Connector

(1) Connectors

File: Lyft_connector.kicad_sch

Power

(2) +12V LIN Supply

(3) I2C Pull Ups and LED

(4) +5V ESP Supply

File: Lyft_power.kicad_sch

Controller

(5) ESP Controller

(6) Desk Controller

(7) LIN Driver

File: Lyft_controller.kicad_sch

Peripherals

(8) Audio Transducer

File: Lyft_peripherals.kicad_sch

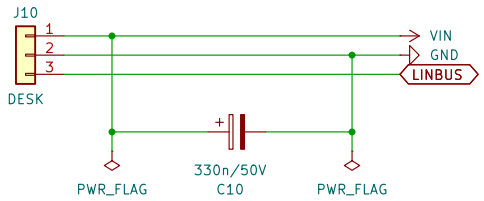
Mechanics

Sheet: /
File: Lyft.kicad_sch

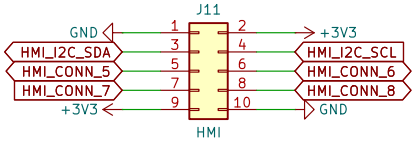
Title: LYFT mk2

Size: A4	Date: 08/2025	**Rev: B20**
KiCad E.D.A. 9.0.3		Id: 1/5

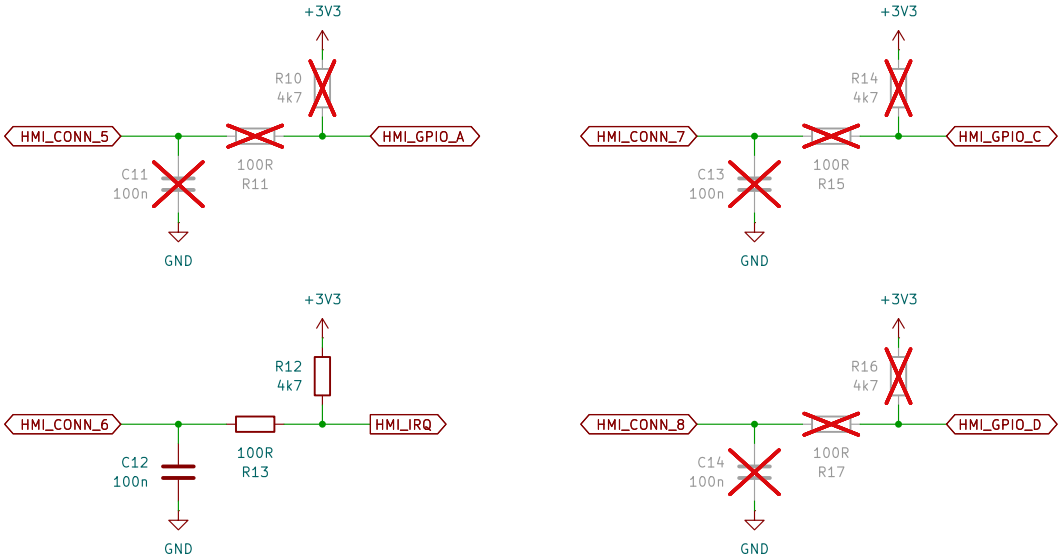
(1a) Desk Connector



(1b) HMI Connector



(1c) HMI GPIO Connector Pins with optional Pull-Up Resistors and Noise Filters



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File: Lyft_connector.kicad_sch

Title: LYFT mk2

Size: A4	Date: 08/2025	**Rev: B20**
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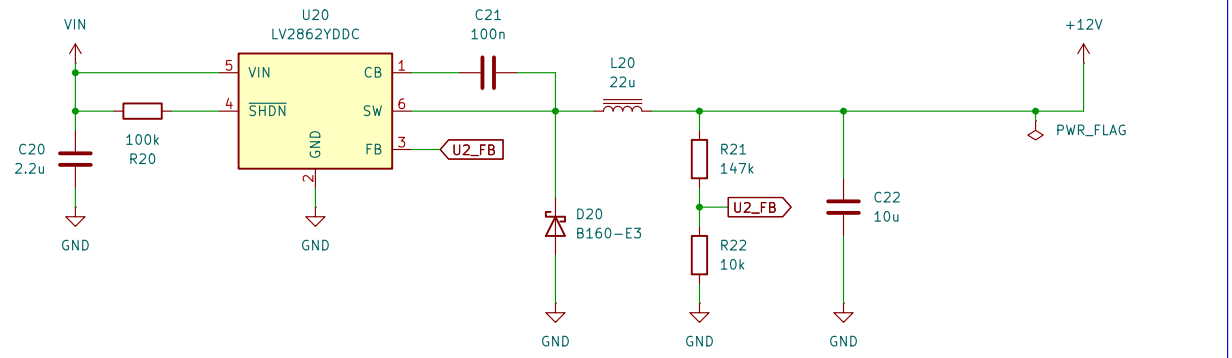
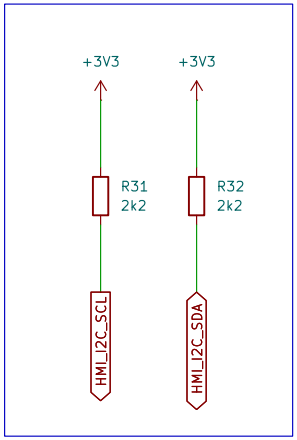
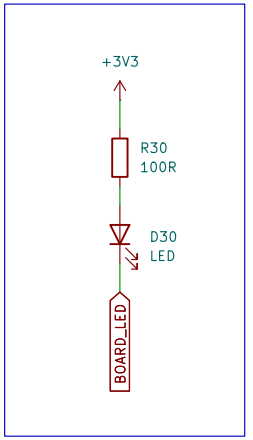
(2) +12V LIN Supply



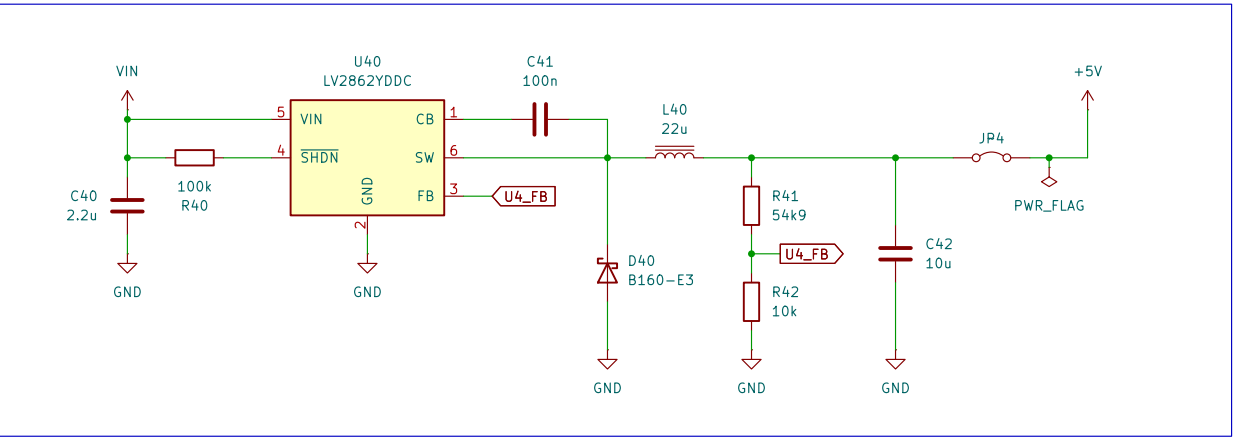
(3a) I2C Pull-Up



(3b) Board LED



(4) +5V ESP Supply



For the Pull-Up resistors:

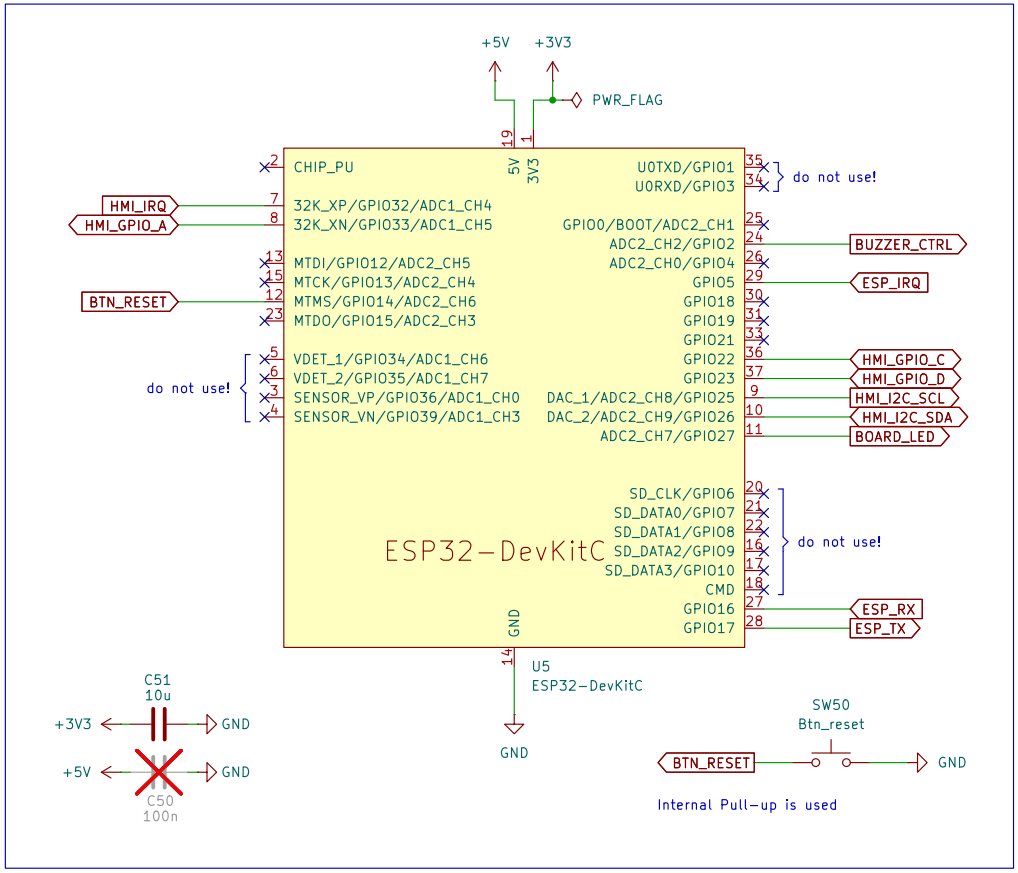
take lower values (600R < R_pu < 2k2) since the I2C bus is routed over a long wire (approx. 1m) to the HMI board. Therefore, it will take a stronger bus power to transmit data accurately. Also, set I2C bus speed to 100kHz.

For the Buck Converter:

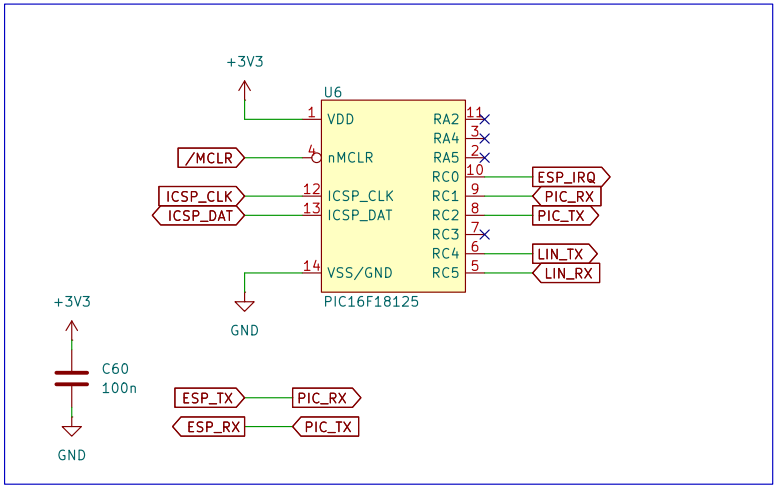
- Equation to compute restitor values for voltage feedback lines depending on desired output voltage: R1 = R2 * ((Vout / 0.765) - 1)
- Alternative DC/DC converter (if more power is needed, but with same pinout): LMR51610 by TI.

Sheet: /Power/		
File: Lyft_power.kicad_sch		
Title: LYFT mk2		
Size: A4	Date: 08/2025	**Rev: B20**
KiCad E.D.A. 9.0.3		Id: 3/5

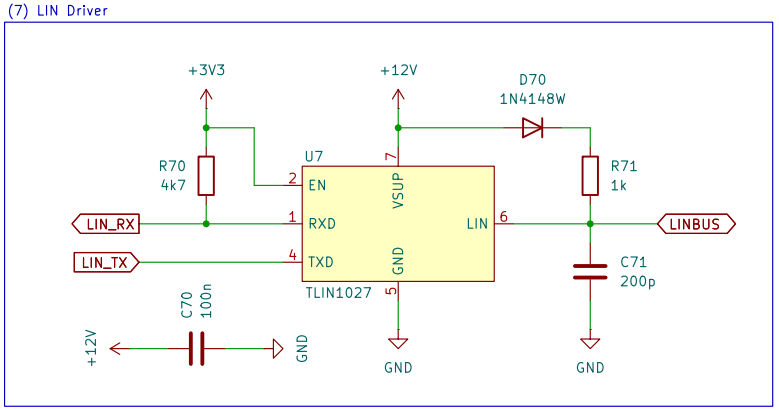
(5) ESP Controller



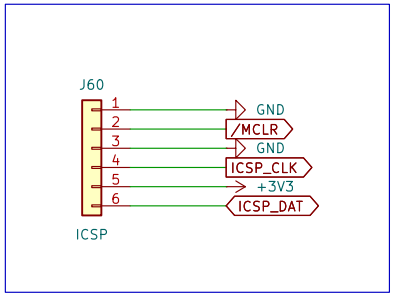
(6a) Desk Controller



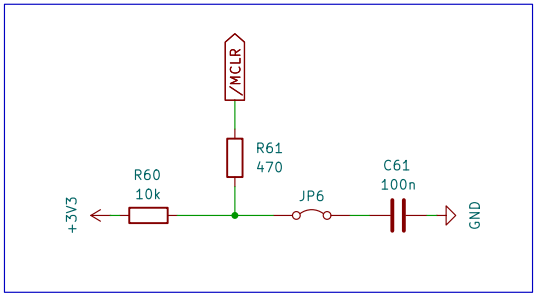
(7) LIN Driver



(6b) ICSP Programming Interface



(6c) MCLR Circuit



Sheet: /Controller/	
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Title: LYFT mk2	
Size: A4	Date: 08/2025
KiCad E.D.A. 9.0.3	**Rev: B20**
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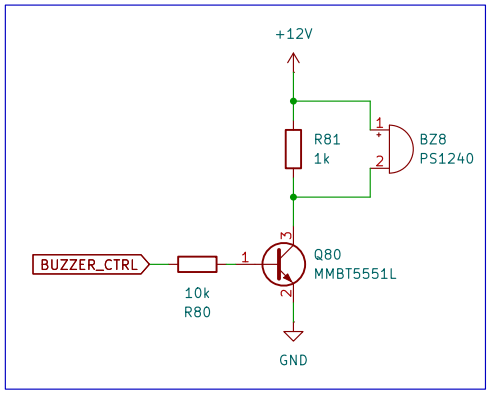
(8a) Audio Transducer



Sheet: /Peripherals/		
File: Lyft_peripherals.kicad_sch		
Title: LYFT mk2		
Size: A4	Date: 08/2025	**Rev: B20**
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