir is based on Tx [added] IMU can be disconnected [added] IMU_IT is cabled [added] Access to I2C0 [added] Switch off detection
C1	08/07/2026	EB	SN	[fix] 3V3 on IO10/11 [fix] MOS direction of Ideal diode [update] I2C3 is by default instead of reserved I2C

- Cabled buses on Raspberry Pis
- PI zero 2W:
 - I2C0 (pin 27/28 ID_SD/C): reserved, but can be on J6 with 0R
 - I2C1 (IO 2/ 3 - pin 3/ 5 SDA/SCL): IMU + Audio + Qwiic J5
 - PI 4:
 - same I2C0/1
 - I2C3 (IO 4/ 5 - pin 7/29 SDA/SCL): Qwiic J6
 - I2C4 (IO 8/ 9 - pin 24/21 SDA/SCL): Qwiic J7
 - I2C5 (IO 10/11 - pin 19/23 SDA/SCL): Qwiic J8
 - PI 5:
 - same I2C0/1
 - I2C2 (IO 2/ 3 - pin 3/ 5 SDA/SCL): Qwiic J5

- Cabled GPIOs on the 40-way Header:
- GPIO00/01: HAT identification over I2C (reserved)
 - GPIO02: IMU + Audio + Stemma/QT - SDA
 - GPIO03: IMU + Audio + Stemma/QT - SCL
 - GPIO04: Stemma/QT - SDA
 - GPIO05: Stemma/QT - SCL
 - GPIO06: Switch off detection
 - GPIO07
 - GPIO08: Stemma/QT - SDA
 - GPIO09: Stemma/QT - SCL
 - GPIO10: Stemma/QT - SDA
 - GPIO11: Stemma/QT - SCL
 - GPIO12
 - GPIO13:
 - GPIO14: Dynamixel - UART_Tx
 - GPIO15: Dynamixel - UART_Rx
 - GPIO16
 - GPIO17
 - GPIO18: Audio, PCM Clk
 - GPIO19: Audio, PCM FS
 - GPIO20: Audio, Din
 - GPIO21: Audio, Dout
 - GPIO22: IMU_IT
 - GPIO23
 - GPIO24
 - GPIO25
 - GPIO26
 - GPIO27





Pollen Robotics / Hugging Face

Sheet: /Schematic/

File: main.kicad_sch

Title: elec RPI Robot HAT

Size: A4

Date: 2026-05-06

Rev: B1

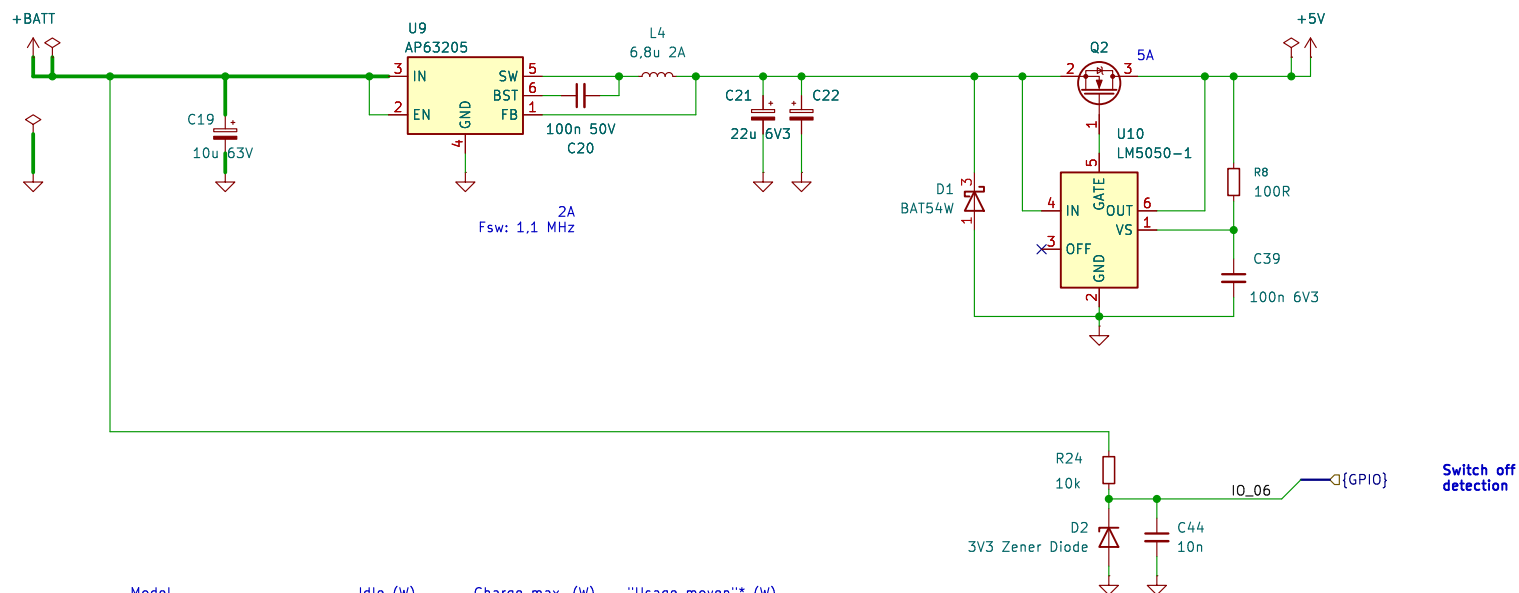
KiCad E.D.A. 9.0.9

Id: 2/6

Power

24V

(i.e. 7s/25c,
from 21V to 29V)



Model	Idle (W)	Charge max. (W)	"Usage moyen" (W)
Raspberry Pi 5	2,4 – 3,3	9 – 10	4,0
Raspberry Pi 4 B	2,5 – 3,4	6 – 7,6	3,5
Raspberry Pi Zero 2 W	0,6	1,5	0,8



Pollen Robotics / Hugging Face

Sheet: /Schematic/Power/

File: power.kicad_sch

Title: elec RPI Robot HAT

Size: A4

Date: 2026-05-06

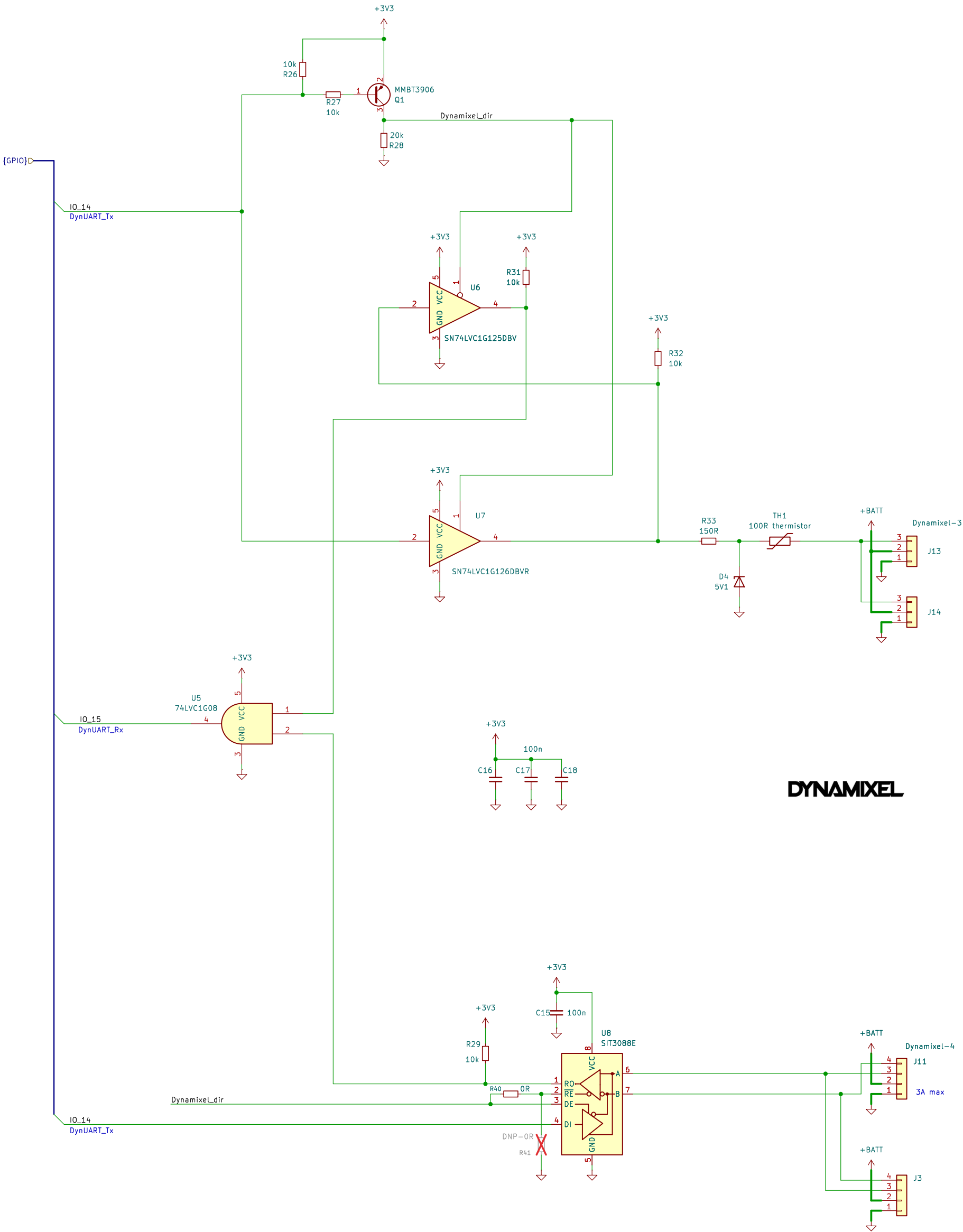
Size: A4	
KiCad E.D.A. 9.0.9	

Rev: B1

Id: 3/6

Dynamixel

See: https://emanual.robotis.com/docs/en/parts/interface/dynamixel_shield/
as a reference.



DYNAMIXEL



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Sheet: /Schematic/Dynamixel/
File: dynamixel.kicad_sch

Title: **elec RPI Robot HAT**

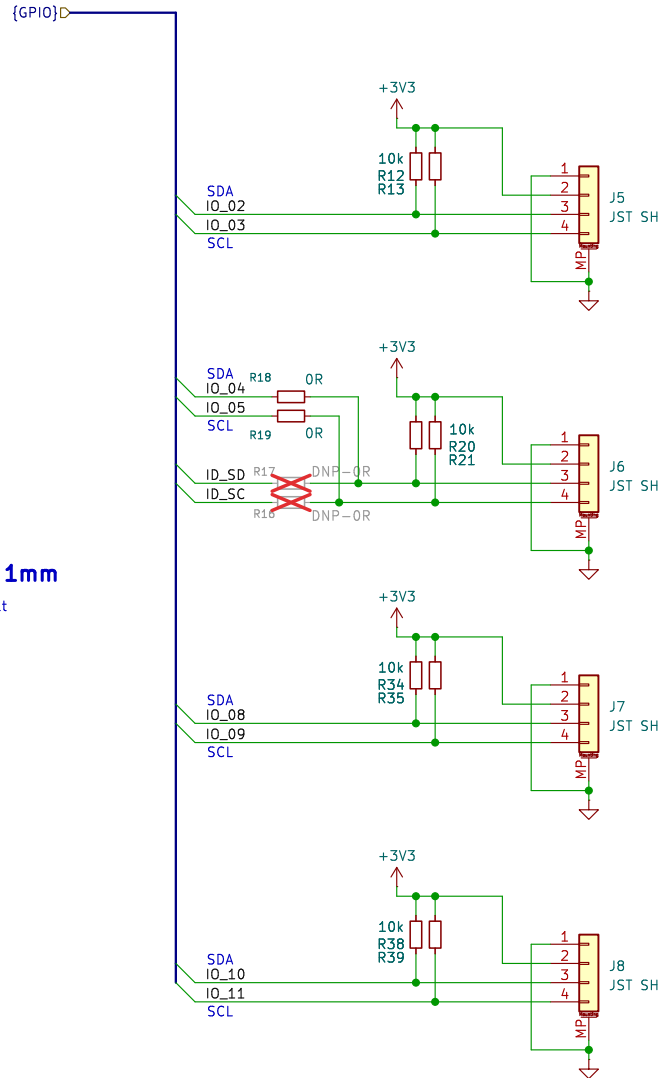
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KiCad E.D.A. 9.0.9

Rev: B1
Id: 4/6

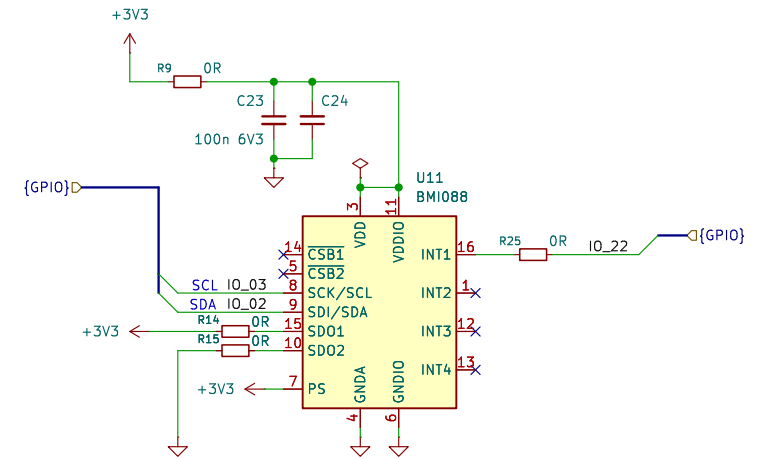
Sensors

STEMMA QT 1mm

3V3 Default



IMU



I2C add.:
- acc.: 0x19
- gyr.: 0x68



Pollen Robotics / Hugging Face

Sheet: /Schematic/Sensors/
File: sensors.kicad_sch

Title: **elec RPI Robot HAT**

Size: A4

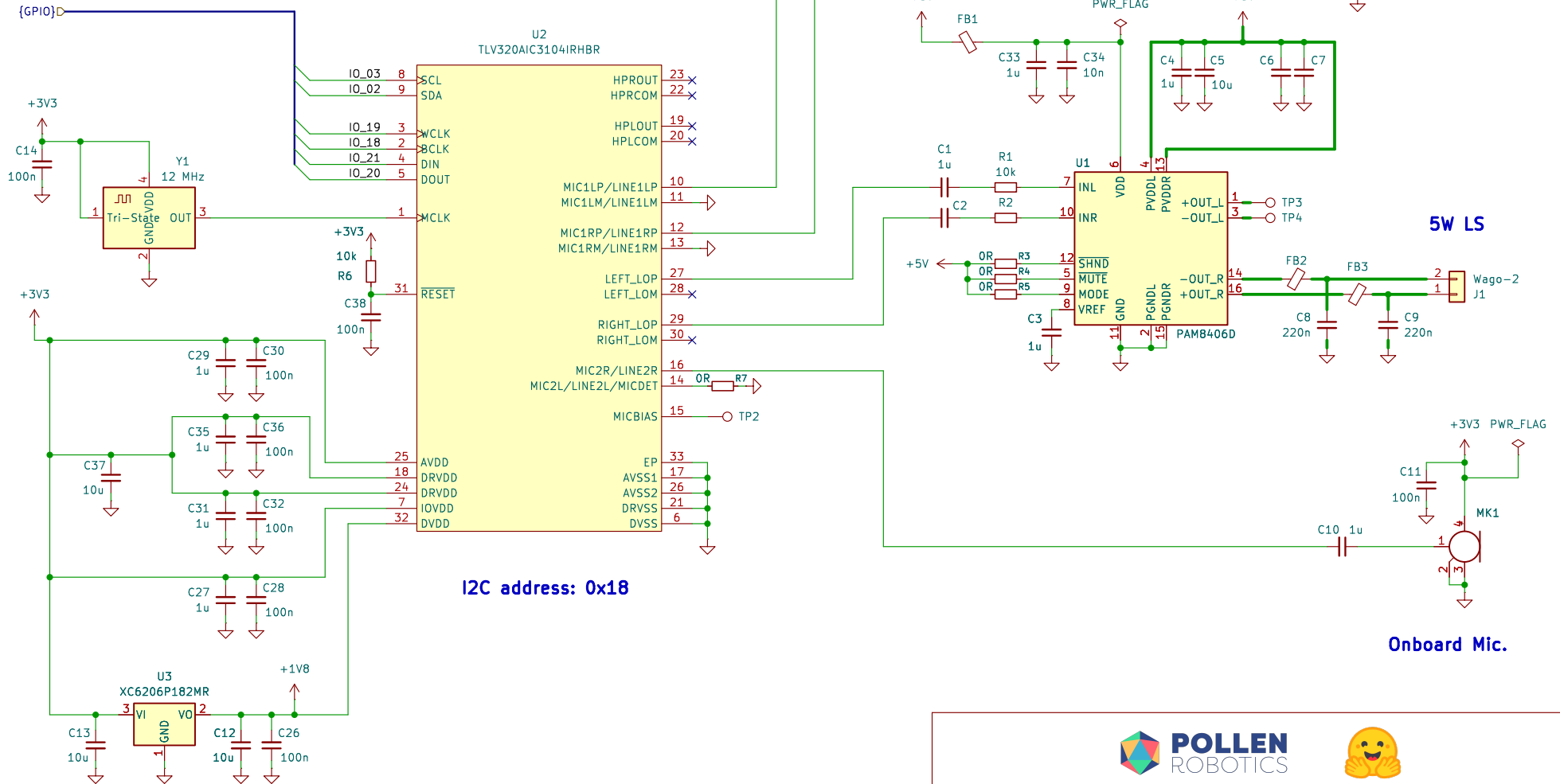
Date: 2026-05-06

Rev: **B1**

KiCad E.D.A. 9.0.9

Id: 5/6

Audio



Pollen Robotics / Hugging Face

Sheet: /Schematic/Audio/
File: audio.kicad_sch

Title: elec RPi Robot HAT

Size: A4 Date: 2026-05-06

KiCad E.D.A. 9.0.9

Rev: B1

Id: 6/6