

Raspberry Pi Connection

The diagram illustrates the connection of a Raspberry Pi to a CAT24C32H41-GT3 I2C EEPROM. The circuit includes a 5V supply with back power protection, a 3.3V regulator, and various I2C and GPIO pin connections.

5V Supply and Back Power Protection: A 5V supply is connected to the 5V_SUPPLY pin of the I2C module. The I2C module also has a 5V_MCU pin. A back power protection diode is connected between the 5V_SUPPLY and 5V_MCU pins.

3.3V Regulator: A 3.3V regulator is connected to the 3.3V pin of the I2C module. The regulator output is connected to the VCC pin of the CAT24C32H41-GT3 I2C module. The regulator also has a 3.3V pin connected to the 3.3V pin of the I2C module.

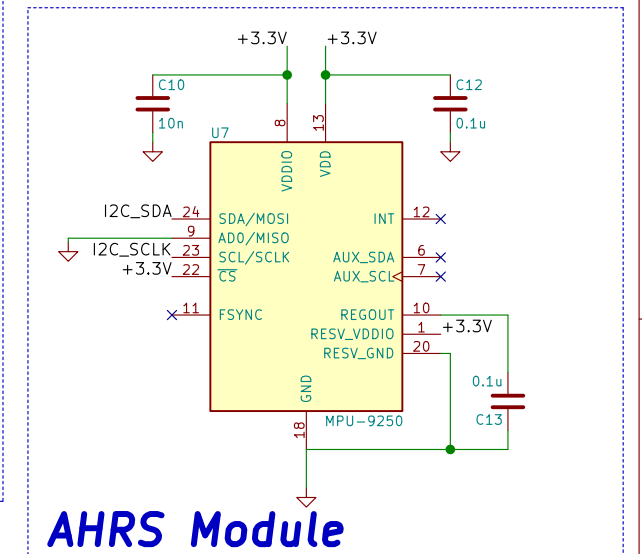
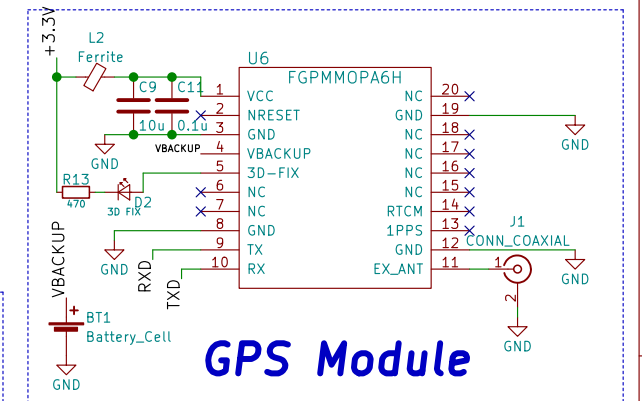
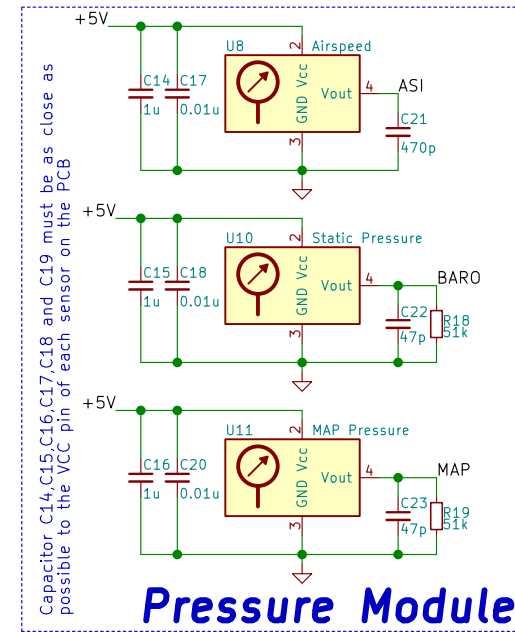
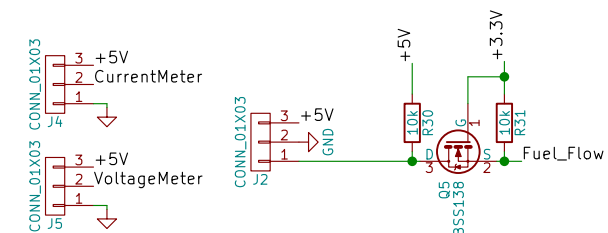
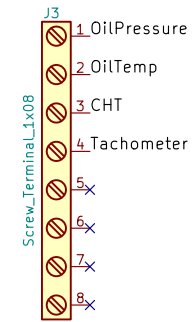
I2C Connections: The I2C module has two I2C pins: I2C_SDA (pin 3) and I2C_SCL (pin 5). These are connected to the SDA (pin 6) and SCL (pin 8) pins of the CAT24C32H41-GT3 I2C module. The I2C module also has a 3.3V pin connected to the 3.3V pin of the I2C module.

GPIO Connections: The I2C module has several GPIO pins connected to the Raspberry Pi. The connections are as follows:

- GPIO2/I2C1_SDA (pin 3) to I2C_SDA (pin 6)
- GPIO3/I2C1_SCL (pin 5) to I2C_SCL (pin 8)
- GPIO14/UART_TXD (pin 8) to TXD (pin 10)
- GPIO15/UART_RXD (pin 10) to RXD (pin 8)
- GPIO10/SPL_MOSI (pin 19) to MOSI (pin 19)
- GPIO9/SPL_MISO (pin 21) to MISO (pin 21)
- GPIO11/SPL_SCLK (pin 23) to SCLK (pin 23)
- GPIO8/SPI_CE0 (pin 24) to CE0 (pin 24)
- GPIO7/SPI_CE1 (pin 26) to CE1 (pin 26)
- GPIO4/GPCLK0 (pin 7) to GPCLK0 (pin 7)
- GPIO5 (pin 29) to Tach (pin 31)
- GPIO6 (pin 32) to Fuel_Flow (pin 32)
- GPIO12 (pin 33) to Fuel_Flow (pin 32)
- GPIO13 (pin 36) to Fuel_Flow (pin 32)
- GPIO16 (pin 36) to Fuel_Flow (pin 32)
- GPIO17 (pin 11) to Fuel_Flow (pin 32)
- GPIO18 (pin 12) to Fuel_Flow (pin 32)
- GPIO19 (pin 35) to Fuel_Flow (pin 32)
- GPIO20 (pin 37) to Fuel_Flow (pin 32)
- GPIO21 (pin 40) to Fuel_Flow (pin 32)
- GPIO22 (pin 15) to Fuel_Flow (pin 32)
- GPIO23 (pin 16) to Fuel_Flow (pin 32)
- GPIO24 (pin 18) to Fuel_Flow (pin 32)
- GPIO25 (pin 22) to Fuel_Flow (pin 32)
- GPIO26 (pin 37) to Fuel_Flow (pin 32)
- GPIO27 (pin 13) to Fuel_Flow (pin 32)

Other Connections: The CAT24C32H41-GT3 I2C module has several other pins connected to the Raspberry Pi. The connections are as follows:

- VCC (pin 6) to 3.3V
- SDA (pin 8) to I2C_SDA (pin 6)
- SCL (pin 5) to I2C_SCL (pin 8)
- WP (pin 7) to WP (pin 7)
- VSS (pin 4) to GND
- A0 (pin 1) to GND
- A1 (pin 2) to GND
- A2 (pin 3) to GND



Power Management Module

The schematic diagram illustrates the Power Management Module, which includes three DC/DC converters and a PWR_FLAG indicator.

3.3V @ 2.1A DC/DC supply: This converter (U1) takes a 5V input and provides a 3.3V output. It uses an LM2595-3.3 regulator, a 33uH inductor (L1), and a 330uF/35V capacitor (C3). The feedback pin (FB) is connected to the output through a feedback network. The output is labeled +3.3V.

5V @ 3A DC/DC supply: This converter (U3) takes a 24V input and provides a 5V output. It uses an LM2595-5.0 regulator, a 47uH inductor (L3), and a 330uF/35V capacitor (C5). The output is labeled +5V.

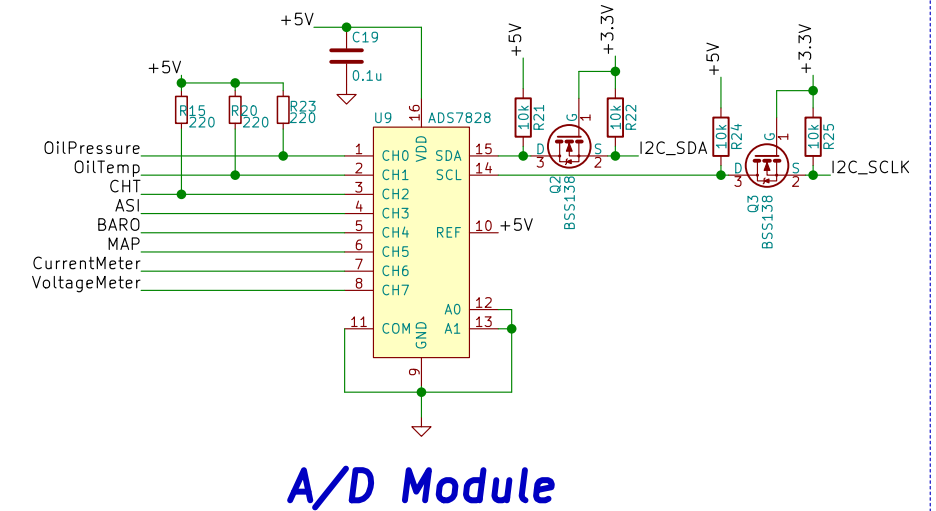
5V @ 3A DC/DC supply: This converter (U4) takes a 24V input and provides a 5V output. It uses an LM2595-5.0 regulator, a 47uH inductor (L4), and a 330uF/35V capacitor (C6). The output is labeled +5VRpi.

PWR_FLAG Indicator: The PWR_FLAG indicator is shown as a red LED. It is connected to the 5V output of the 5V @ 3A DC/DC supply (U3) and the 3.3V output of the 3.3V @ 2.1A DC/DC supply (U1). The PWR_FLAG is labeled +24V and +3.3V.

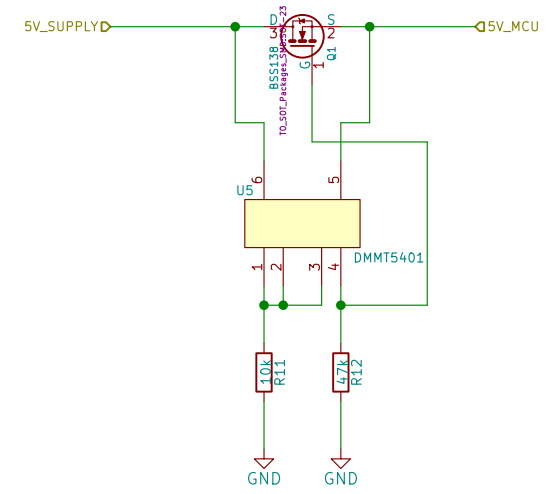
Legend:

- C1, C2 Panasonic HFQ serie
- C6, C5, C3 low ESR Electrolytic

Tachometer Module



*Recommended back powering protection for raspberry pi. Recommended by
Raspberrry Pi Foundation
<https://github.com/raspberrypi/hats/blob/master/designguide.md>



Sheet: /Back Power Protection/
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Title:

Size: A4

Date:

KiCad E.D.A. kicad 4.0.7-e0-637258ubuntu16.04.1

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