Calliope mini V3

Calliope mini V3 hardware design is based on the original Calliope mini and of Micro:bit Educational Foundation's hardware.
https://github.com/calliope-edu/Calliope-mini-V3-hardware
https://github.com/microbit-foundation/microbit-v2-hardware

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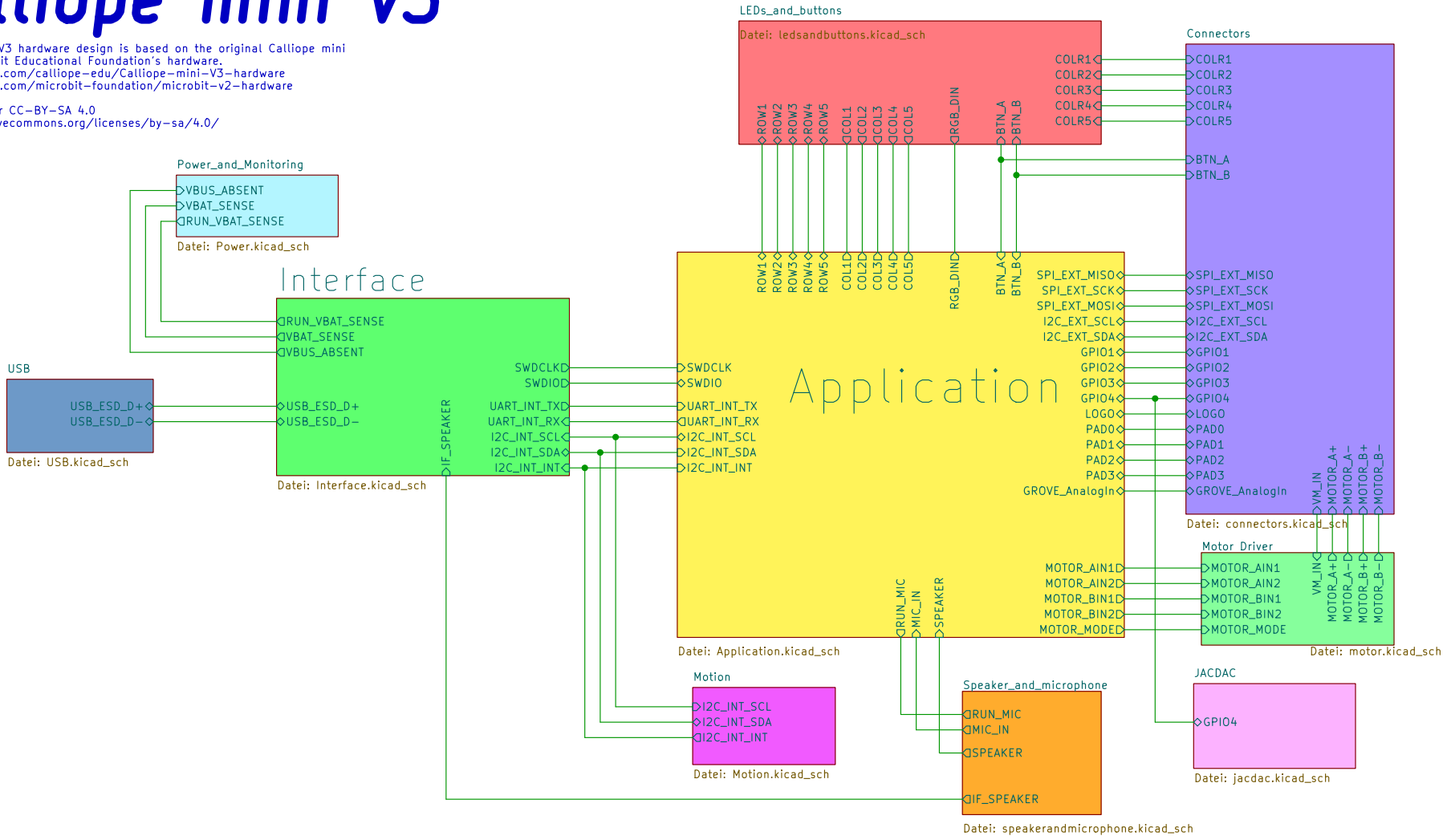
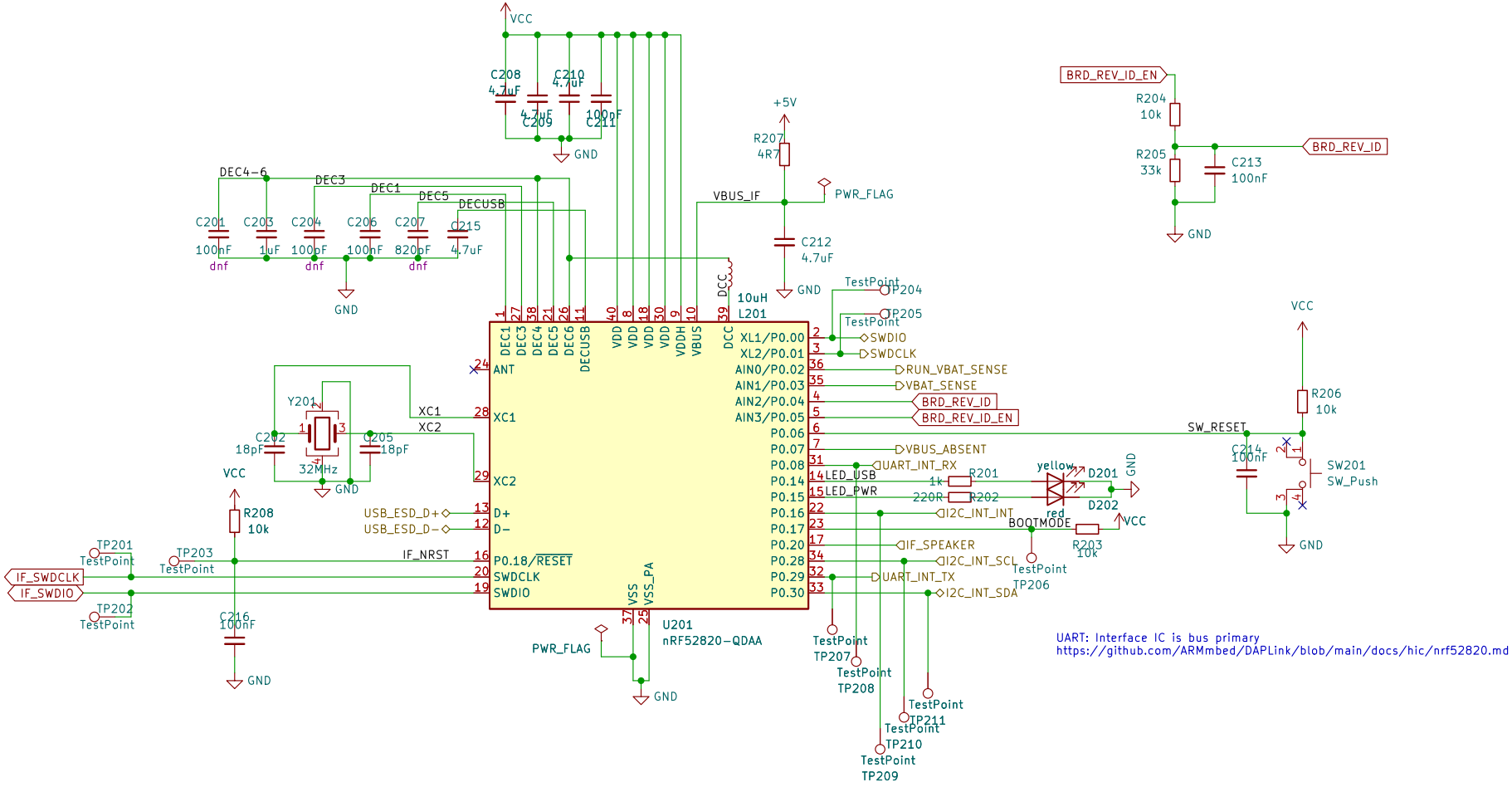


Notes:
- INT means internal, as EXT means external
- IF is interface

calliope gGmbH		
Sheet: /		
File: miniv3.kicad_sch		
Title: miniv3		
Size: A4	Date: 2023-10-12	**Rev: REV14_2**
KiCad E.D.A. kicad 6.0.11-2627ca5db0~126~ubuntu20.04.1		Id: 1/11

Interface Processor



calliope gGmbH		
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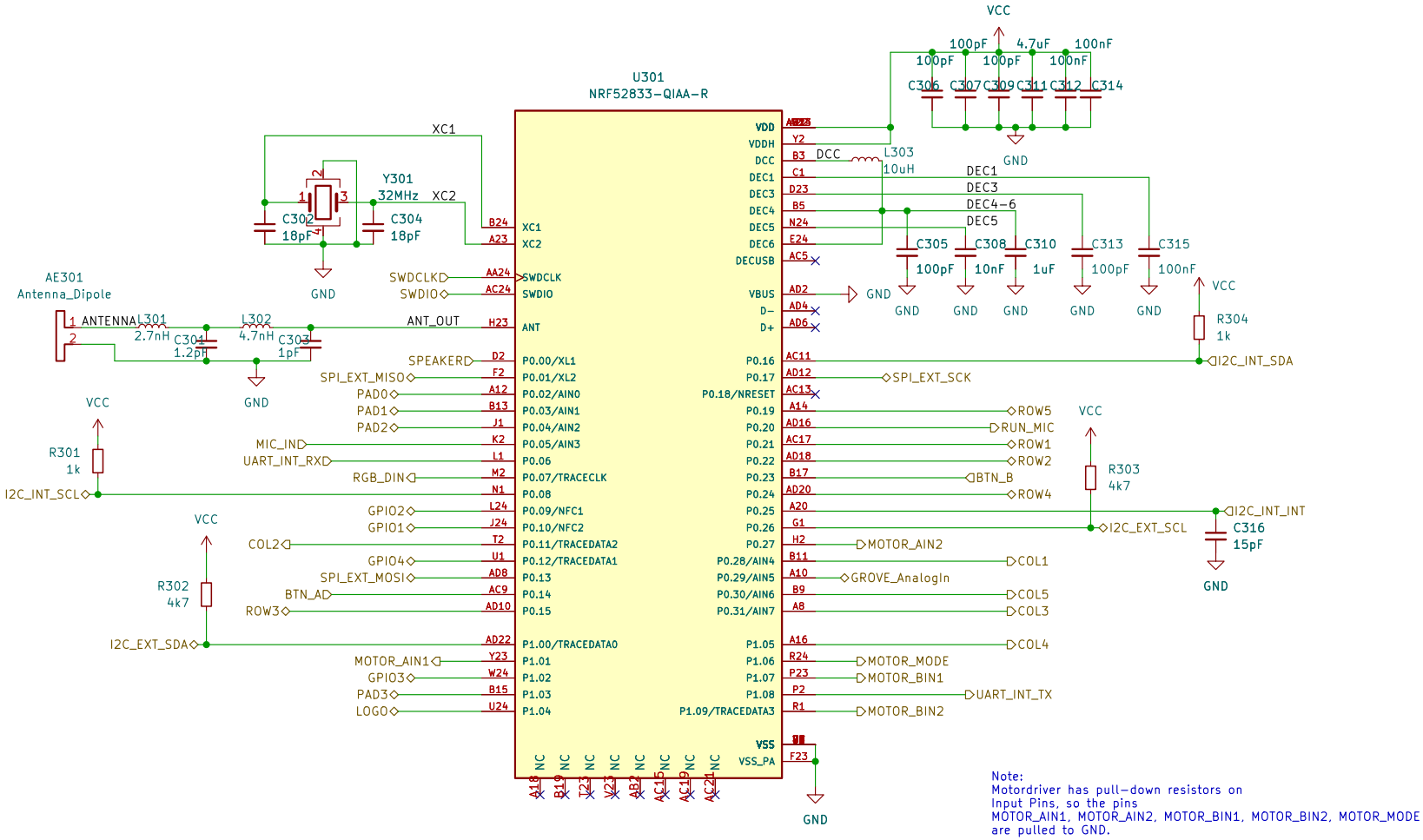
Title: miniv3		
Size: A4	Date: 2023-10-12	**Rev: REV14_2**
KiCad E.D.A. kicad 6.0.11-2627ca5db0~126~ubuntu20.04.1		Id: 2/11

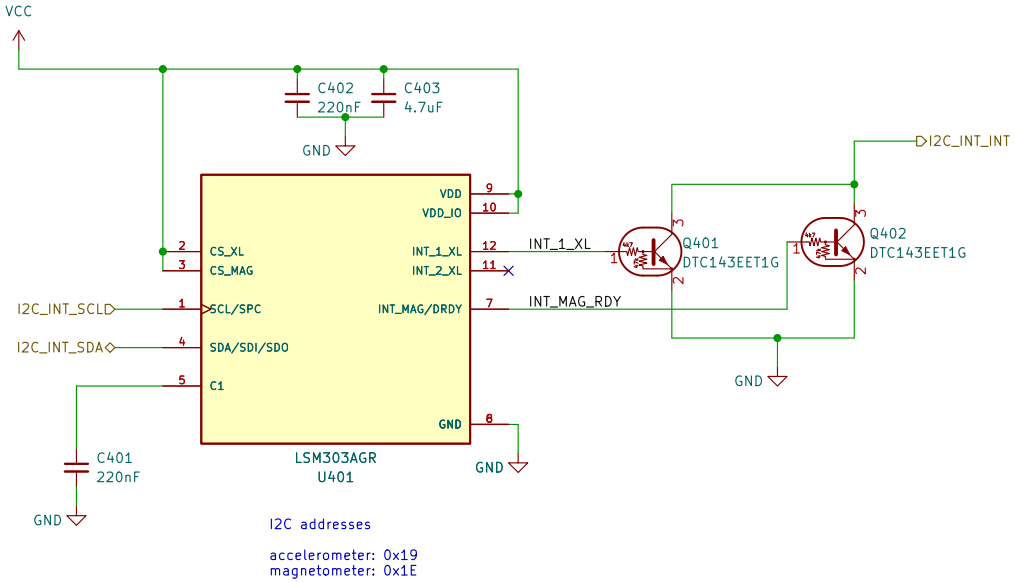
Application Processor



Note:
Motordriver has pull-down resistors on
Input Pins, so the pins
MOTOR_AIN1, MOTOR_AIN2, MOTOR_BIN1, MOTOR_BIN2, MOTOR_MODE
are pulled to GND.

calliope gGmbH		
Sheet: /Application/		
File: Application.kicad_sch		
Title: miniv3		
Size: A4	Date: 2023-10-12	**Rev: REV14_2**
KiCad E.D.A. kicad 6.0.11-2627ca5db0~126~ubuntu20.04.1		Id: 3/11

Accelerometer and Magnetometer



calliope gGmbH		
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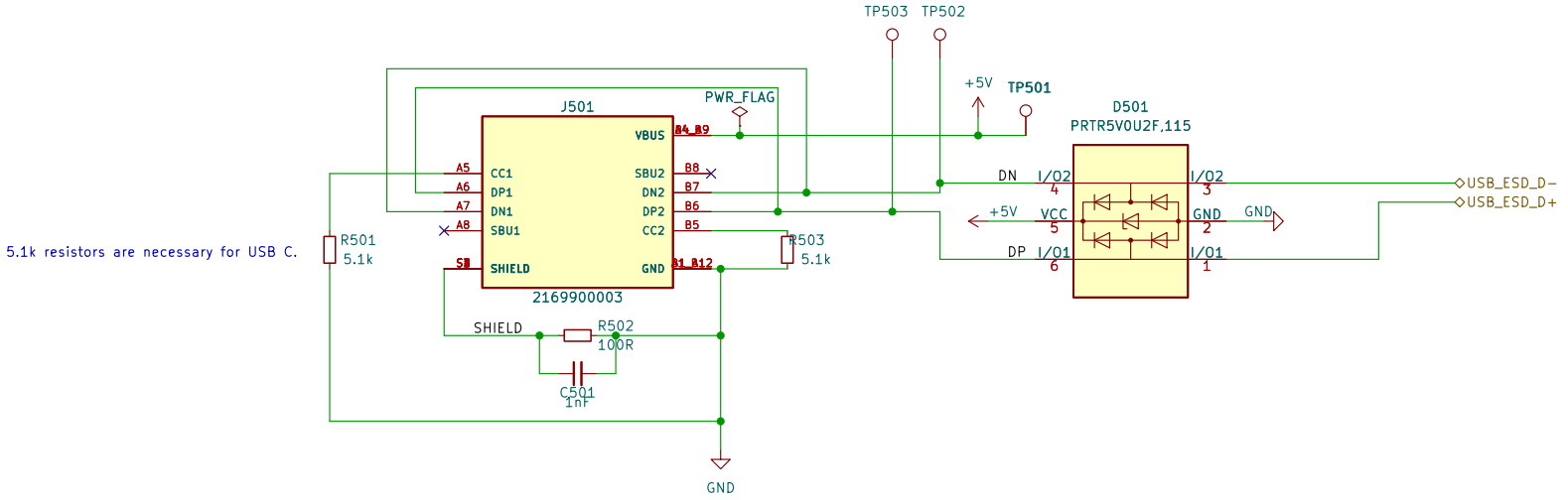
Size: A4	Date: 2023-10-12	**Rev: REV14_2**
KiCad E.D.A. kicad 6.0.11-2627ca5db0~126~ubuntu20.04.1		Id: 4/11

USB C Connector



calliope gGmbH		
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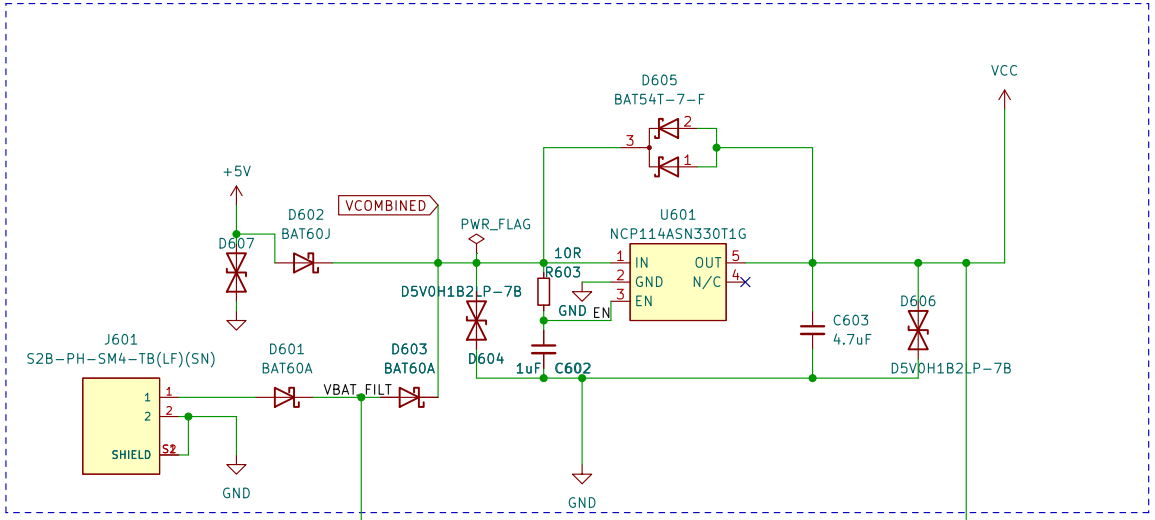
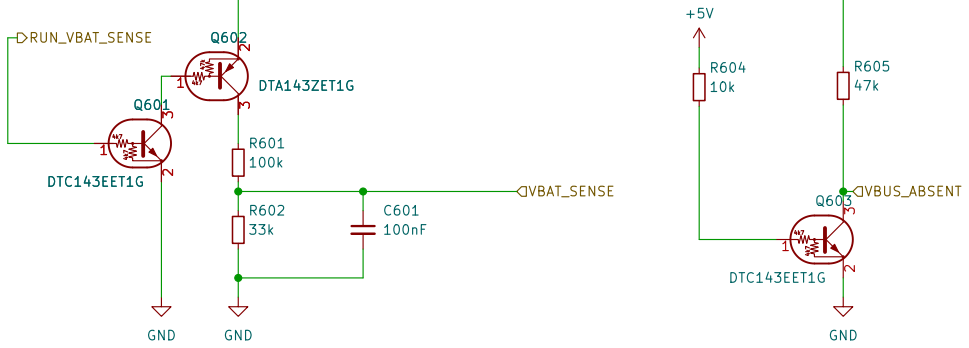
Size: A4	Date: 2023-10-12	**Rev: REV14_2**
KiCad E.D.A. kicad 6.0.11-2627ca5db0~126~ubuntu20.04.1		Id: 5/11

Power and Monitoring

POWER



MONITORING



calliope gGmbH		
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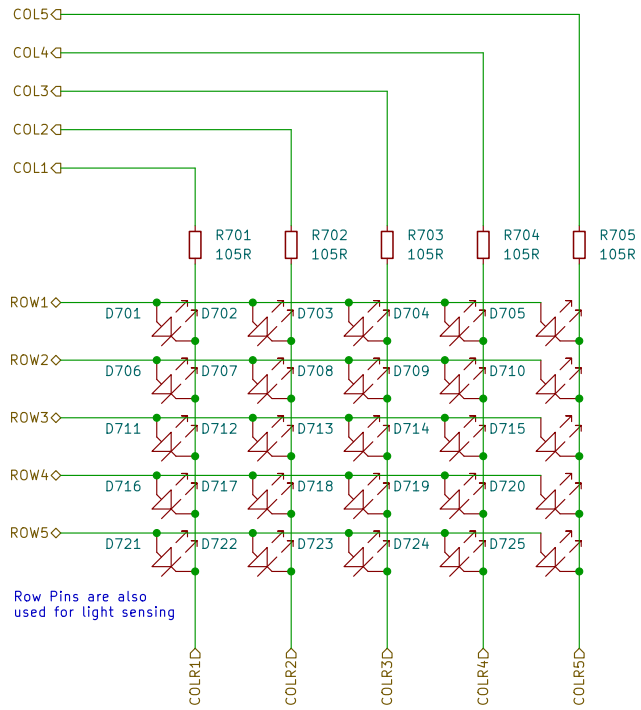
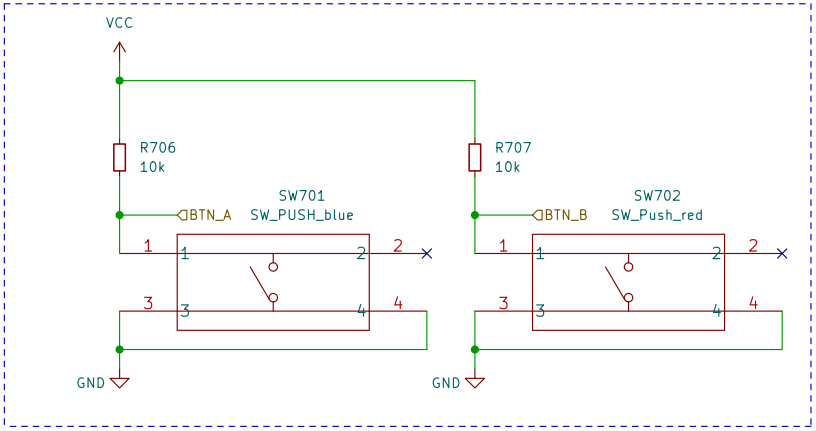
Size: A4	Date: 2023-10-12	**Rev: REV14_2**
KiCad E.D.A. kicad 6.0.11-2627ca5db0~126~ubuntu20.04.1		Id: 6/11

LEDs and buttons

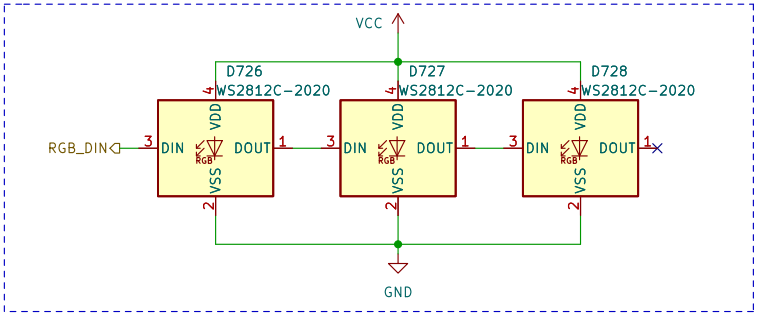
5x5 LED Matrix



Input Buttons



RGB LED



calliope gGmbH		
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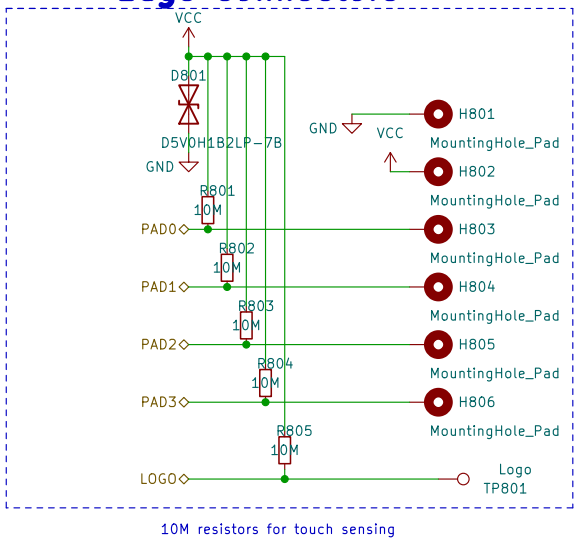
File: ledsandbuttons.kicad_sch		
Title: miniv3		
Size: A4	Date: 2023-10-12	**Rev: REV14_2**
KiCad E.D.A. kicad 6.0.11-2627ca5db0~126~ubuntu20.04.1		Id: 7/11

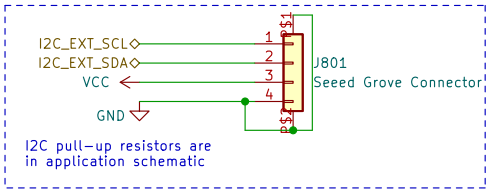
Connectors

Edge connectors



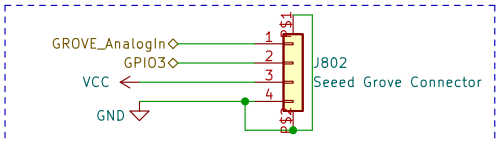
10M resistors for touch sensing

I2C Grove Connector



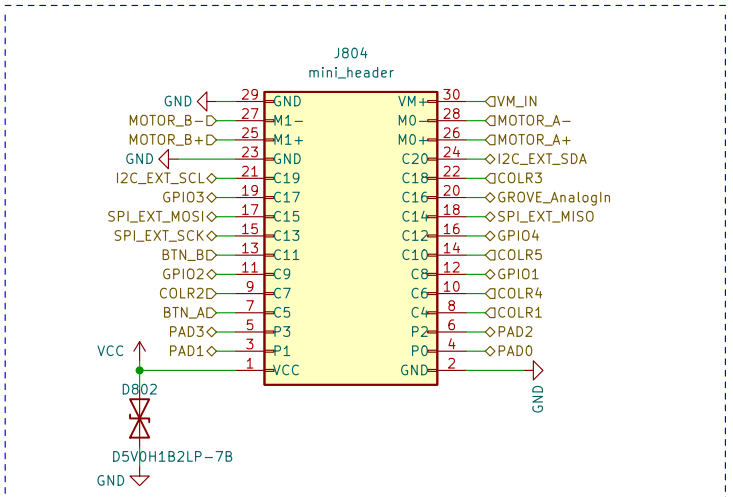
I2C pull-up resistors are
in application schematic

UART/Analog Grove Connector



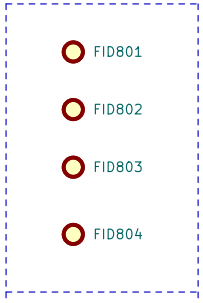
J802 Pin 1 and 2 need to be analog and UART compatible

mini Connector



P0-P2 : as micro:bit for compatibility
P3 : is 3rd edge pad (digital only)
C4-C15: as micro:bit for compatibility (micro:bit P4-P15)
C16 : is analog GROVE connector (right) Pin0, needs to be analog
C17 : is analog GROVE connector (right) Pin1, digital only (micro:bit P16)
C18 : (micro:bit P3) moved to give space for mini Pad3
C19 : is I2C SCL (micro:bit P19)
C20 : is I2C SDA (micro:bit P20)

Fiducials



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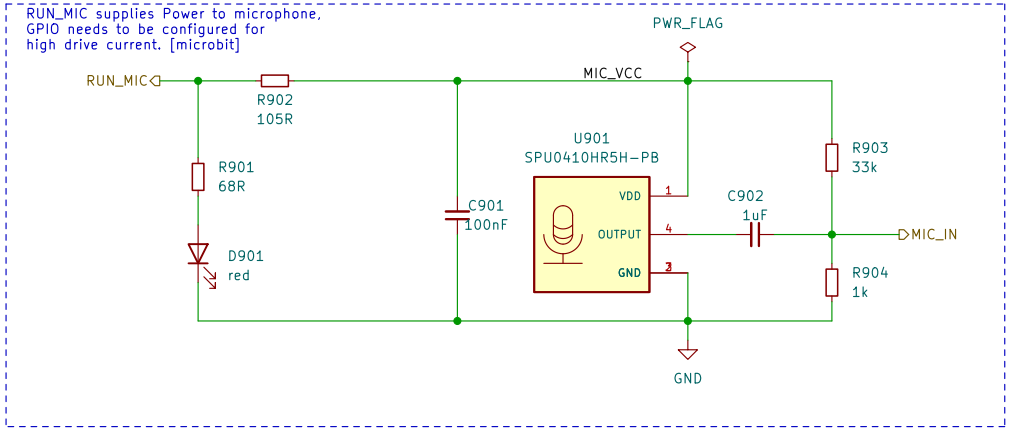
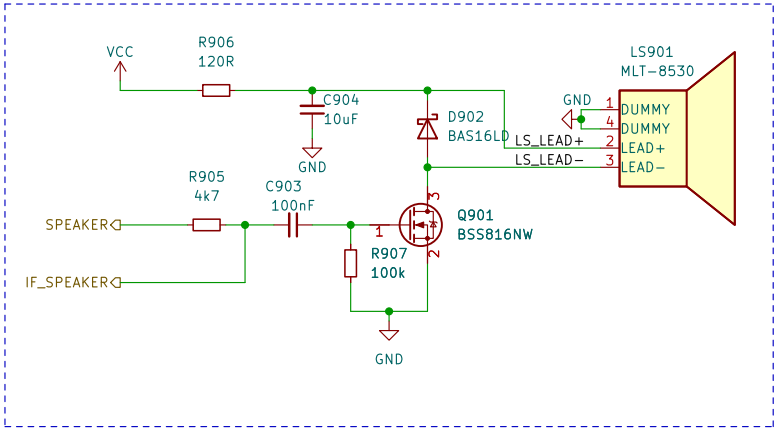
File: connectors.kicad_sch		
Title: miniv3		
Size: A4	Date: 2023-10-12	**Rev: REV14_2**
KiCad E.D.A. kicad 6.0.11-2627ca5db0~126~ubuntu20.04.1		Id: 8/11

Speaker and microphone



Microphone



Speaker

calliope gGmbH		
Sheet: /Speaker_and_microphone/		
File: speakerandmicrophone.kicad_sch		
Title: miniv3		
Size: A4	Date: 2023-10-12	**Rev: REV14_2**
KiCad E.D.A. kicad 6.0.11-2627ca5db0~126~ubuntu20.04.1		Id: 9/11

JACDAC

based on the JACDAC-DDK by Microsoft
https://github.com/microsoft/jacdac-ddk
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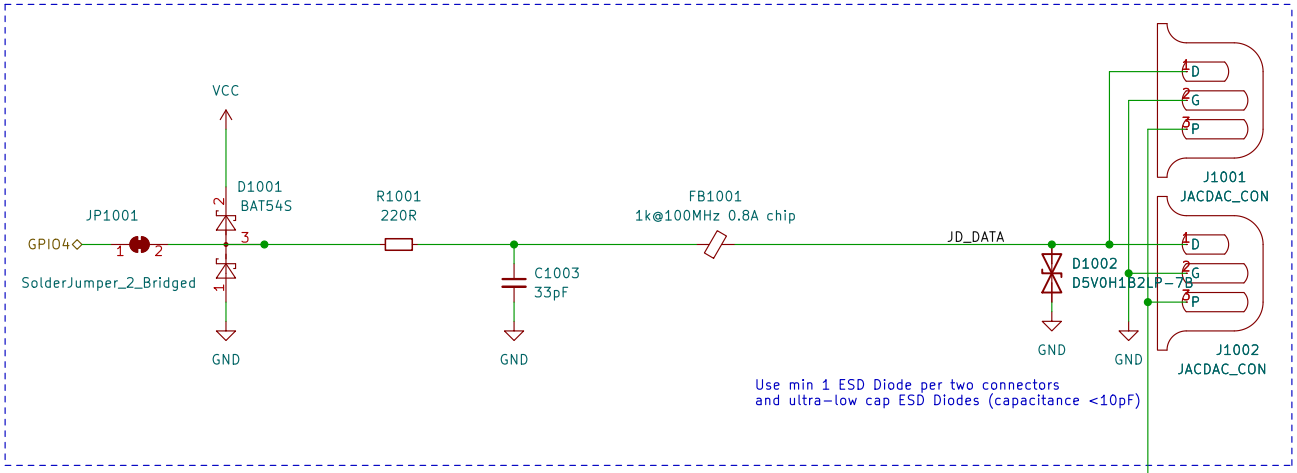
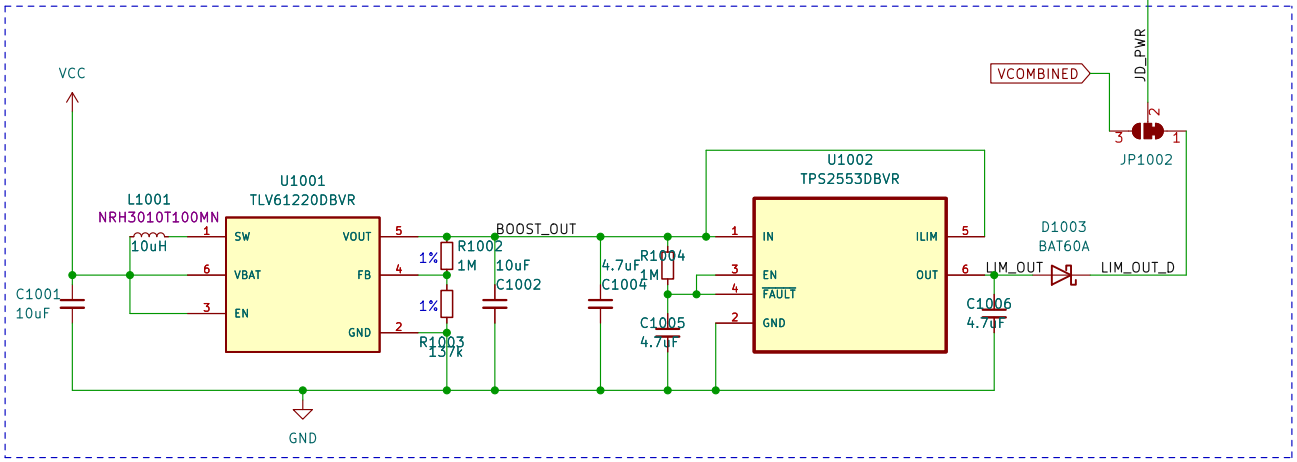
JACDAC Connector



JACDAC Power



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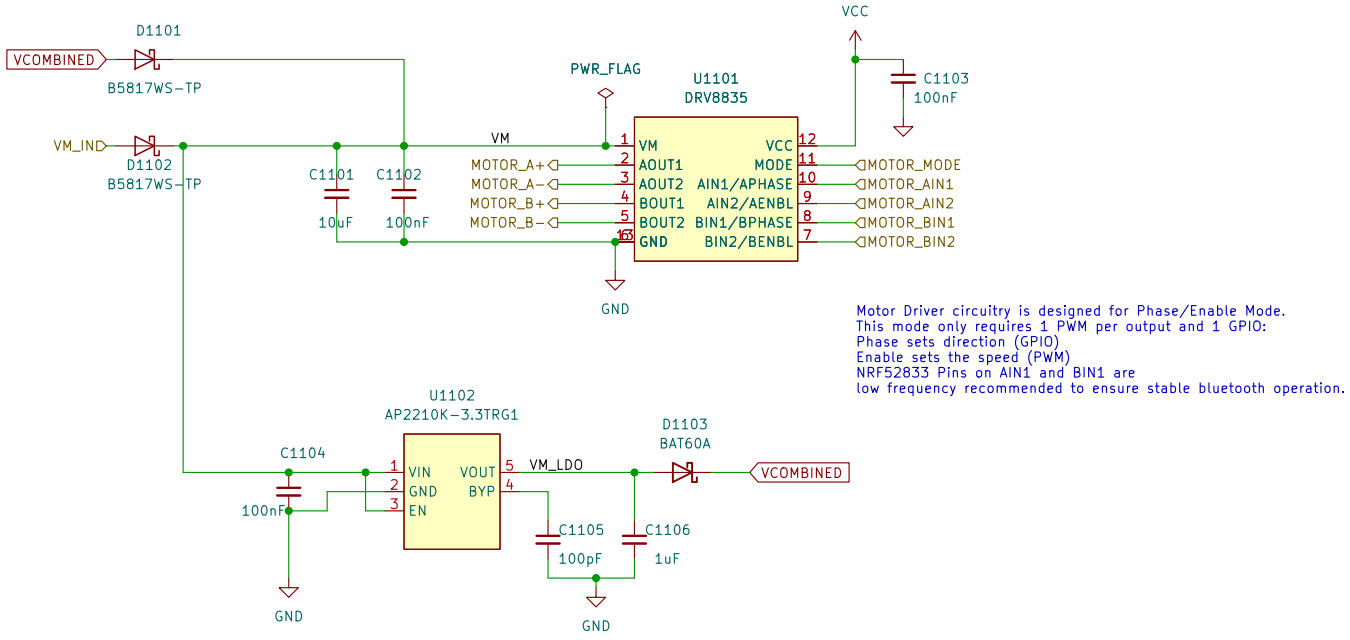
Motor Driver



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KiCad E.D.A. kicad 6.0.11-2627ca5db0~126~ubuntu20.04.1		Id: 11/11