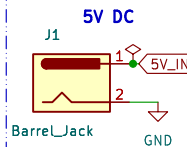
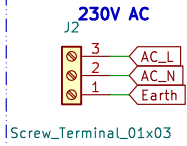
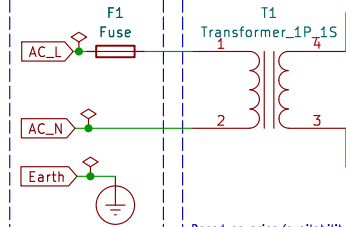


## Input PUs

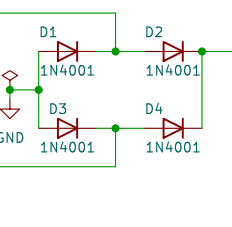


## Protection

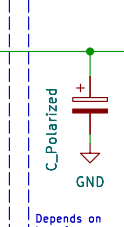


## Transformation (230V AC -> 9-24V AC)

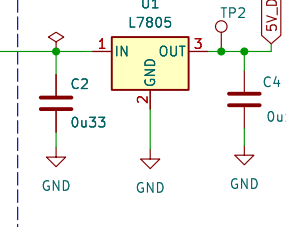
## Rectification (AC -> DC)



## Filtering/Smoothing

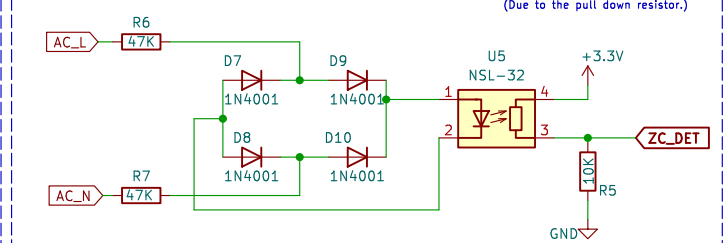


## Regulation

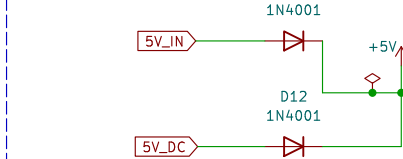


## Zero Crossing Detection

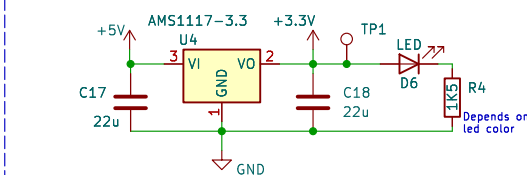
(Related to Question 3)



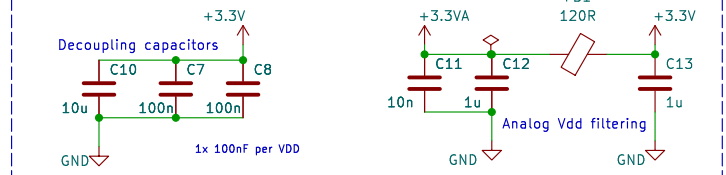
## 5V DC Input



## 3.3V Linear Voltage Regulator

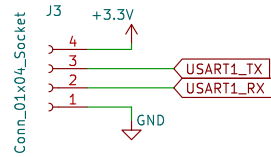


## STM32 Power

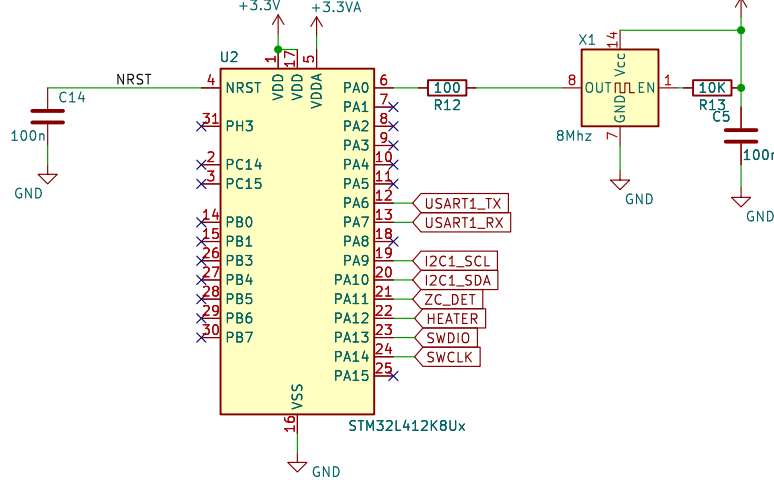


## UART

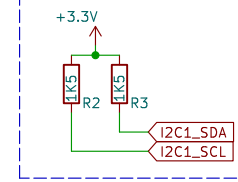
In order to read serial interface, an FTDI or RS232 module is needed  
Baudrate is set to 9600



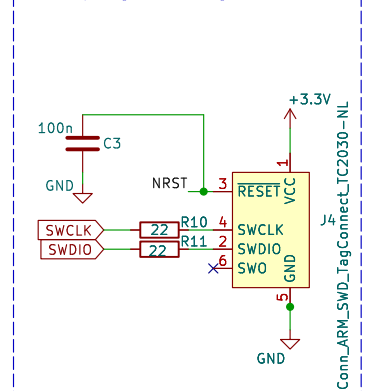
## STM32 MCU



## I2C Pull-ups



## SWD programming interface

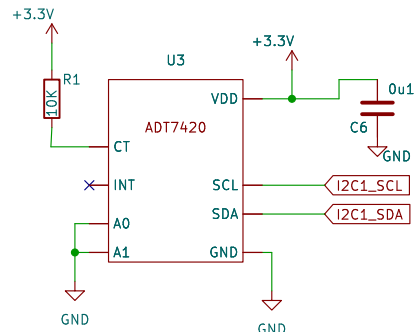


## Temperature Sensor

(Related to Question 2)

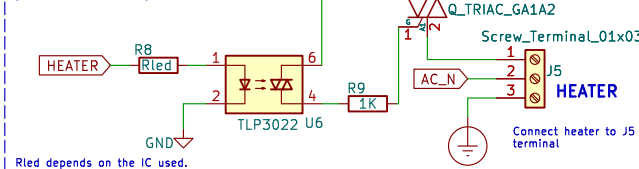
ADT7420 is configured with a Serial bus Address: 0x48

Interrupt pin is disabled for this implementation



## AC Heater Driver

(Related to Question 3)



Note: This schematic is a PoC Implementation, some parts should be optimized for a real world application.

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Author: Spyridakis Christos

Sheet: /

File: stm32l4-heater.kicad\_sch

Title: PID heating element controller

Size: A4

Date: 2024-12-22

KiCad E.D.A. kicad 7.0.11+dfsg-1build4

Rev: Rev 1.0

Id: 1/1