

Team 34

Designer: Manveer Aujla

Sheet: /

File: Capstone_Interfacing_PCB.kicad_sch

Title: Sensing and Interfacing PCB

Size: A4

Date: 2025-06-02

Size: A4	
KiCad E.D.A. 9.0.1	

Rev: v1

Id: 1/4

Interface: Analog Signals

GND \longleftrightarrow GND
 +3.3V \longleftrightarrow +3.3V
 +5V \longleftrightarrow +5V
 Phase_U_Filt \longleftrightarrow Phase_U_Filt
 Phase_V_Filt \longleftrightarrow Phase_V_Filt
 Phase_W_Filt \longleftrightarrow Phase_W_Filt

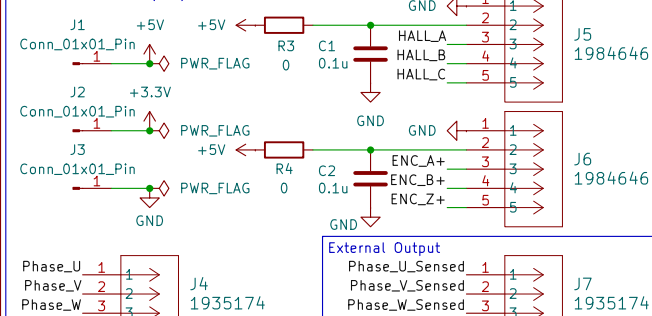
Interface: Digital Signals

HALL_A_3,3 \longleftrightarrow HALL_A_3,3
 HALL_B_3,3 \longleftrightarrow HALL_B_3,3
 HALL_C_3,3 \longleftrightarrow HALL_C_3,3
 ENC_A+_3,3 \longleftrightarrow ENC_A+_3,3
 ENC_B+_3,3 \longleftrightarrow ENC_B+_3,3
 ENC_Z+_3,3 \longleftrightarrow ENC_Z+_3,3

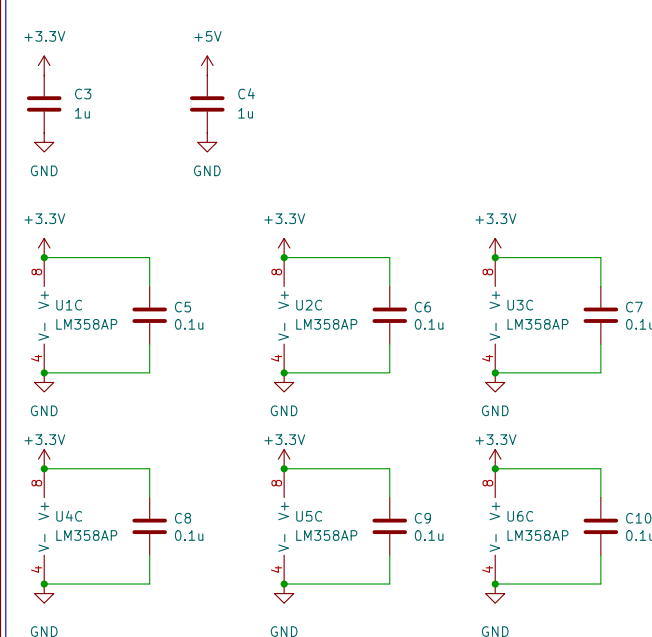
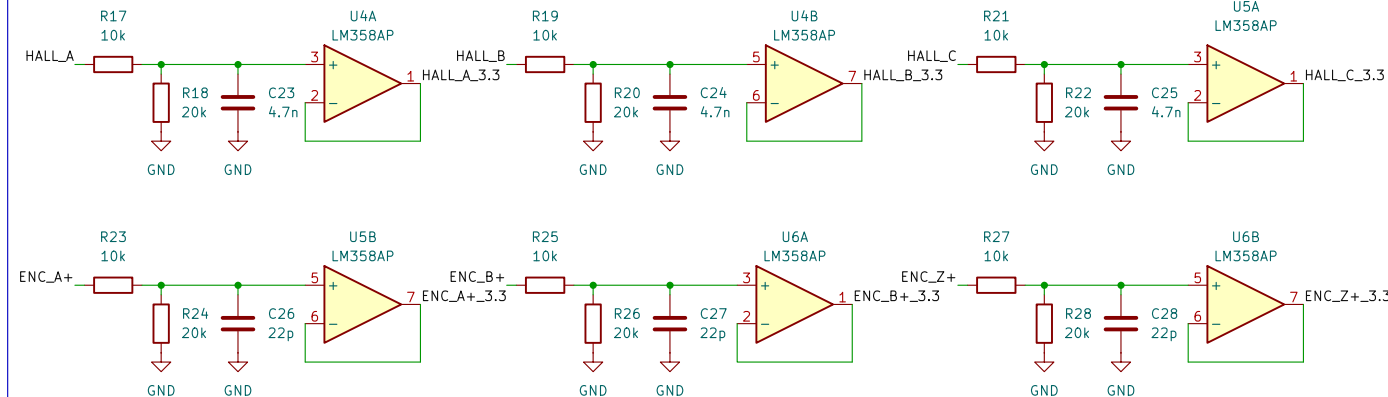
LEDs

+5V \longleftrightarrow D1 \longleftrightarrow R1 300R \longleftrightarrow GND
 +3.3V \longleftrightarrow D2 \longleftrightarrow R2 120R \longleftrightarrow GND

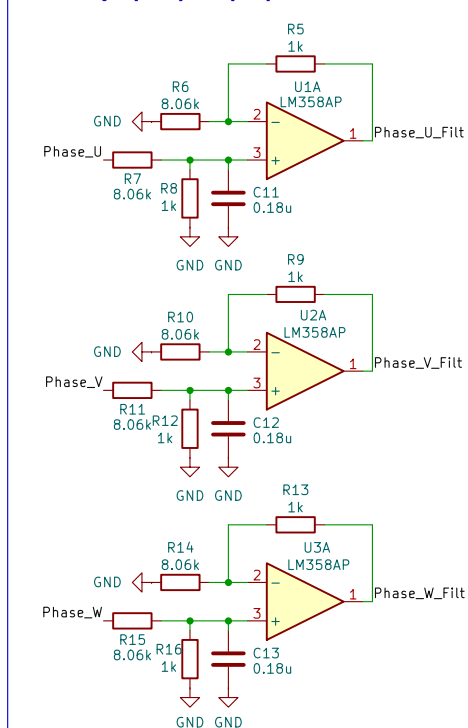
External Interface (I/O)



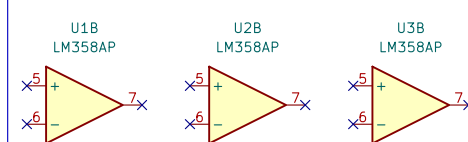
Power

Level Shifting 5V \rightarrow 3V

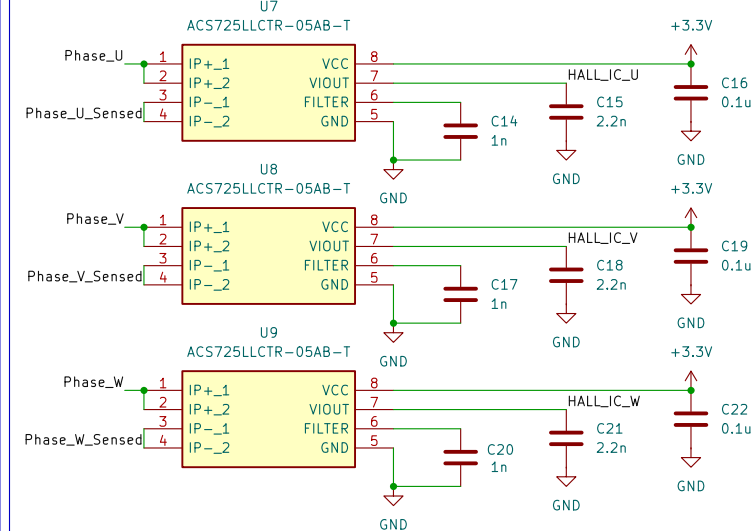
Phase Voltages [0, 24] V to [0, 3] V and Filter Cutoff 1 kHz



Not Connected



Current Sensing



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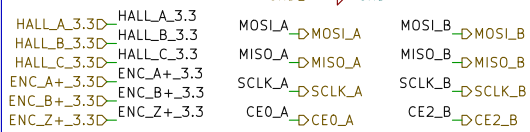
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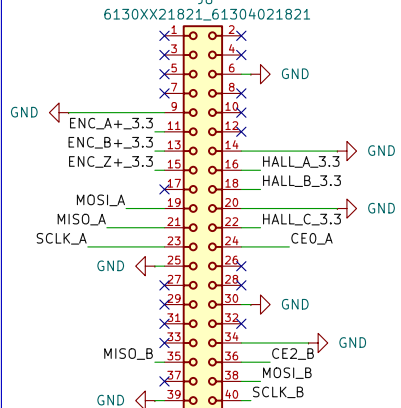
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Interface



Raspberry Pi Header



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Sheet: /Raspberry Pi/

File: RaspberryPi.kicad_sch

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Rev: v1

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Id: 4/4