Sheet: Power
File: Power.sch

Sheet: Input
File: Input.sch

Sheet: Brain
File: Brain.sch

Sheet: Output
File: Output.sch

H1 MountingHole
H2 MountingHole
H3 MountingHole
H4 MountingHole

Sheet: /
File: IoT12.sch

Title: IoT12-hardware

Size: A4	Date: 2021-03-12	**Rev: V2.1**
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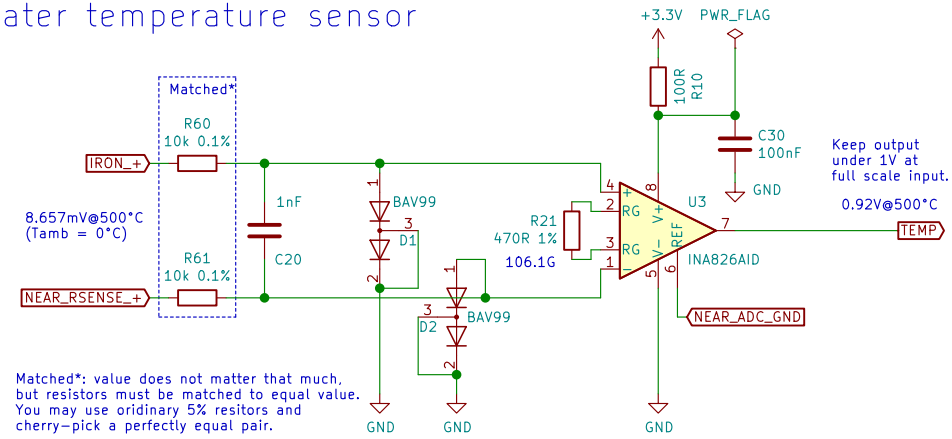
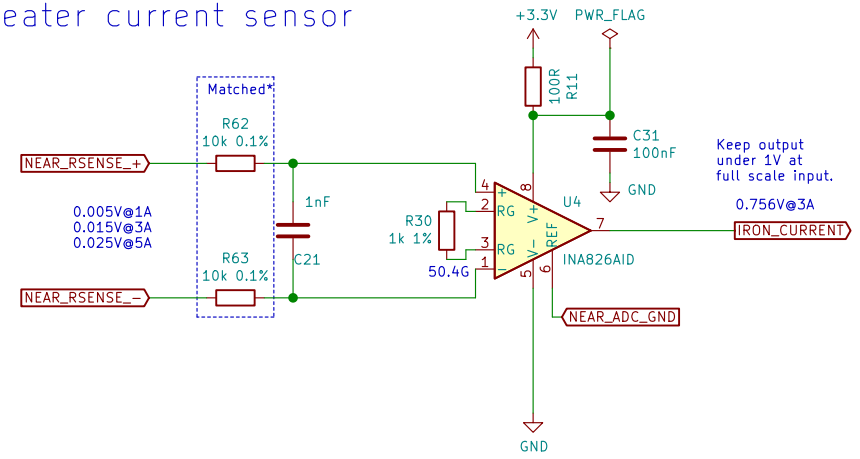
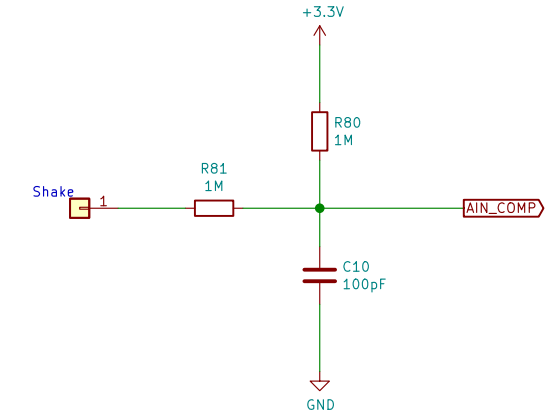
Heater temperature sensor



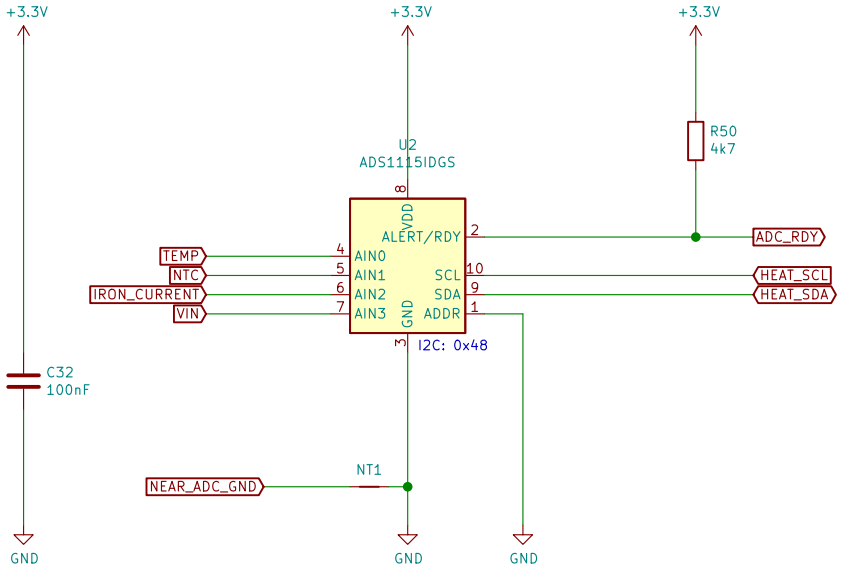
Heater current sensor



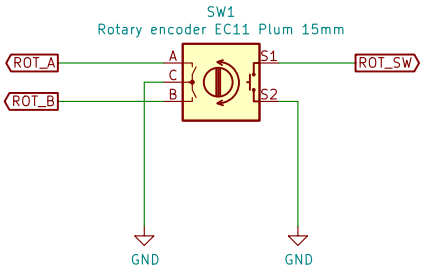
Tilt switch sensor as shake sensor



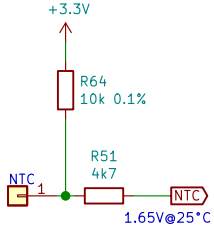
External 16b I2C ADC



User input



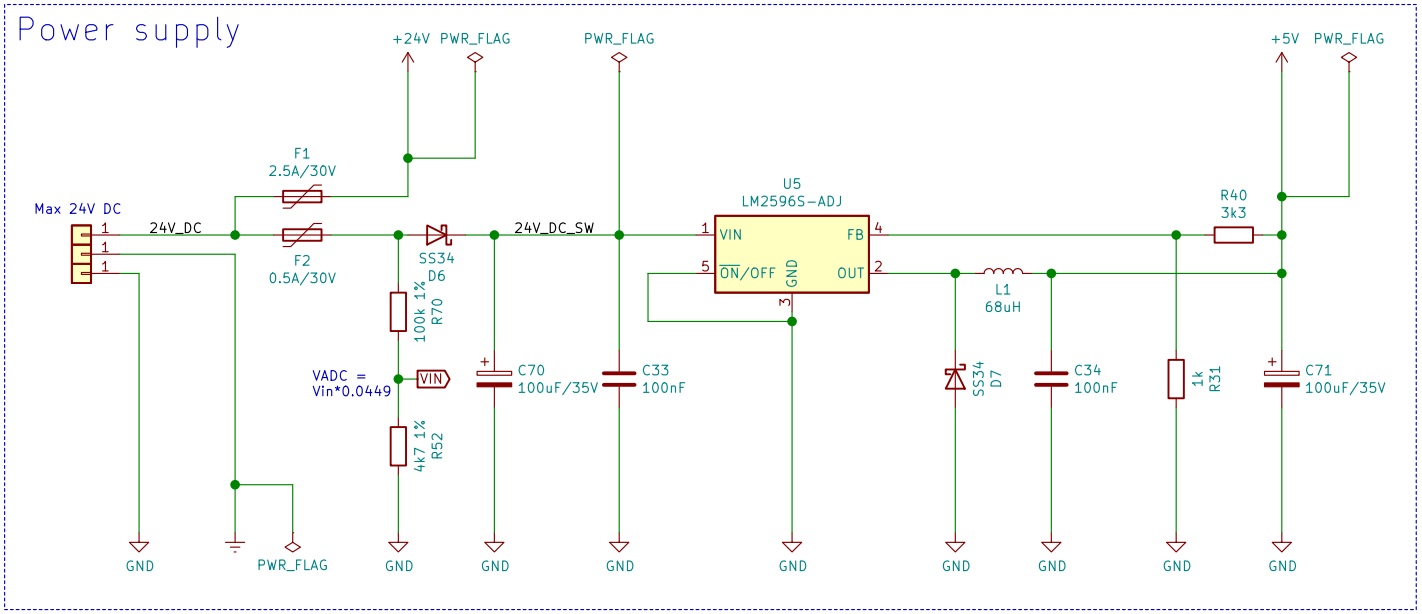
Handle NTC



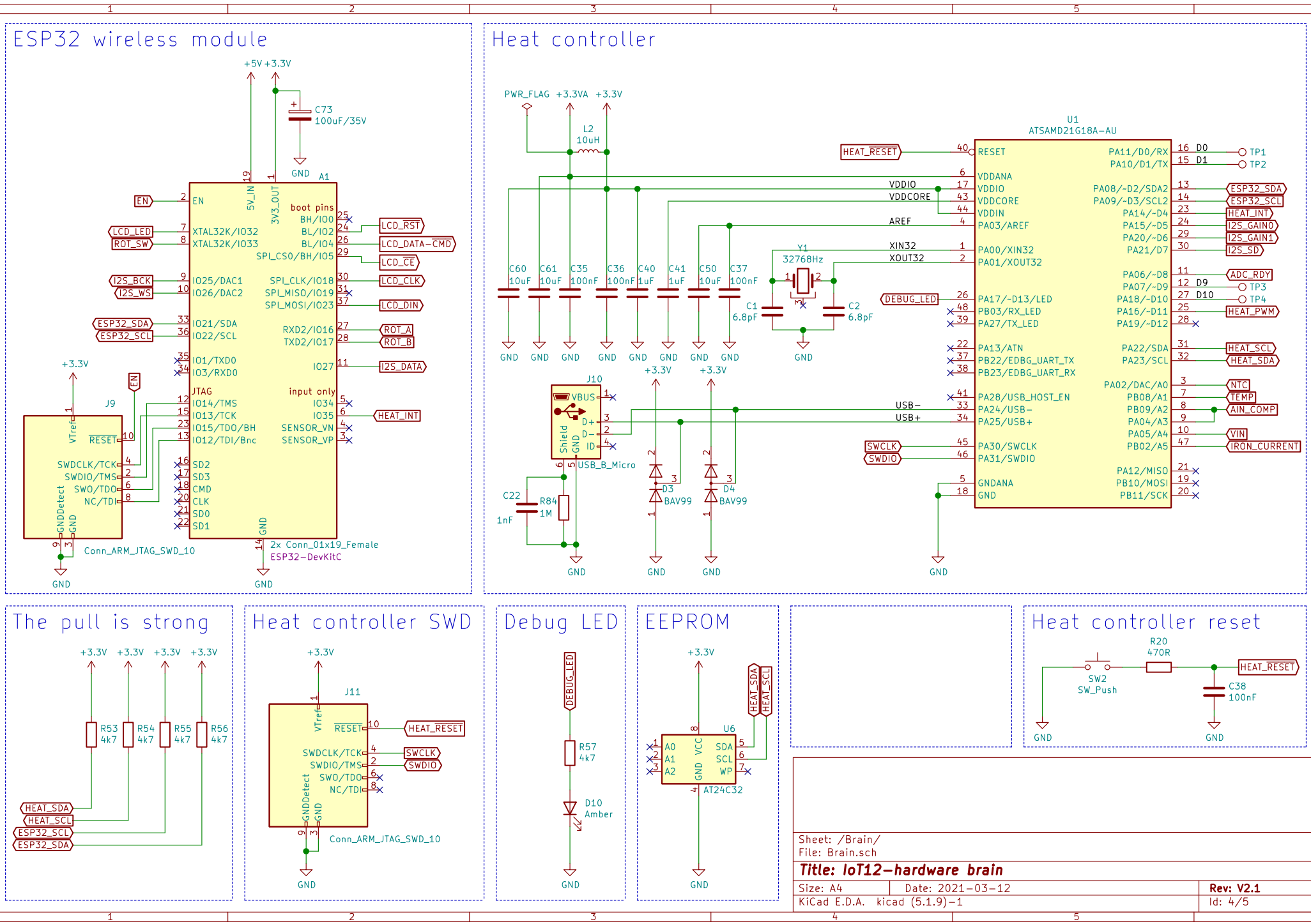
Sheet: /Input/
File: Input.sch

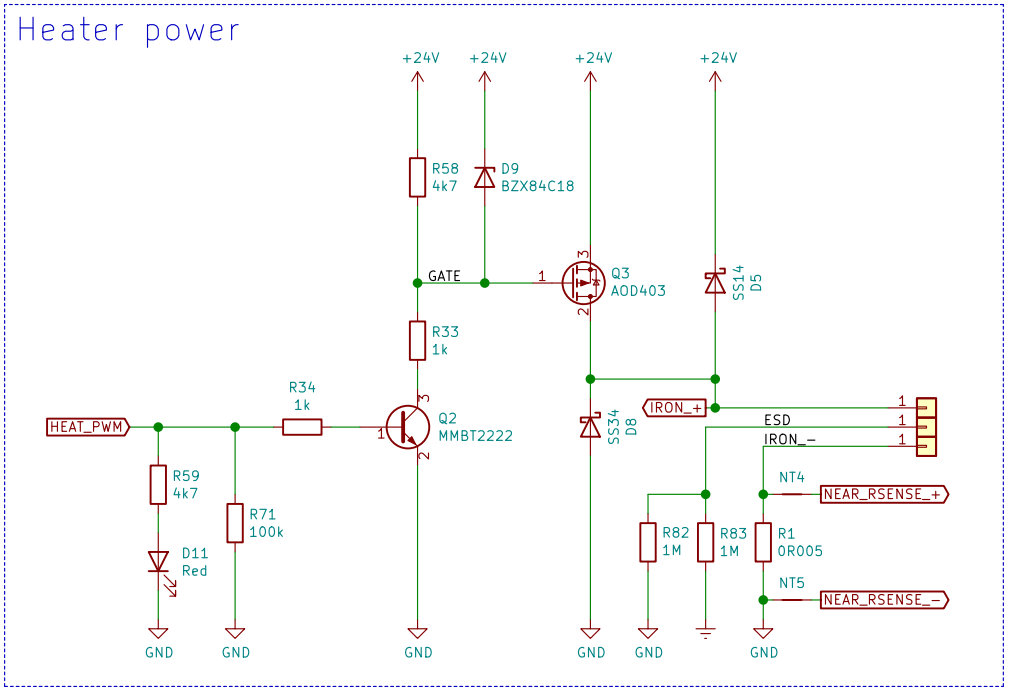
Title: IoT12-hardware input and sensors

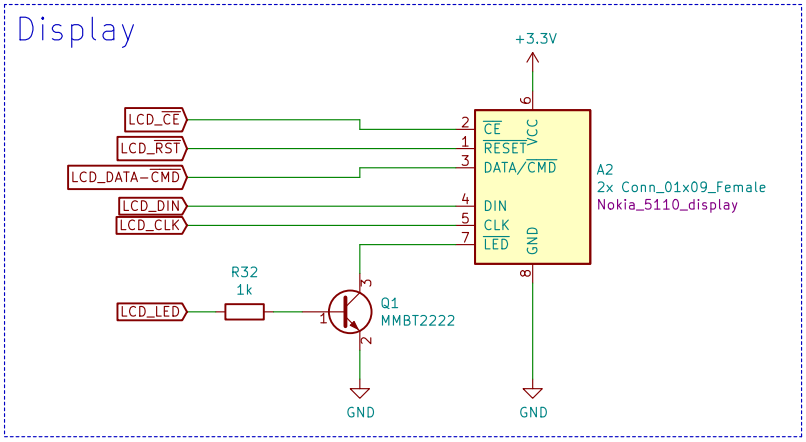
Size: A4	Date: 2021-03-12	**Rev: V2.1**
KiCad E.D.A. kicad (5.1.9)-1		Id: 2/5

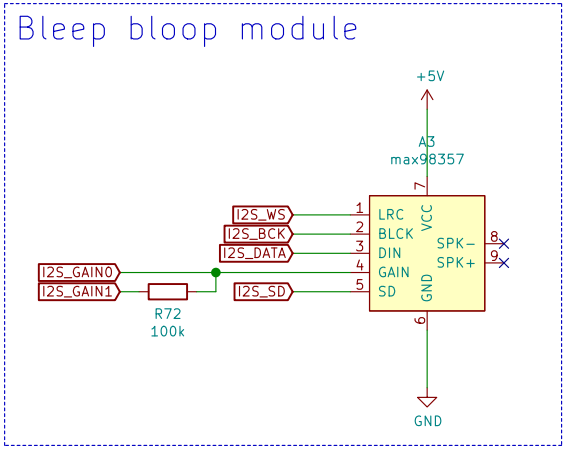


Sheet: /Power/		
File: Power.sch		
Title: IoT12-hardware power supply		
Size: A4	Date: 2021-03-12	**Rev: V2.1**
KiCad E.D.A. kicad (5.1.9)-1		Id: 3/5


ESP32 wireless module
+5V
+3.3V
C73
100uF/35V
GND
A1
EN
5V_IN
3V3_OUT
boot pins
LCD_LED
ROT_SW
XTAL32K/IO32
XTAL32K/IO33
BH/IO0
BL/IO2
BL/IO4
SPI_CS0/BH/IO5
LCD_RST
LCD_DATA-CMD
LCD_CE
I2S_BCK
I2S_WS
IO25/DAC1
IO26/DAC2
SPI_CLK/IO18
SPI_MISO/IO19
SPI_MOSI/IO23
LCD_CLK
LCD_DIN
ESP32_SDA
ESP32_SCL
IO21/SDA
IO22/SCL
RXD2/IO16
TXD2/IO17
ROT_A
ROT_B
IO1/TXD0
IO3/RXD0
IO27
I2S_DATA
JTAG
input only
IO14/TMS
IO13/TCK
IO15/TDO/BH
IO12/TDI/Bnc
IO34
IO35
SENSOR_VN
SENSOR_VP
HEAT_INT
SD2
SD3
CMD
CLK
SD0
SD1
J9
VTref
RESET
SWDCLK/TCK
SWDIO/TMS
SWO/TDO
NC/TDI
GNDDetect
Conn_ARM_JTAG_SWD_10
2x Conn_01x19_Female
ESP32-DevKitC
Heat controller
PWR_FLAG
+3.3VA
L2
10uH
U1
ATSAMD21G18A-AU
HEAT_RESET
RESET
VDDANA
VDDIO
VDDCORE
VDDIN
AREF
PA03/AREF
PA00/XIN32
PA01/XOUT32
XIN32
XOUT32
Y1
32768Hz
C60
10uF
C61
10uF
C35
100nF
C36
100nF
C40
1uF
C41
1uF
C50
10uF
C37
100nF
C1
6.8pF
C2
6.8pF
DEBUG_LED
PA17/-D13/LED
PB03/RX_LED
PA27/TX_LED
PA13/ATN
PB22/EDBG_UART_TX
PB23/EDBG_UART_RX
PA28/USB_HOST_EN
PA24/USB-
PA25/USB+
USB-
USB+
SWCLK
SWDIO
PA30/SWCLK
PA31/SWDIO
GNDANA
GND
PA11/D0/RX
PA10/D1/TX
D0
D1
TP1
TP2
PA08/-D2/SDA2
PA09/-D3/SCL2
PA14/-D4
PA15/-D5
PA20/-D6
PA21/D7
ESP32_SDA
ESP32_SCL
HEAT_INT
I2S_GAIN0
I2S_GAIN1
I2S_SD
PA06/-D8
PA07/-D9
PA18/-D10
PA16/-D11
PA19/-D12
ADC_RDY
D9
D10
TP3
TP4
HEAT_PWM
PA22/SDA
PA23/SCL
PA02/DAC/A0
PB08/A1
PB09/A2
PA04/A3
PA05/A4
PB02/A5
HEAT_SCL
HEAT_SDA
NTC
TEMP
AIN_COMP
VIN
IRON_CURRENT
PA12/MISO
PB10/MOSI
PB11/SCK
J10
VBUS
D+
D-
ID
Shield
USB_B_Micro
C22
1nF
R84
1M
D3
BAV99
D4
BAV99
The pull is strong
R53
4k7
R54
4k7
R55
4k7
R56
4k7
HEAT_SDA
HEAT_SCL
ESP32_SCL
ESP32_SDA
Heat controller SWD
J11
Conn_ARM_JTAG_SWD_10
Debug LED
R57
4k7
D10
Amber
EEPROM
U6
A0
A1
A2
VCC
GND
SDA
SCL
WP
AT24C32
Heat controller reset
R20
470R
SW2
SW_Push
C38
100nF
Sheet: /Brain/
File: Brain.sch
Title: IoT12-hardware brain
Size: A4
Date: 2021-03-12
Rev: V2.1
KiCad E.D.A. kicad (5.1.9)-1
Id: 4/5







Sheet: /Output/
File: Output.sch

Title: IoT12−hardware output

Size: A4	Date: 2021−03−12	**Rev: V2.1**
KiCad E.D.A. kicad (5.1.9)−1		Id: 5/5