I²C GPIO Expander

3.3V

R4 10k

3.3V

3.3V

R9 10k   R8 10k   R10 10k   R11 10k   R12 10k

C1 0.1uF 25V 20%

GND

SCL — 14 SCL
SDA — 15 SDA
INT — 13 INT
VDD — 16

IO0 — 4 — SW_Up
IO1 — 5 — SW_Down
IO2 — 6 — SW_Right
IO3 — 7 — SW_Left
IO4 — 9 — SW_Center
IO5 — 10 — IO5/Blue
IO6 — 11 — IO6/Green
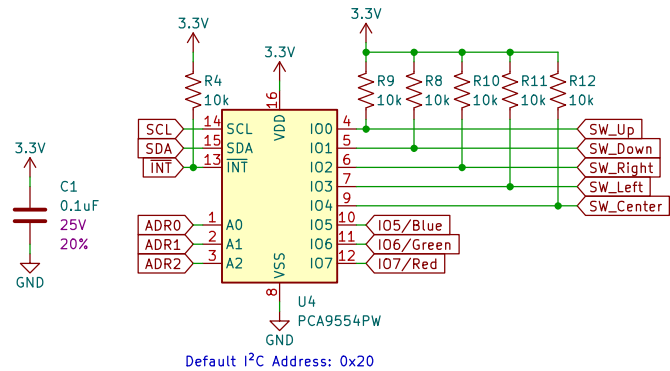IO7 — 12 — IO7/Red

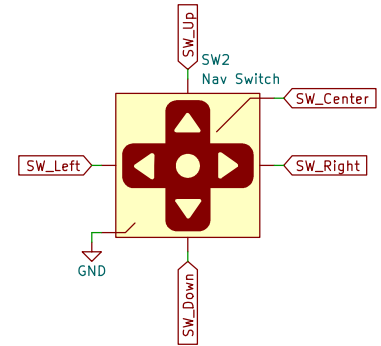ADR0 — 1 A0
ADR1 — 2 A1
ADR2 — 3 A2

VSS — 8
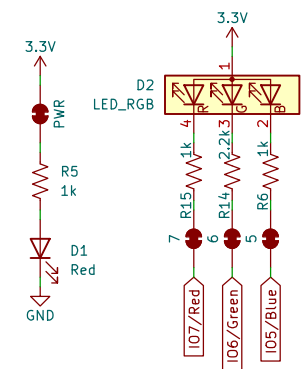
U4 PCA9554PW

GND

Default I²C Address: 0x20

The PCA9554 is identical to the PCA9534 except for the addition of the internal
I/O pull-up resistors, which prevents the ports from floating when configured as inputs.
Pull-ups are still used in this design so that the '34 can be used if needed.

The PCA9554 is is similar to the PCA9557 except the '54 has an INT pin
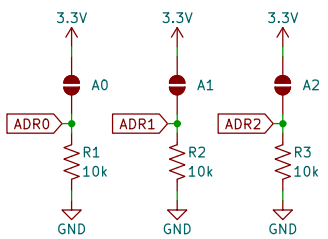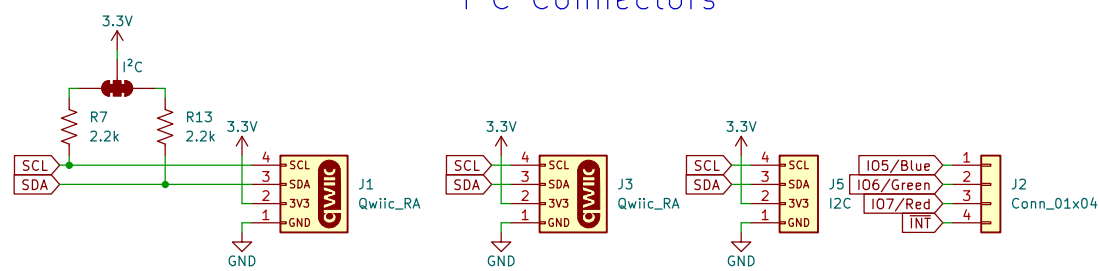whereas the '57 has a RST pin. Pinouts are also different.

D-Pad

SW_Up

SW2 Nav Switch

SW_Left   SW_Center

SW_Right

GND

SW_Down

LEDs

3.3V

3.3V

PWR

D2 LED_RGB

R5 1k

R15 1k   R14 2.2k   R6 1k

D1 Red

GND

IO7/Red   IO6/Green   IO5/Blue

3.3V   3.3V   3.3V

A0   A1   A2

ADR0   ADR1   ADR2

R1 10k   R2 10k   R3 10k

GND   GND   GND

Address	ADR2	ADR1	ADR0
0x20	0	0	0
0x21	0	0	1
0x22	0	1	0
0x23	0	1	1
0x24	1	0	0
0x25	1	0	1
0x26	1	1	0
0x27	1	1	1

I²C Connectors

3.3V

I²C

R7 2.2k   R13 2.2k   3.3V

SCL — 4 SCL
SDA — 3 SDA
2 3V3
1 GND

J1 Qwiic_RA

GND

3.3V

SCL — 4 SCL
SDA — 3 SDA
2 3V3
1 GND

J3 Qwiic_RA

GND

3.3V

SCL — 4 SCL
SDA — 3 SDA
2 3V3
1 GND

J5 I2C

GND

IO5/Blue — 1
IO6/Green — 2
IO7/Red — 3
INT — 4

J2 Conn_01x04

Designed by: N. Seidle

open source hardware

sparkfun

Sheet: /
File: SparkFun_Qwiic_Navigation.kicad_sch
Title: SparkFun Qwiic Navigation
Size: USLetter   Date: 2024-11-09   Rev: v11
KiCad E.D.A. 8.0.4   Id: 1/1