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<div>Vayu</div> <div>A Smart Heat Recovery Ventilation System</div>										REVISIONS								
										ECO NO:	REV	DESCRIPTION			DATE		APPR.	
											A	Smart Heat recovery ventilation system			01-Oct-2024			
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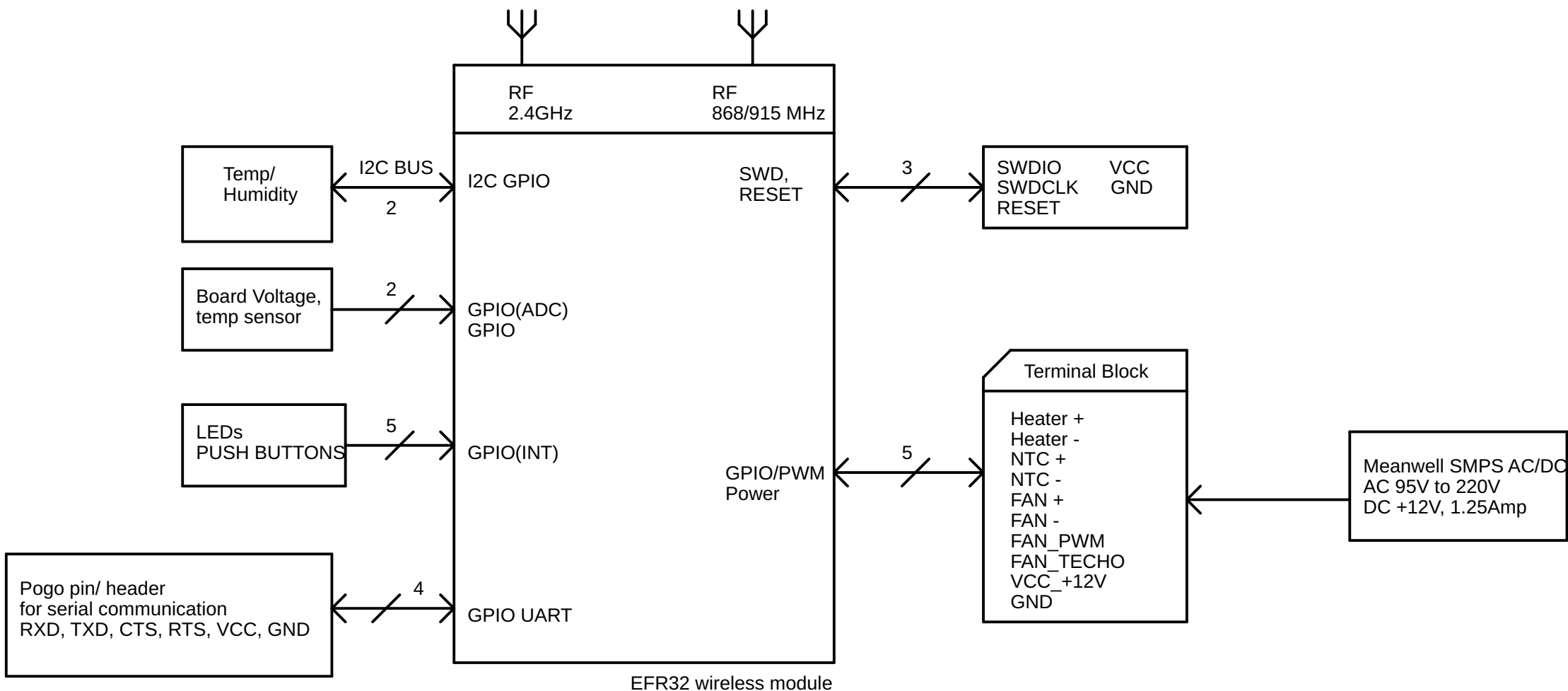
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Title: Smart Heat Recovery Ventilation System			
Engineer:Varun M.	Doc No: Vayu_sch	Rev: A	Date/Time1/14/2025 5:19 PM
ApprovedVarun M.	Project: Vayu	Size: A3	Sheet: 1/6

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A	Schematic guidelines, notes and requirements							A
	Component guidelines							
	<p>0 ohm resistors are 0402, 1A, unless otherwise noted. Capacitors are 0402, 10%, 50V unless otherwise noted. 0.047uF capacitors are 0402, 10%, 25V unless otherwise noted. 0.1uF, 0.22uF, 0.47uF and 1uF capacitors are 0402, 10%, 16V unless otherwise noted. 4.7uF, 10uF, and 22uF bulk capacitors are 0603, 6.3V/10V unless otherwise noted. Test point diameter is 1.2mm unless otherwise noted.</p>							
B	Schematic guidelines							B
	General							
	<p>IC pins that are internally pulled up or pulled down are indicated with the text PU or PD. All power nets normally starts with capital VDD* or VCC*. These nets should have planes by default.</p>							
	Graphic symbol description							
C	<div><div></div><div>Digital ground</div></div> <div><div></div><div>Voltage connection</div></div> <div><div></div><div>Test point (default size)</div></div>							C
	Rules							
D	<p>Test points must be placed on the Secondary (bottom) side with a minimum 2.54mm spacing unless otherwise noted.</p> <p>Surface mount components on secondary side if any must be at least 4mm from thru hole pins. Not applicable for test pins and debug headers (manually assembled when needed).</p> <p>Keep ground plane(s) away from the radio section of the wireless module.</p> <p>The 868/915 MHz radio on the wireless module uses external antenna that must be encapsulated inside the product case while avoiding proximity to any ground planes.</p>							D
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E	<p>This source describes Open Hardware and is licensed under the CERN-OHL-P v2 You may redistribute and modify this documentation and make products using it under the terms of the CERN-OHL-P v2 (https://cern.ch/cern-ohl). This documentation is distributed WITHOUT ANY EXPRESS OR IMPLIED WARRANTY, INCLUDING OF MERCHANTABILITY, SATISFACTORY QUALITY AND FITNESS FOR A PARTICULAR PURPOSE. Please see the CERN-OHL-P v2 for applicable conditions</p>							E
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Block Diagram

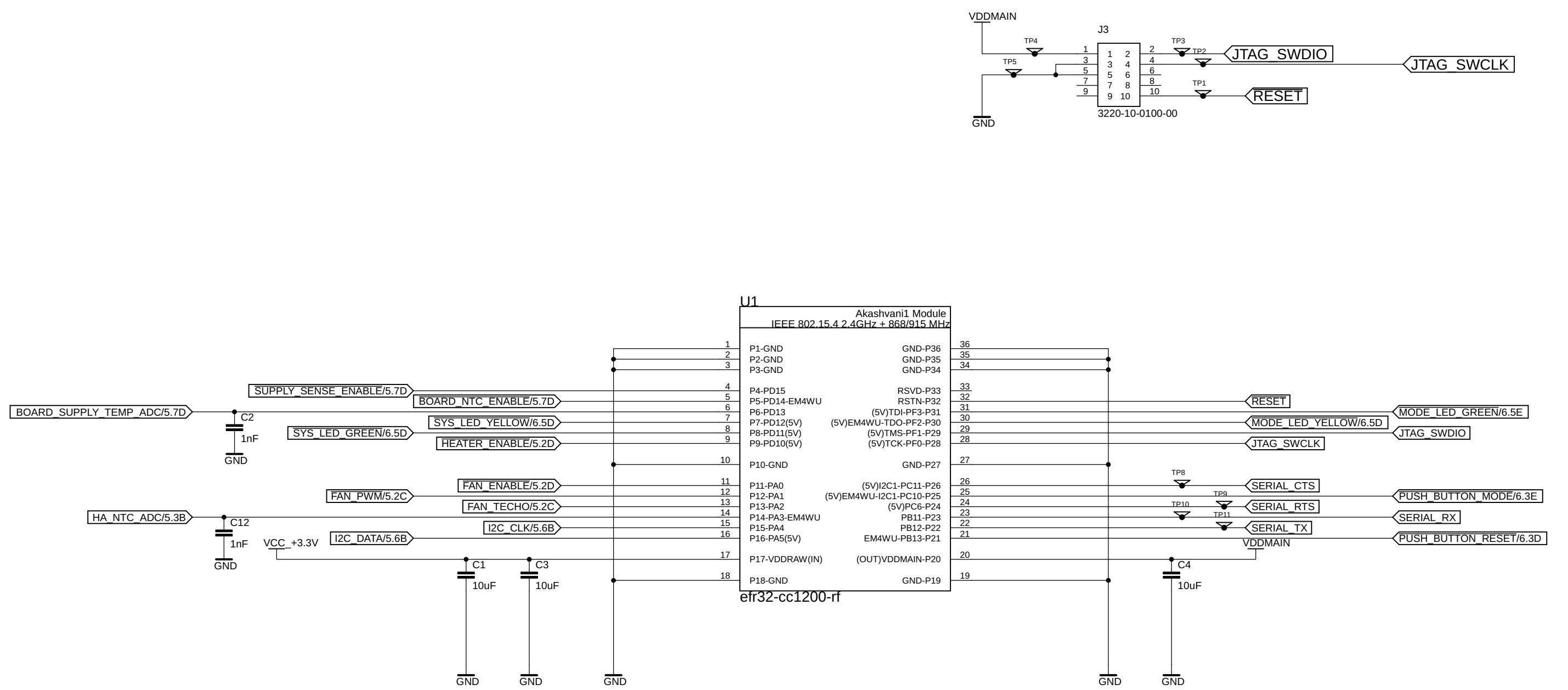


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Wireless Module



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Sensors, Heater and Fan

The diagram illustrates the hardware connections for various sensors, a heater, and fans. Key components include:

- HA NTC ADC/4.1C:** Connected to VCC +3.3V via R10 (100K) and GND.
- FAN TECHO/4.3C:** Open drain output connected to VCC +3.3V via R15 (10K) and GND.
- FAN PWM/4.3C:** Connected to VDD via R1 (1M) and GND via Q1 (IRLML6402 PBF).
- FAN ENABLE/4.3C:** Connected to VDD via R2 (1M) and GND via Q2 (IRLML6402 PBF).
- HEATER ENABLE/4.3C:** Connected to VDD via R5 (1M) and GND via Q3 (IRLML6402 PBF).
- BOARD SUPPLY TEMP ADC/4.1C:** Connected to VCC +3.3V via R7 (200K), R8 (100K), and R9 (100K).
- SUPPLY SENSE ENABLE/4.3C:** Connected to GND via R8 (100K).
- BOARD NTC ENABLE/4.3C:** Connected to GND via R9 (100K).

I2C Connections:

- I2C CLK/4.3C:** Connected to pin 1 of connector J1.
- I2C DATA/4.3C:** Connected to pin 2 of connector J1.

Connectors:

- J1:** 5-pin connector with pins labeled 1_1, 1_2, 2_1, 2_2, 3_1, 3_2, 4_1, 4_2, 5_1, 5_2.
- J2:** 5-pin connector with pins labeled 1_1, 1_2, 2_1, 2_2, 3_1, 3_2, 4_1, 4_2, 5_1, 5_2.

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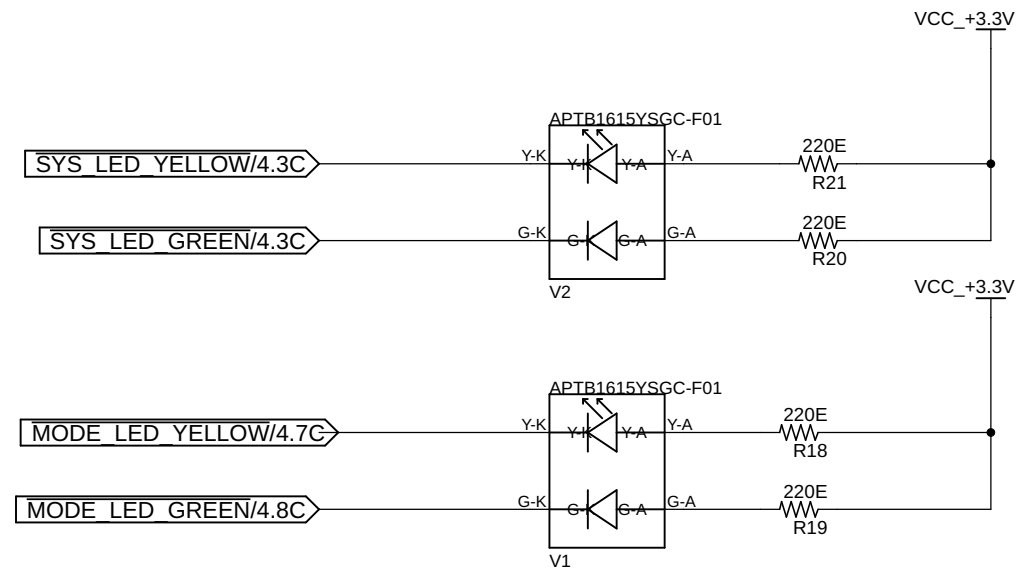
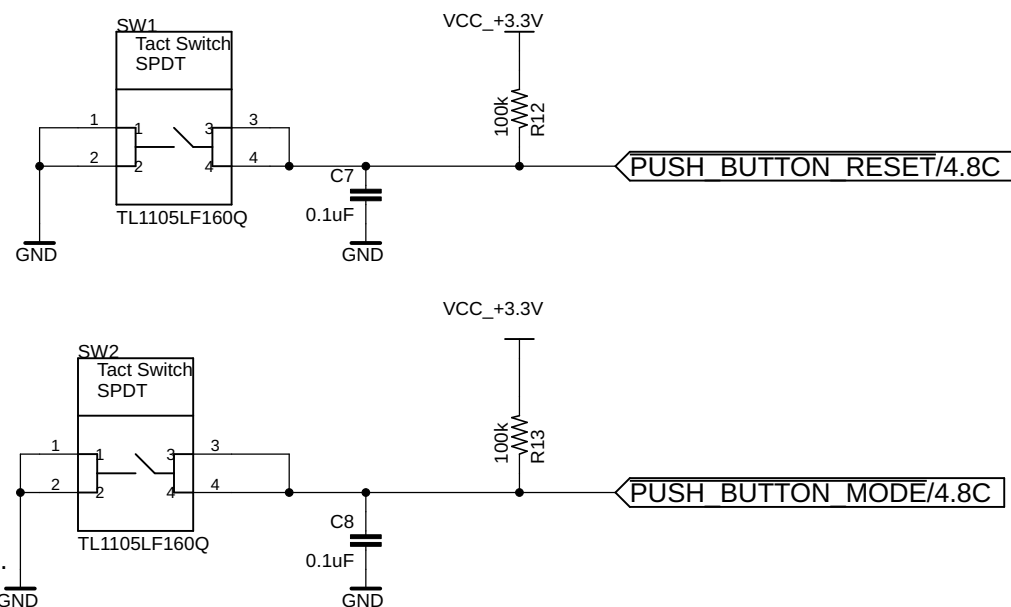
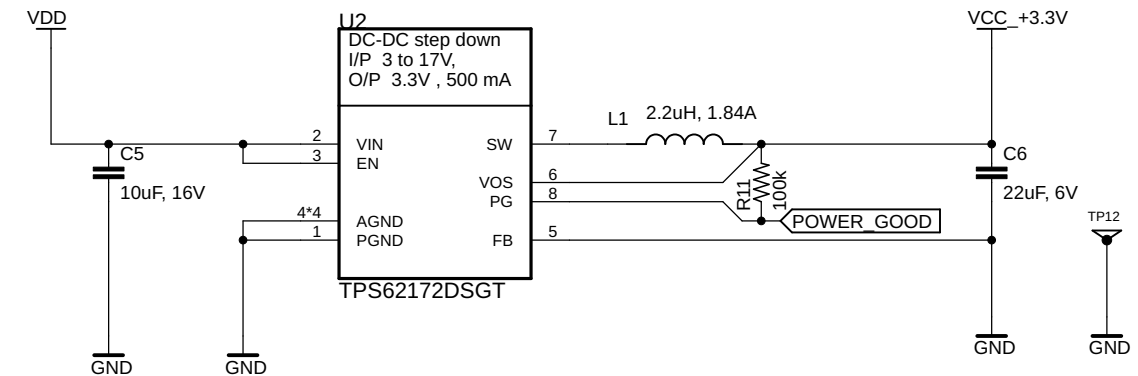
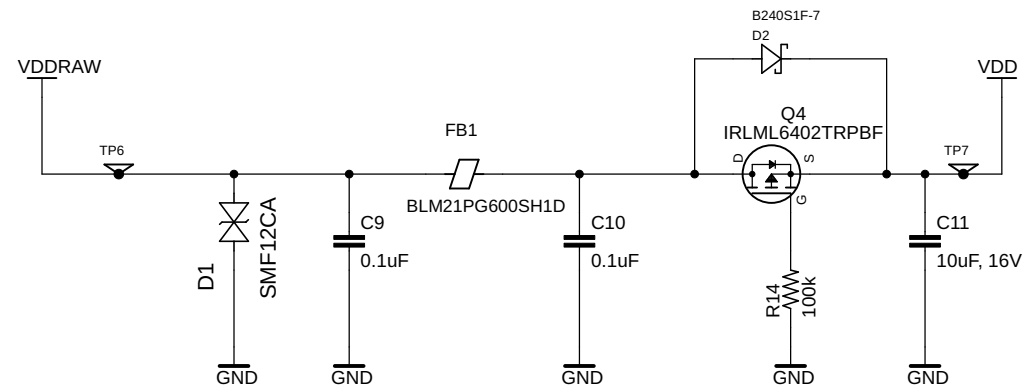
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HMI and power supply



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