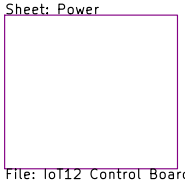
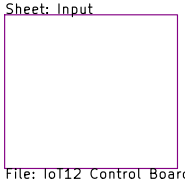
Sheet: Power



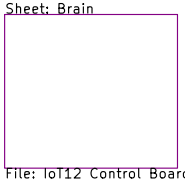
File: IoT12 Control Board Power.sch

Sheet: Input



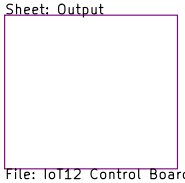
File: IoT12 Control Board Input.sch

Sheet: Brain



File: IoT12 Control Board Brain.sch

Sheet: Output



File: IoT12 Control Board Output.sch

H1 MountingHole

H2 MountingHole

H3 MountingHole

H4 MountingHole

Sheet: /
File: IoT12 Control Board.sch

Title: IoT12-hardware

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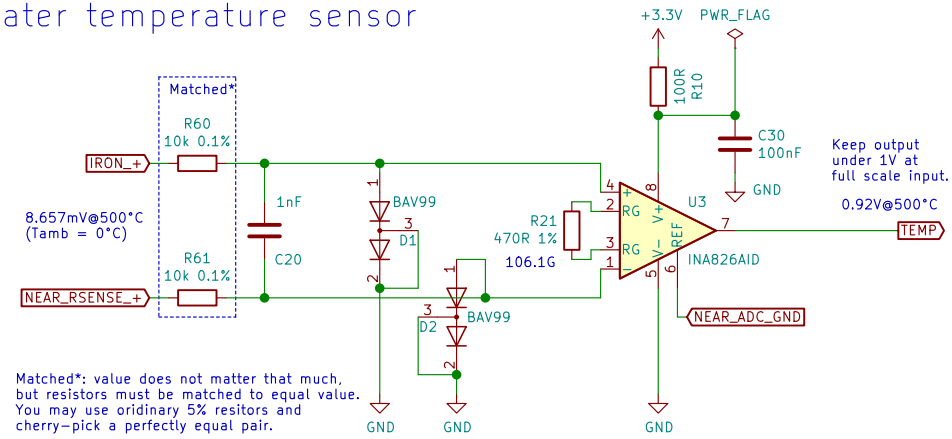
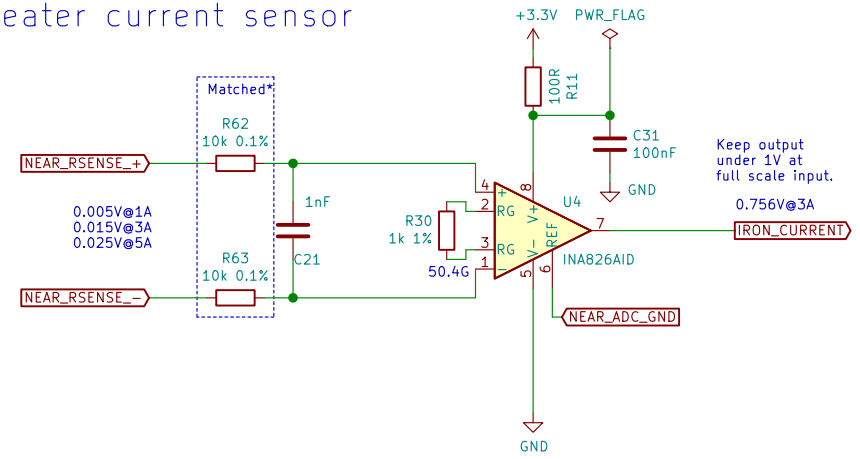
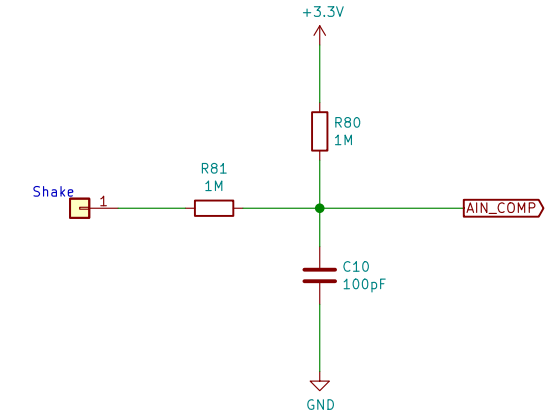
Heater temperature sensor



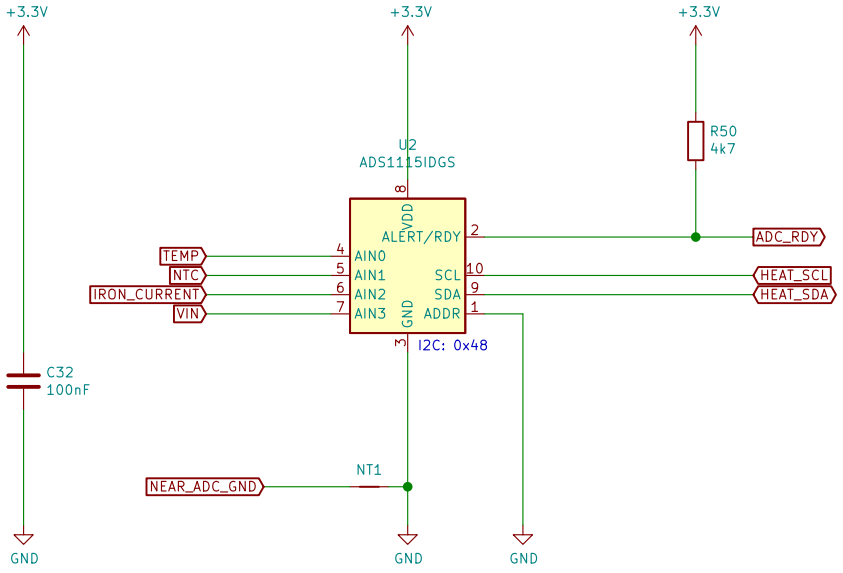
Heater current sensor



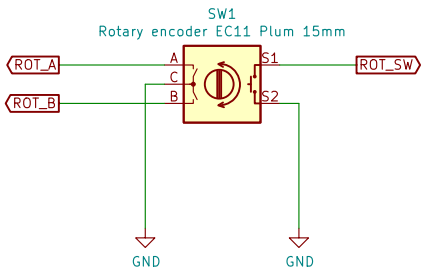
Tilt switch sensor as shake sensor



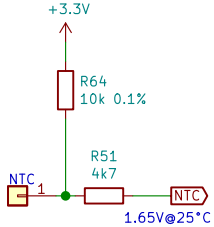
External 16b I2C ADC



User input



Handle NTC



Sheet: /Input/	
File: IoT12 Control Board Input.sch	
Title: IoT12-hardware input and sensors	
Size: A4	Date: 2021-04-02
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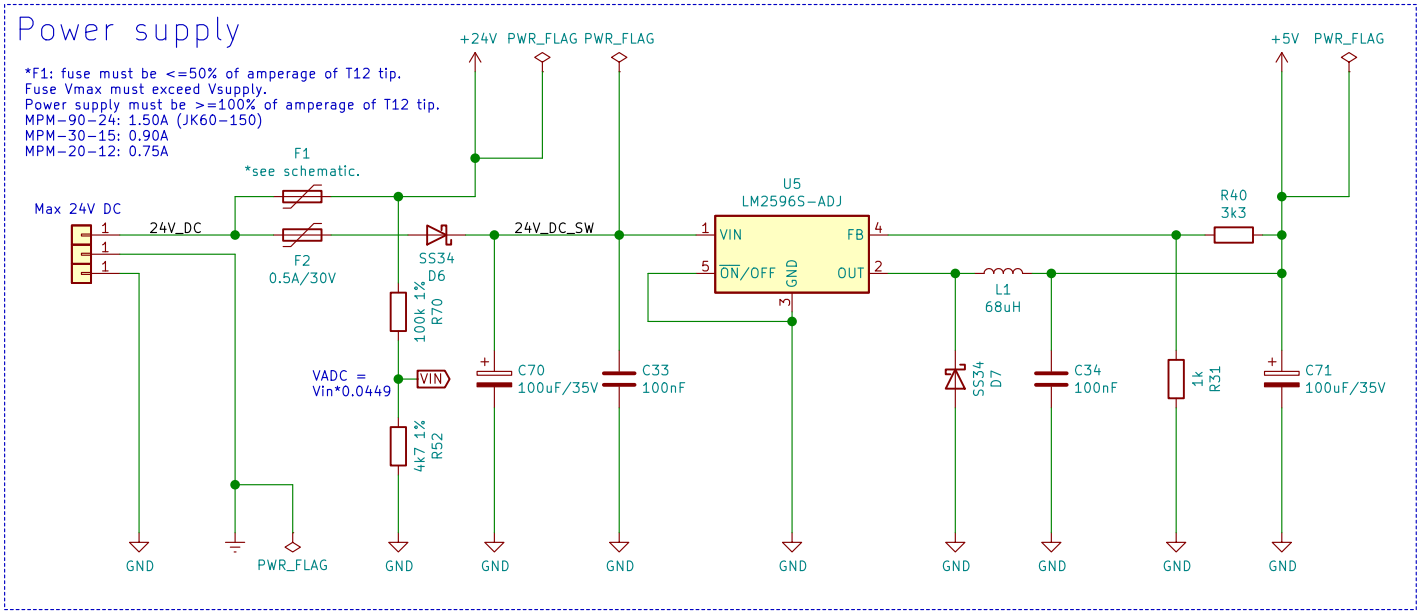

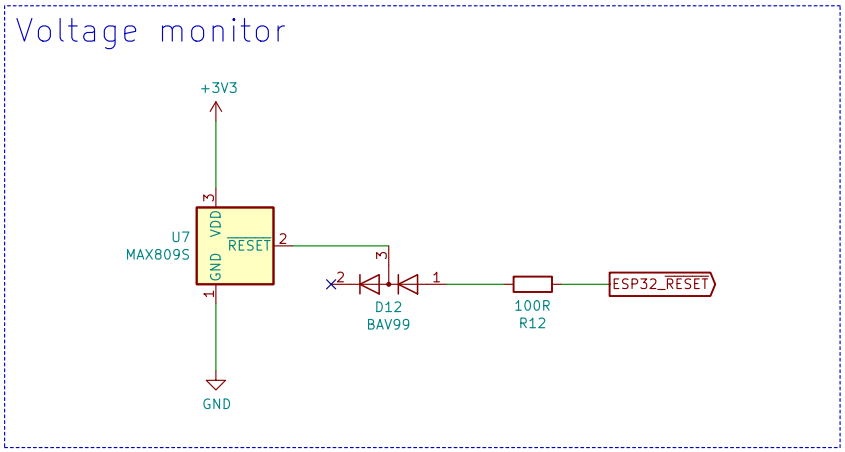

Sheet: /Power/
File: IoT12 Control Board Power.sch

Title: IoT12-hardware power supply

Size: A4	Date: 2021-04-02	**Rev: V2.1**
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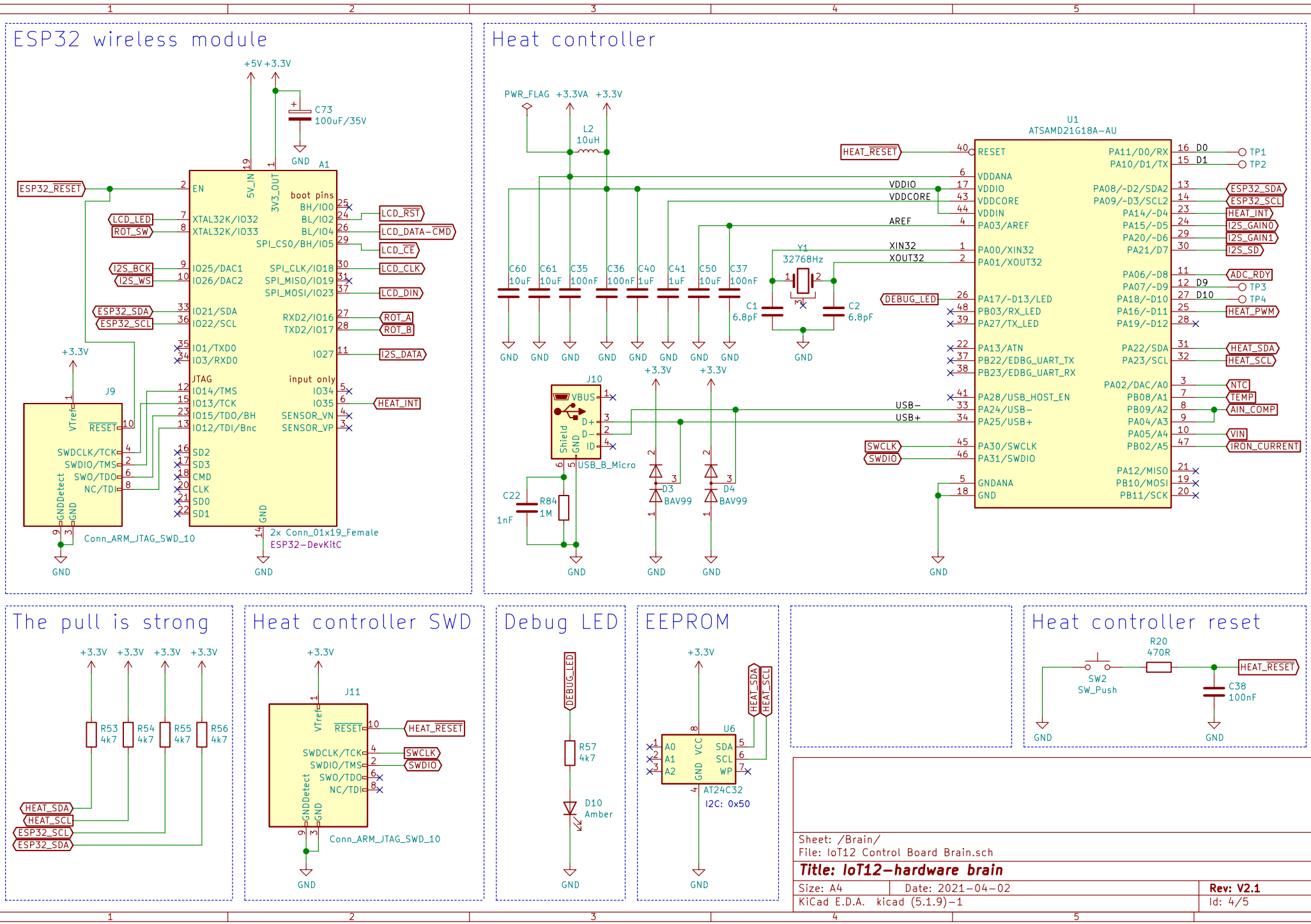
ESP32 wireless module
+5V
+3.3V
C73
100uF/35V
GND
A1
ESP32_RESET
EN
5V_IN
3V3_OUT
boot pins
LCD_LED
XTAL32K/IO32
BH/IO0
LCD_RST
ROT_SW
XTAL32K/IO33
BL/IO2
LCD_DATA-CMD
BL/IO4
SPI_CS0/BH/IO5
LCD_CE
I2S_BCK
IO25/DAC1
SPI_CLK/IO18
LCD_CLK
I2S_WS
IO26/DAC2
SPI_MISO/IO19
LCD_DIN
SPI_MOSI/IO23
ESP32_SDA
IO21/SDA
RXD2/IO16
ROT_A
ESP32_SCL
IO22/SCL
TXD2/IO17
ROT_B
IO1/TXD0
IO27
I2S_DATA
IO3/RXD0
JTAG
input only
IO14/TMS
IO34
IO13/TCK
IO35
HEAT_INT
IO15/TDO/BH
SENSOR_VN
IO12/TDI/Bnc
SENSOR_VP
SD2
SD3
CMD
CLK
SD0
SD1
GND
2x Conn_01x19_Female
ESP32-DevKitC
+3.3V
J9
VTref
RESET
SWDCLK/TCK
SWDIO/TMS
SWO/TDO
NC/TDI
GNDDetect
GND
Conn_ARM_JTAG_SWD_10
Heat controller
PWR_FLAG
+3.3VA
+3.3V
L2
10uH
U1
ATSAMD21G18A-AU
HEAT_RESET
RESET
PA11/D0/RX
D0
TP1
PA10/D1/TX
D1
TP2
VDDANA
VDDIO
VDDIO
PA08/~D2/SDA2
ESP32_SDA
VDDCORE
VDDCORE
PA09/~D3/SCL2
ESP32_SCL
VDDIN
PA14/~D4
HEAT_INT
AREF
PA03/AREF
PA15/~D5
I2S_GAIN0
PA20/~D6
I2S_GAIN1
XIN32
PA00/XIN32
PA21/D7
I2S_SD
XOUT32
PA01/XOUT32
PA06/~D8
ADC_RDY
D9
TP3
DEBUG_LED
PA17/~D13/LED
PA07/~D9
D10
TP4
PB03/RX_LED
PA18/~D10
PA16/~D11
HEAT_PWM
PA27/TX_LED
PA19/~D12
PA13/ATN
PA22/SDA
HEAT_SDA
PB22/EDBG_UART_TX
PA23/SCL
HEAT_SCL
PB23/EDBG_UART_RX
PA02/DAC/A0
NTC
PA28/USB_HOST_EN
PB08/A1
TEMP
USB-
PA24/USB-
PB09/A2
AIN_COMP
USB+
PA25/USB+
PA04/A3
PA05/A4
VIN
SWCLK
PA30/SWCLK
PB02/A5
IRON_CURRENT
SWDIO
PA31/SWDIO
PA12/MISO
GNDANA
PB10/MOSI
GND
PB11/SCK
C60
10uF
C61
10uF
C35
100nF
C36
100nF
C40
1uF
C41
1uF
C50
10uF
C37
100nF
Y1
32768Hz
C1
6.8pF
C2
6.8pF
J10
VBUS
D+
D-
ID
Shield
GND
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
Debug LED
DEBUG_LED
R57
4k7
D10
Amber
EEPROM
U6
A0
A1
A2
VCC
GND
SDA
SCL
WP
AT24C32
I2C: 0x50
Heat controller reset
R20
470R
SW2
SW_Push
C38
100nF
Sheet: /Brain/
File: IoT12 Control Board Brain.sch
Title: IoT12-hardware brain
Size: A4
Date: 2021-04-02
Rev: V2.1
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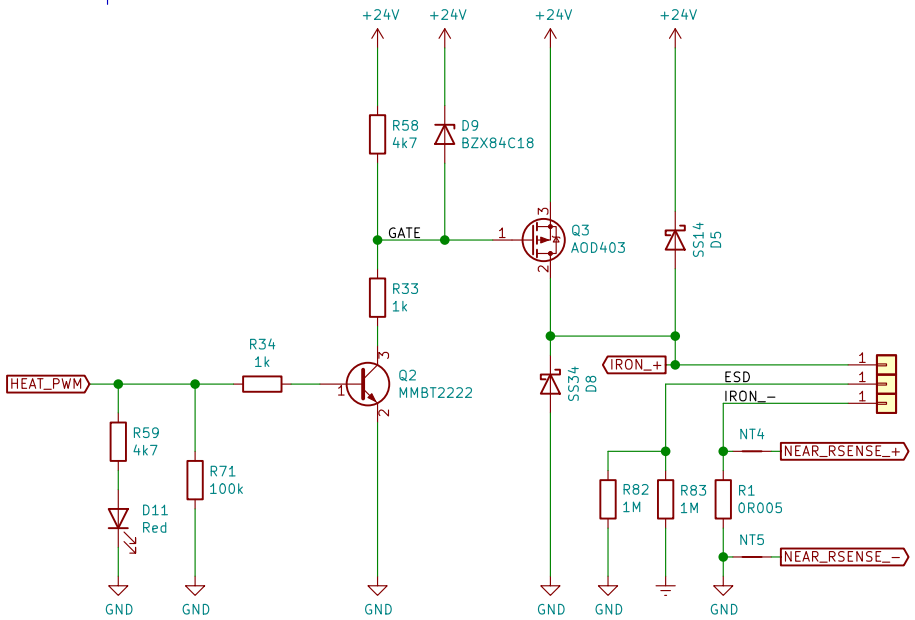
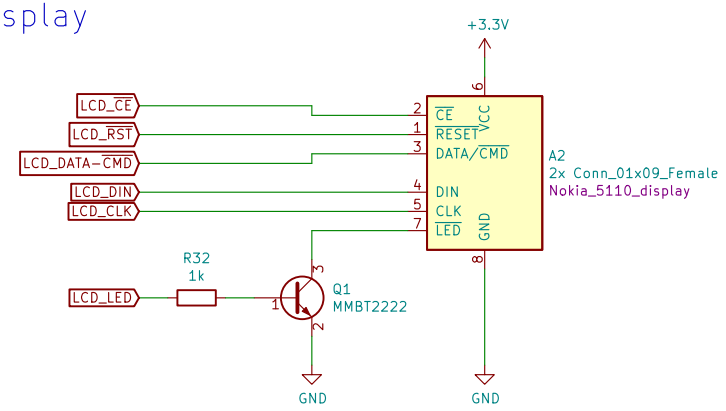
Id: 4/5

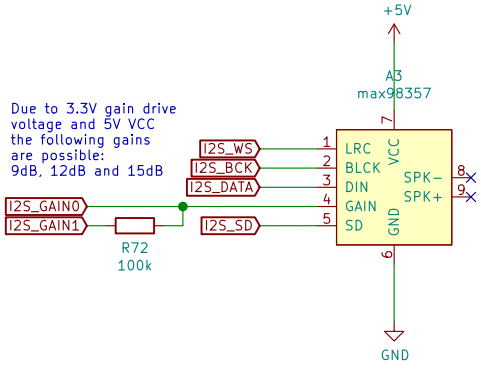
Heater power



Display



Bleep bloop module



Sheet: /Output/		
File: IoT12 Control Board Output.sch		
Title: IoT12-hardware output		
Size: A4	Date: 2021-04-02	**Rev: V2.1**
KiCad E.D.A. kicad (5.1.9)-1		Id: 5/5