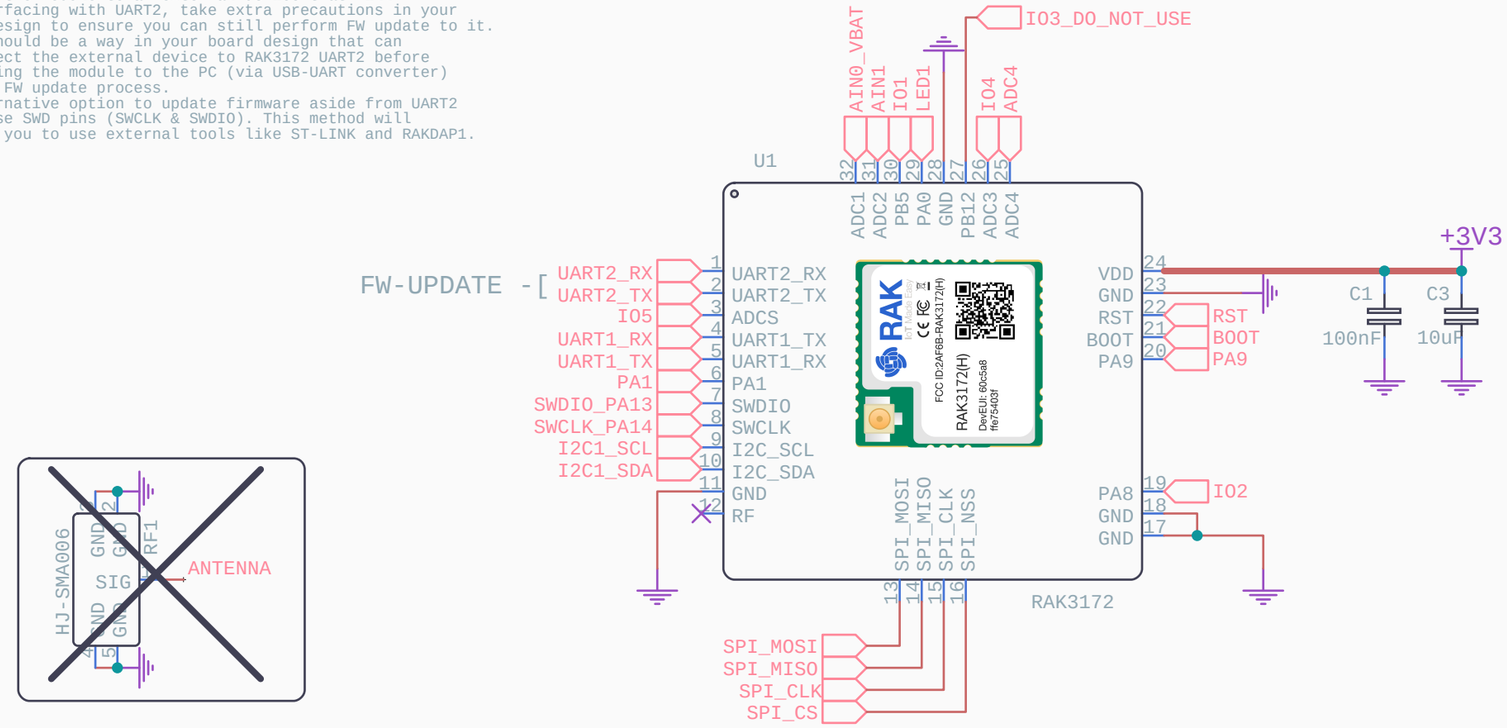
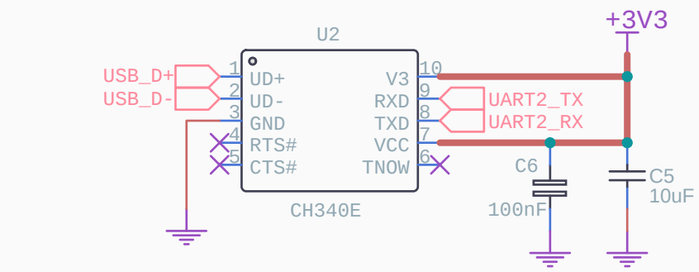
MCU

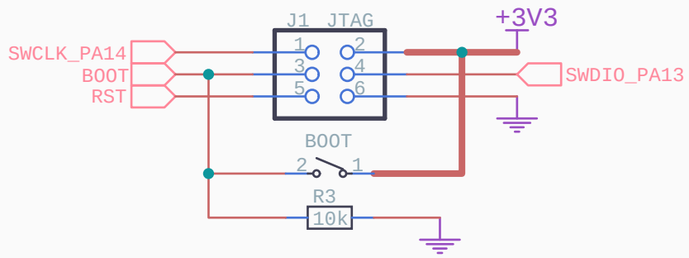
Firmware update is done via UART2 pins. If you will
connect the module to an external device that will
be interfacing with UART2, take extra precautions in your
board design to ensure you can still perform FW update to it.
There should be a way in your board design that can
disconnect the external device to RAK3172 UART2 before
connecting the module to the PC (via USB-UART converter)
for the FW update process.
An alternative option to update firmware aside from UART2
is to use SWD pins (SWCLK & SWDIO). This method will
require you to use external tools like ST-LINK and RAKDAP1.

PB8RAK3172 Internal
PB12Internal 10k pull-up resistor
for RAK3172 high frequency
variant (8xx - 9xx Mhz)
or pull-down resistor for RAK3172
low frequency variant (4xx Mhz)



UART2 - JTAG

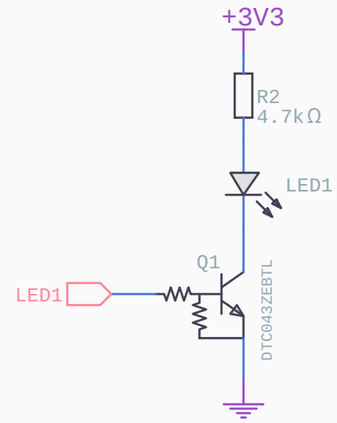




NOTES FROM RAK

- Bypass capacitors near the supply line.
- Removal of ground plane in all layers
on the RF pinout (if non-IPEX variant).
- Make provision on BOOT pin for connection to VDD.
This is needed for device recovery via STM32WL UART bootloader.
- Reserve UART2 for firmware update and use UART1
for external peripheral/modules (even AT commands).
- Make headers or provision for in-circuit external
debugger tools like ST-link.
- Make reset pin accessible and add bypass capacitor.
- Consider to make the footprint compatible with RAK11720
(it has additional two pins for BLE - pins 33 and 34).
In case you'll need BLE in the future.
- Do not use pin 27 (PB12). It is internally connected to a resistor.
- ESD protection on RF trace if ESD exposure
is possible with antenna handling.
- Remember that RF pinout is only available on non-IPEX variant.
If your RAK3172 has IPEX connector, the RF pinout
is floating and not connected internally.

LED

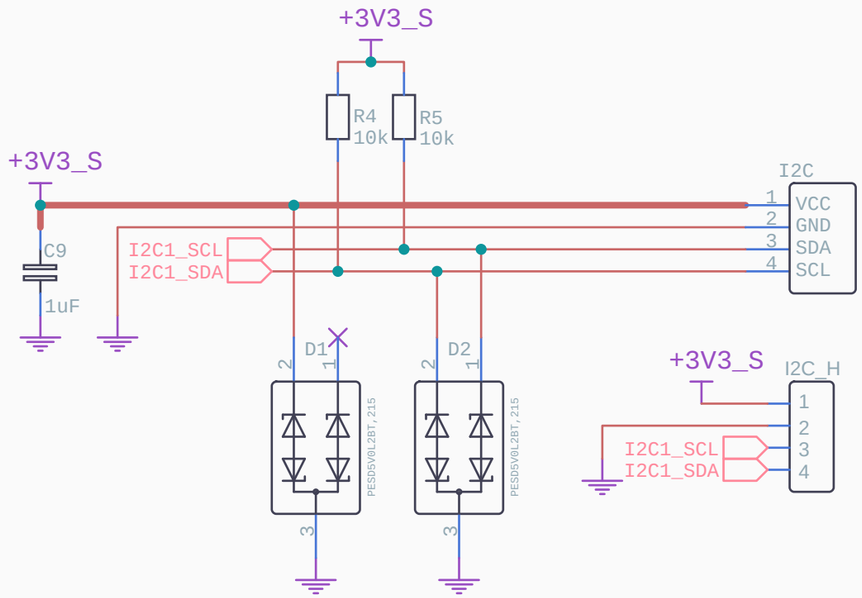


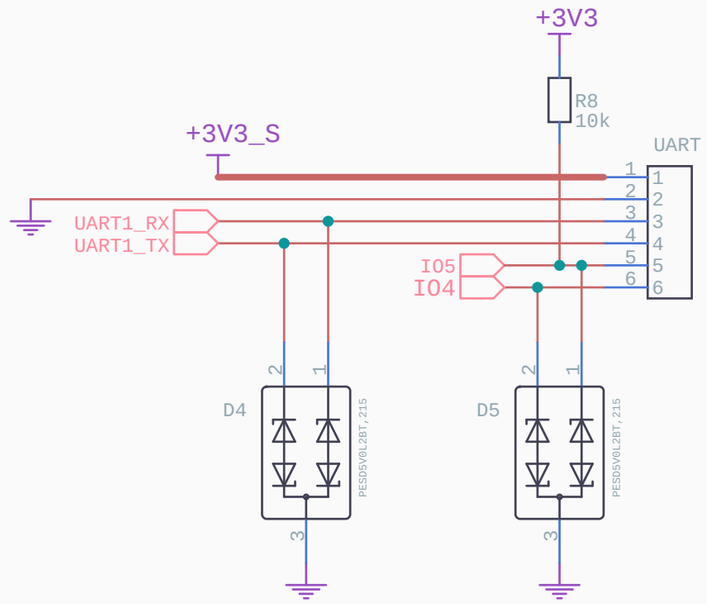
https://tinyurl.com/23ay5pwe

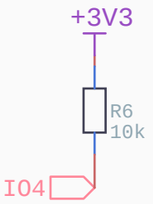
MOUNTING HOLES

TITLE: CORE		REV: 1.0
	Company: BIOMOVE	Sheet: 3/4
	Date: 2023-07-07	Drawn By: pierluigi colangeli

IO



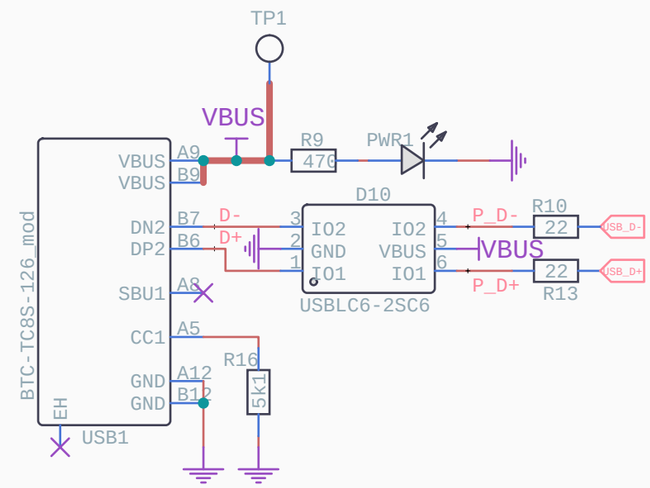


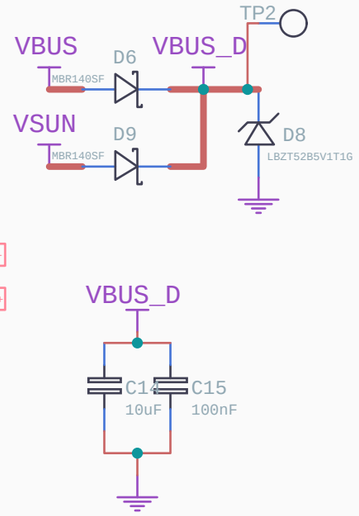


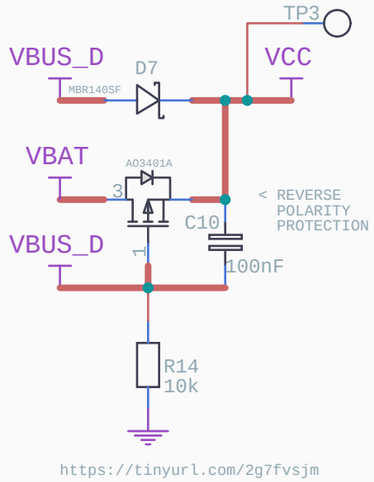
Pull-up resistor on GPIO4
Useful for interrupts or
sensors that requires it (e.g. DS18B20)

TITLE: PERIPHERALS		REV: 1.0
	Company: BIOMOVE	Sheet: 4/4
	Date: 2023-07-07 Drawn By: pierluigi colangeli	

USB INPUT

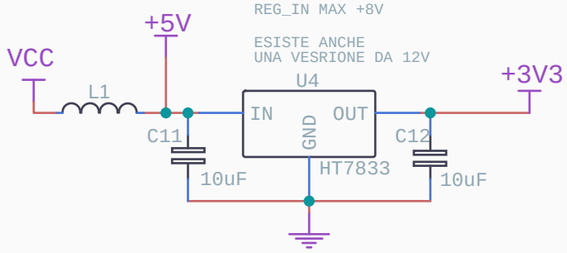




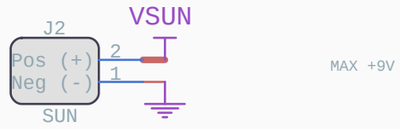


https://tinyurl.com/2g7fvsjm

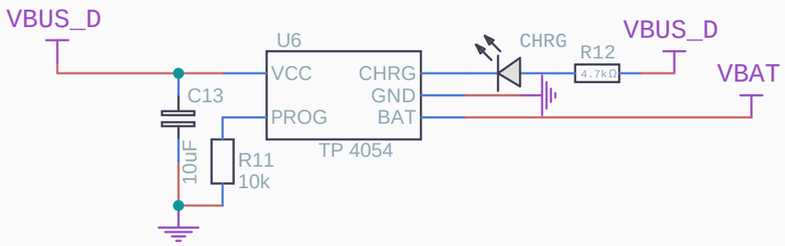
3V3 REGULATION VIA LOW DROP-OUT LDO

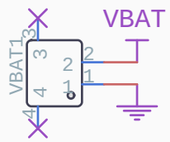


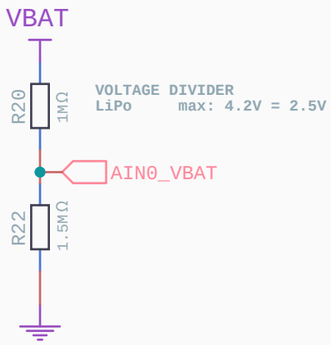
LIPO CHARGER



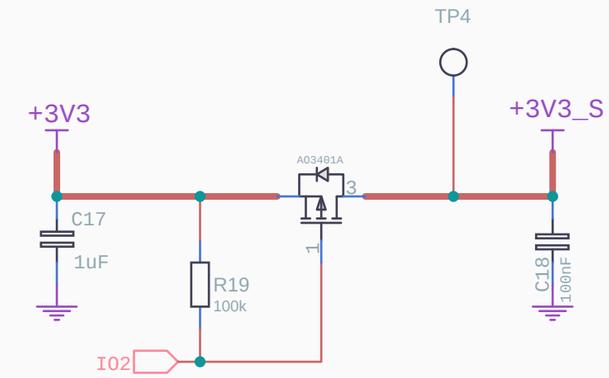
MAX +9V

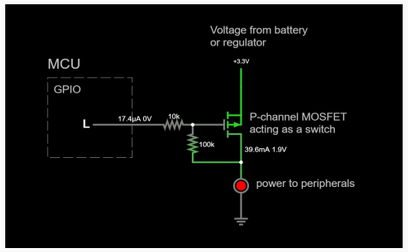






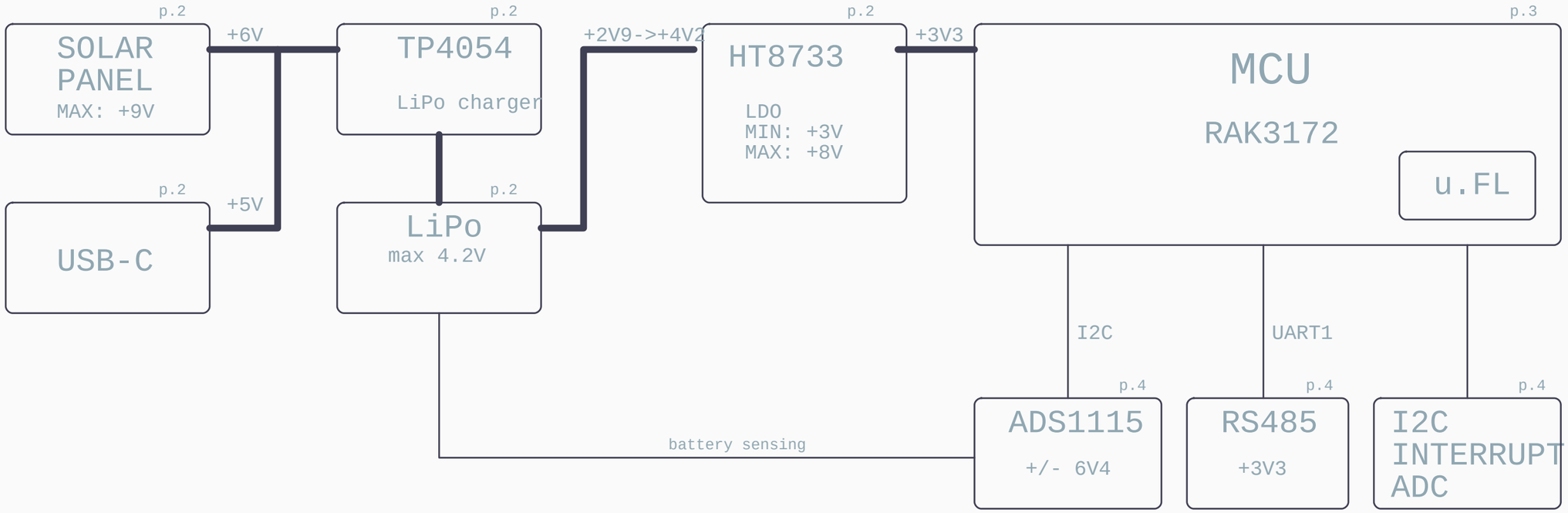
POWER_ENABLE FOR SENSORS



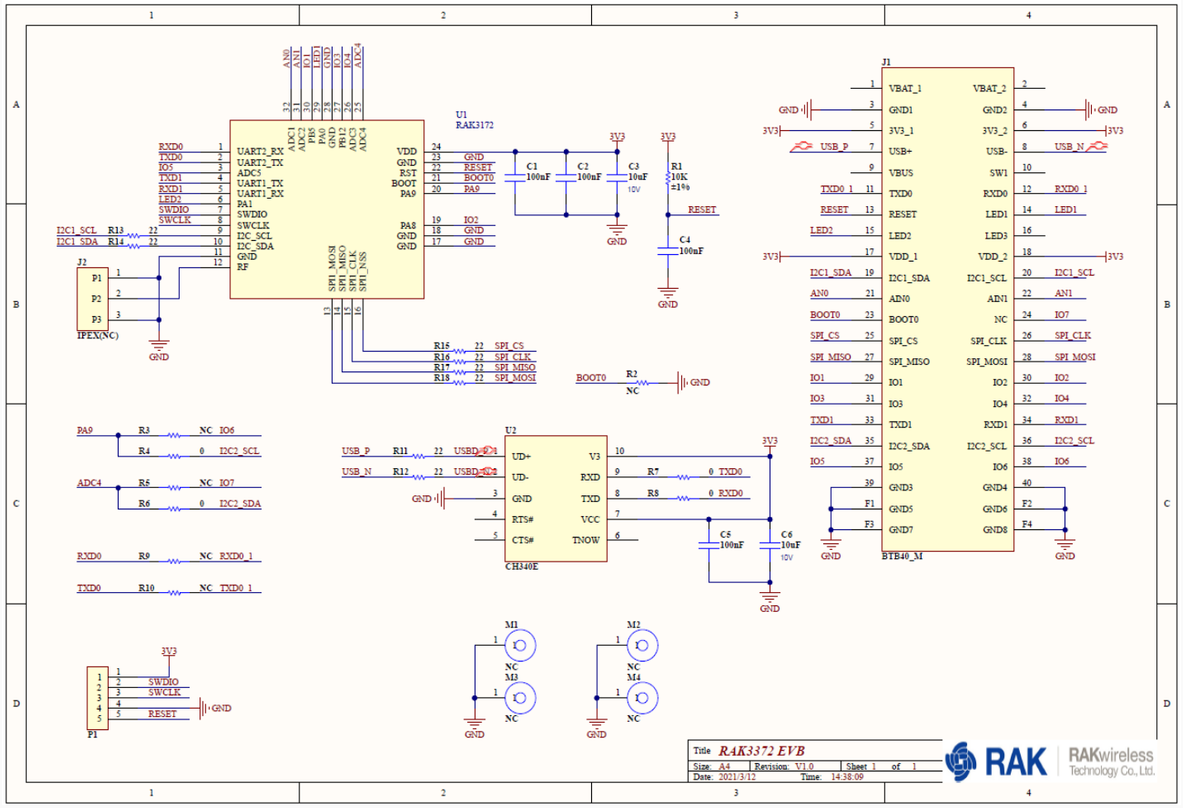


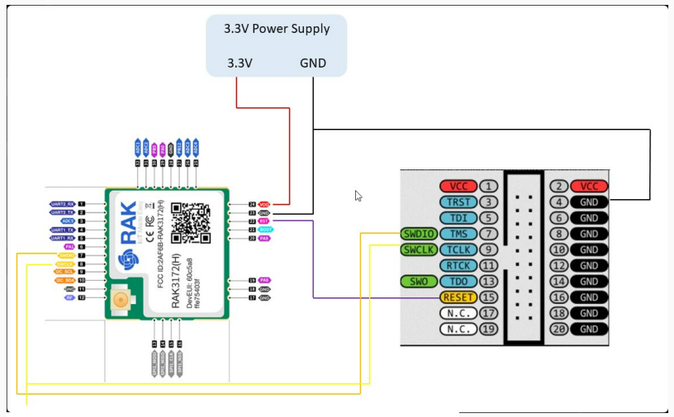
https://tinyurl.com/ypluko7s

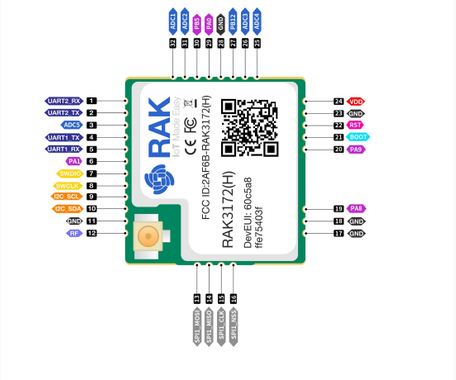
TITLE: POWER		REV: 1.0
	Company: BIOMOVE	Sheet: 2/4
	Date: 2023-07-13	Drawn By: pierluigi colangeli

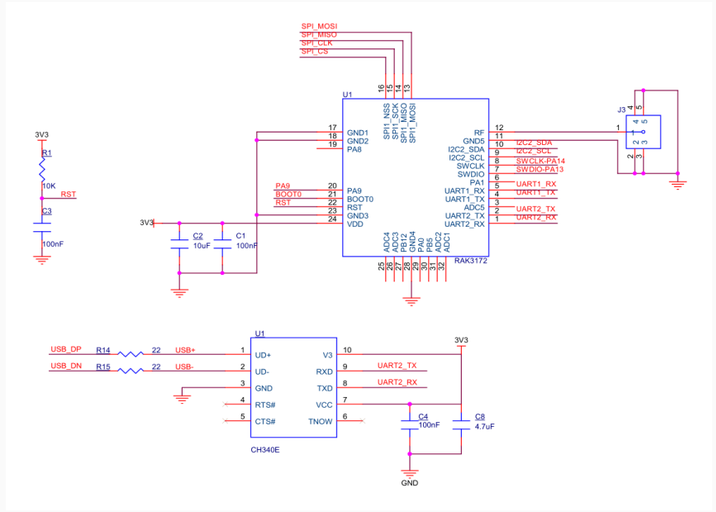


TITLE: BLOCK DIAGRAM		REV: 1.0
	Company: BIOMOVE	Sheet: 1/4
	Date: 2023-07-14 Drawn By: pierluigi colangeli	









TITLE: COMPONENTS DATA		REV: 1.0
	Company: BIOMOVE	Sheet: 1/1
	Date: 2023-07-14 Drawn By: pierluigi colangeli	