Device	I²C Addr
TSL2591	0x29
INA228	0x40
SHT45	0x44
BMP581	0x47
CO ADC	0x48
SGP41	0x59
SCD41	0x62
SEN66	0x6B

Power Measurement

Use Kelvin Connections

R10

I2C Addr = 0x40

VBUS

Environmental Sensors 1

SDA1
SCL1
SDA2
SCL2

Environmental Sensors 2

SDA1
SCL1

Fl.

Power Supplies

+5V   +3.3VD

+3.3VA

ESP32-S3

D−
D+

SDA1
SCL1
SDA2
SCL2

LD24X0_EN
LD24X0_OUT
LD24X0_RX
LD24X0_TX

SEN0609_EN
SEN0609_OUT
SEN0609_RX
SEN0609_TX

PIR_OUT

Presence Sensors

LD24X0_EN
LD24X0_OUT
LD24X0_RX
LD24X0_TX

SEN0609_EN
SEN0609_OUT
SEN0609_RX
SEN0609_TX

PIR_OUT

USB connector pins: VBUS A4, CC1 A5, CC2 B5, D− A7, D− B7, D+ A6, D+ B6, SBU1 A8, SBU2 B8, SHIELD S1, GND A1

INA228 pins: Vbus 8, VS 6, A1 1, A0 2, SDA 4, SCL 5, Vin+ 10, Vin− 9, Alert 3, GND 7
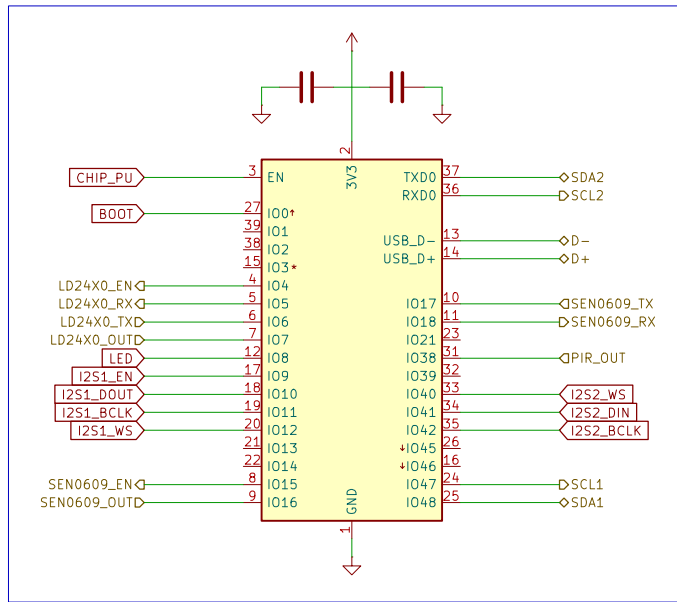
Mike Lawrence

Sheet: /
File: ESPHome-Indoor-Multi-Sensor.kicad_sch
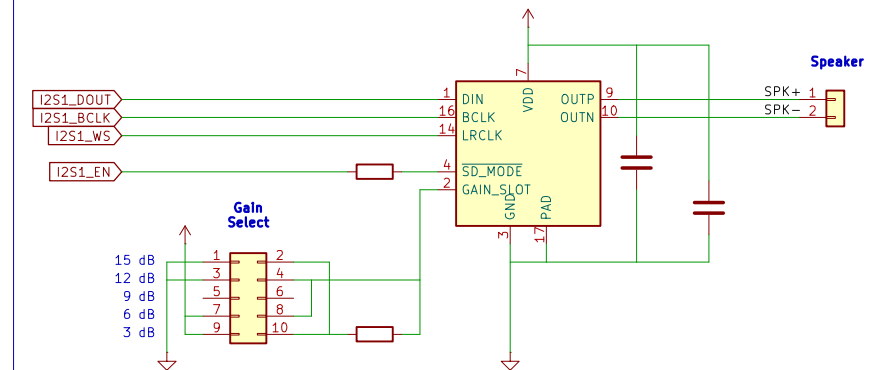Title: ESPHome Parking Assistant
Size: A4
Date: 2025-04-18
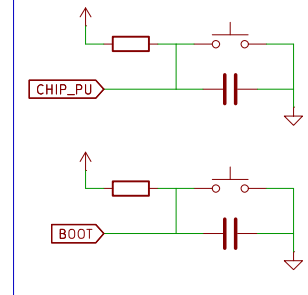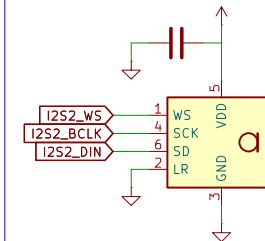Rev: A
KiCad E.D.A. 9.0.1
Id: 1/6

ESP32-S3

LED Status

I2C1 Pullup

SDA1
SCL1

Speaker DAC and Amplifier

I2S1_DOUT
I2S1_BCLK
I2S1_WS

I2S1_EN

Speaker
SPK+
SPK−

Gain Select

15 dB	
12 dB	
9 dB	
6 dB	
3 dB	

ESP Control

CHIP_PU

BOOT

Microphone

I2S2_WS
I2S2_BCLK
I2S2_DIN

WS   VDD
SCK
SD
LR   GND

Speaker Mounting Holes

ESP32-S3 pin connections

CHIP_PU — EN
BOOT — IO0
LD24X0_EN — IO4
LD24X0_RX — IO5
LD24X0_TXD — IO6
LD24X0_OUTD — IO7
LED — IO8
I2S1_EN — IO9
I2S1_DOUT — IO10
I2S1_BCLK — IO11
I2S1_WS — IO12
SEN0609_EN — IO15
SEN0609_OUTD — IO16

TXD0 — SDA2
RXD0 — SCL2
USB_D− — D−
USB_D+ — D+
IO17 — SEN0609_TX
IO18 — SEN0609_RX
IO38 — PIR_OUT
IO40 — I2S2_WS
IO41 — I2S2_DIN
IO42 — I2S2_BCLK
IO47 — SCL1
IO48 — SDA1

Notes
1. ESP32-S3 Strapping Pins: GPIO0, GPIO3, GPIO45, GPIO46.
1. MAX98357A DAC when enabled is configured for stereo data mode.

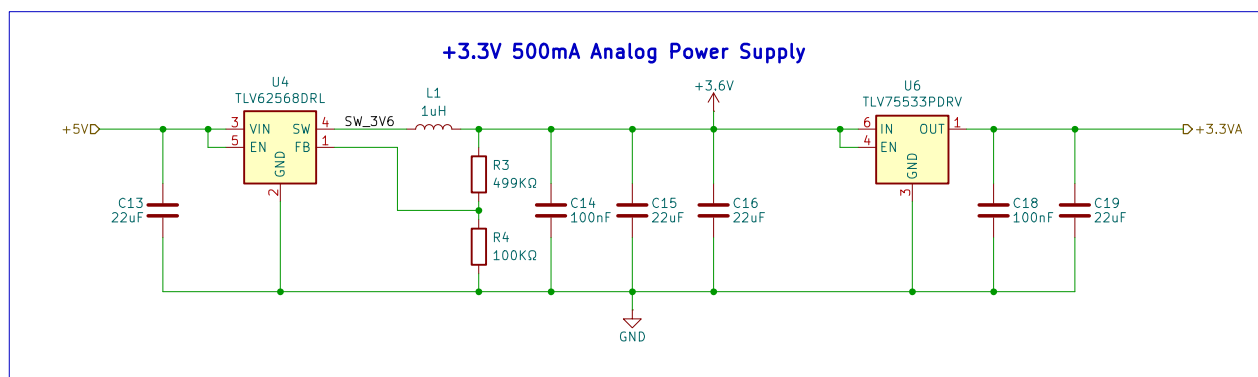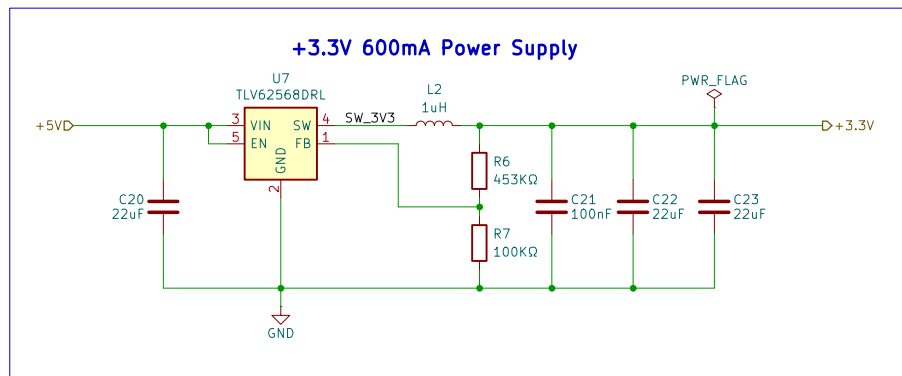## +3.3V 600mA Power Supply

U7
TLV62568DRL

VIN
EN
GND
SW
FB

+5VD

SW_3V3

L2
1uH

PWR_FLAG

+3.3V

C20
22uF

R6
453KΩ

R7
100KΩ

C21
100nF

C22
22uF

C23
22uF

GND

+3.3V 500mA Analog Power Supply

U4
TLV62568DRL

VIN
EN
GND
SW
FB

+5VD

SW_3V6

L1
1uH

+3.6V

U6
TLV75533PDRV

IN
EN
GND
OUT

+3.3VA

C13
22uF

R3
499KΩ
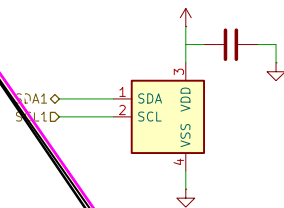
R4
100KΩ

C14
100nF

C15
22uF

C16
22uF

C18
100nF

C19
22uF

GND

Mike Lawrence

Sheet: /Power Supplies/
File: Power-Supplies.kicad_sch

Title: ESPHome Parking Assistant

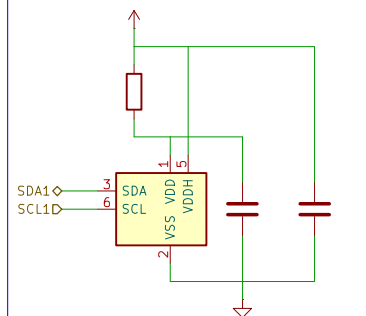| Size: A4	Date: 2025-04-18	Rev: A
KiCad E.D.A. 9.0.1		Id: 3/6

All-In-One Sensor

Air Quality Sensor

SDA1
SCL1

3	SDA	VDD	1
6	SCL	VDDH	5
	VSS		2

I2C Addr = 0x59

Environmental Sensor

SDA2
SCL2

| 1 |
| 2 |
| 3 |
| 4 |
| 5 |
| 6 |

MP
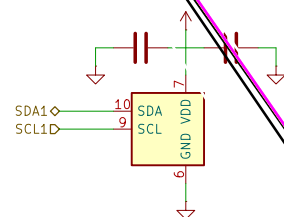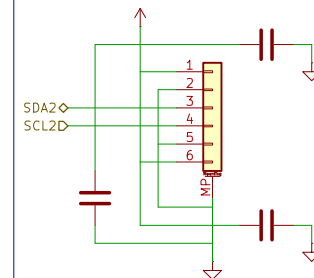
I_{MAX} = 350mA   I2C Addr = 0x6B

I²C2 Pullup

SDA2
SCL2

SDA1
SCL1

1	SDA	VDD	3
2	SCL		
	VSS		4

CO2 Sensor
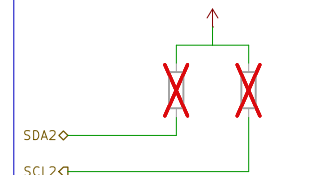
SDA1
SCL1

10	SDA	VDD	7
9	SCL		
	GND		6

I_{MAX} = 205mA   I2C Addr = 0x62

Notes
1. Recommend one of two configurations.
   A. SEN66.
   B. SHT45, SCD41 and SGP41 for Bath or Kitchen.
2. Temperature & Humidity Sensor can be SHT40 , SHT41, or SHT45 for increasing accuracy.

Power Switch A

JP1

U2

1	VIN	VOUT	6	SENS0609_VCC
4	CT	QOD	5	
3	ON	GND		

2 GND

TPS22917DBV

+5V

C4 1uF

C9 1nF

GND

GND

C3 22uF

C6 1uF

GND

J3

| 1 |
| 2 |
| 3 |
| 4 |
| 5 |

SEN0609

I_{AVG} = 65mA
I_{MAX} = 75mA

GND

SEN0609_OUT
SEN0609_TX
SEN0609_RX
SEN0609_EN

R1 100KΩ

GND

Power Switch B

JP2

U1

1	VIN	VOUT	6	LD24X0_VCC
4	CT	QOD	5	
3	ON	GND		

2 GND

TPS22917DBV

+5V

C5 1uF

C7 1nF

GND

GND

C2 22uF

C1 1uF

GND

J4

| 1 |
| 2 |
| 3 |
| 4 |
| 5 |

LD2410

I_{AVG} = 80mA
I_{MAX} = 200mA

GND

J6

1		2
3		4
5		6
7		8

LD2450

I_{AVG} = 120mA
I_{MAX} = >200mA

GND

LD24X0_RX
LD24X0_TX
LD24X0_OUT
LD24X0_EN

R2 100KΩ

GND

C36 100nF

+3.3VA

PIR_OUT

U17

| 2 | VOUT | GND VCC | 1 |
| | | | 3 |

PIR

EKMC1603111

GND

GND
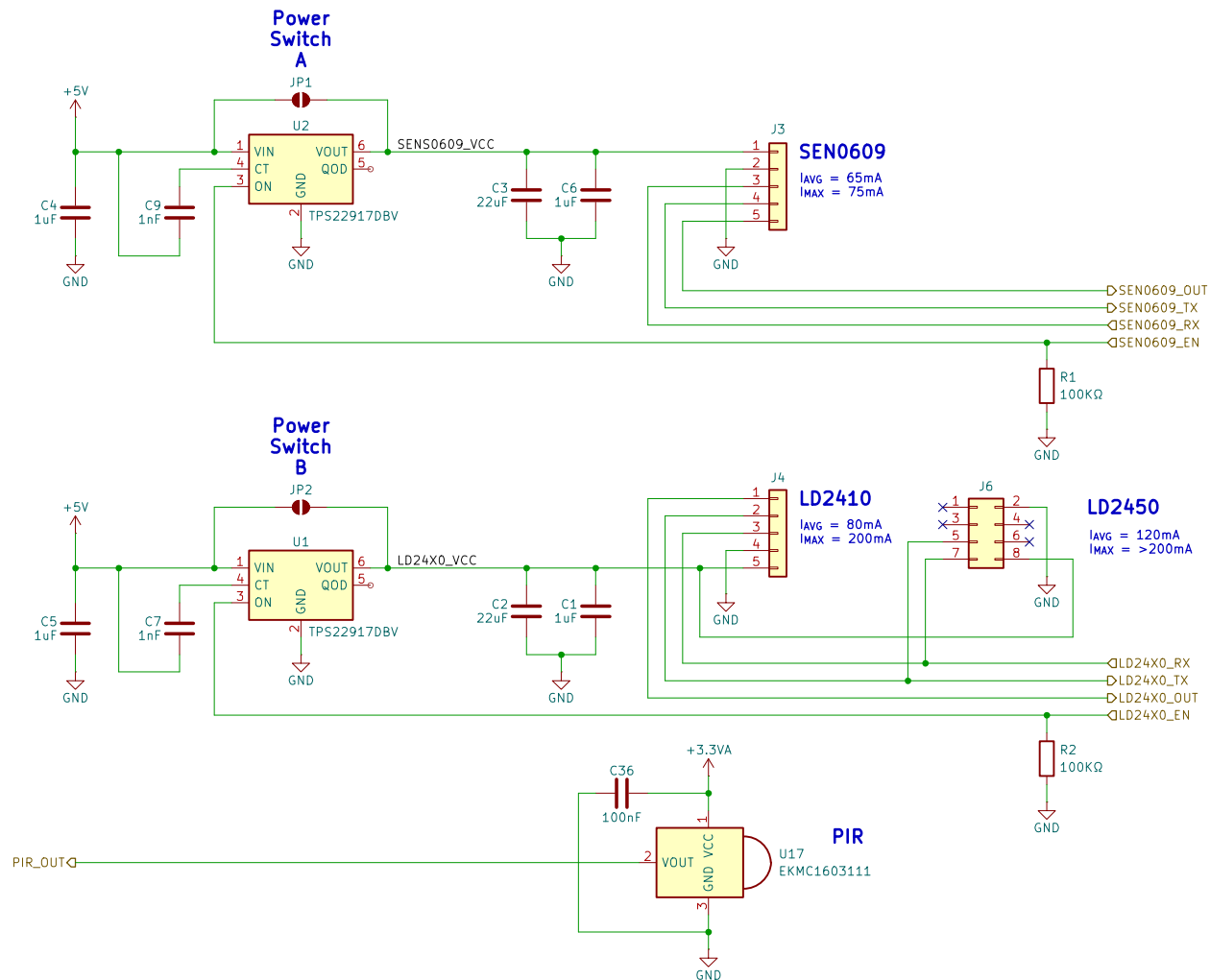
Notes
1. Choose either the Power Switch A or B circuits.
2. The Power switch will allow you to turn off the
   power hungry Radar, but it is not necessary.
   You can remove the power switch and short the jumper.
3. You can populate everything and chose which Radar to
   use with software.
4. The LD2410/LD2450 occupy the same physical space
   so you must choose one.