SAO DEMO CONTROLLER V2

FROM BADGE

SAO CLIENT PLUG
https://www.digikey.com/en/products/detail/adam-tech/BHR-06-VUA/10414837

GPIO1 is also data from the badge to the SAO (Badge TX, SAO RX).
GPIO2 is also data from the SAO to the badge (Badge RX, SAO TX).

MICROCONTROLLER

RP2040-Zero
https://www.waveshare.com/wiki/RP2040-Zero
Onboard buttons not user accessible
GPIO16 is NeoPixel onboard

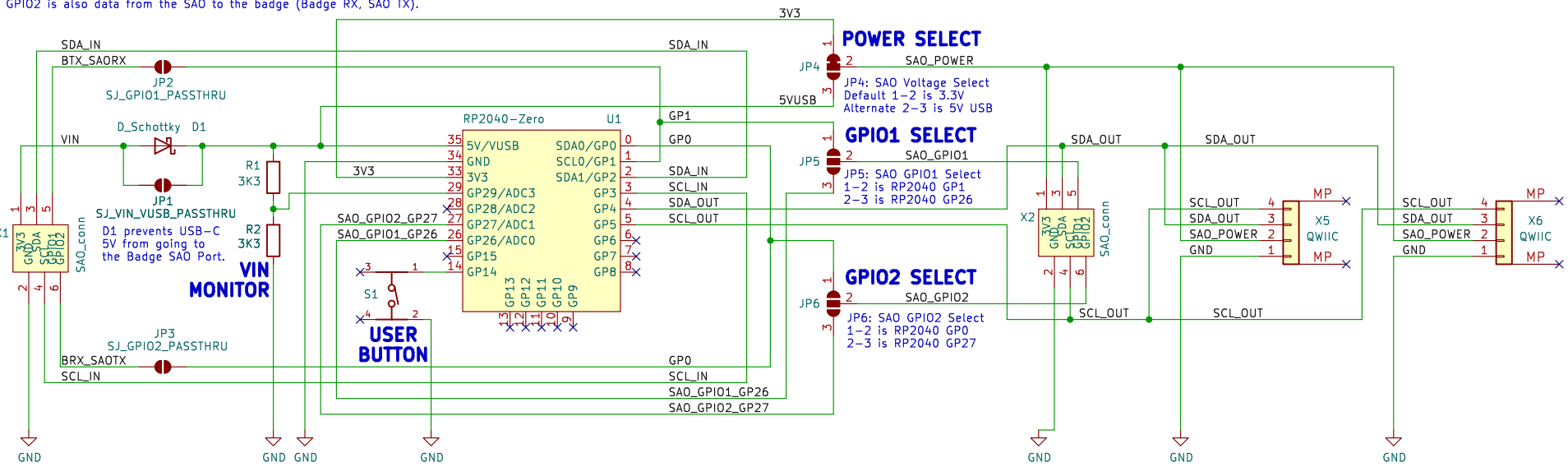
TO SAO

SAO BADGE/HOST SOCKET
Sullins SFH11-NBPC-D03-ST-BK female header
https://www.digikey.com/product-detail/en/sullins-connector-solutions/SFH11-NBPC-D03-ST-BK/S9717-ND/4558818

QWIIC PORTS

QWIIC SOCKET

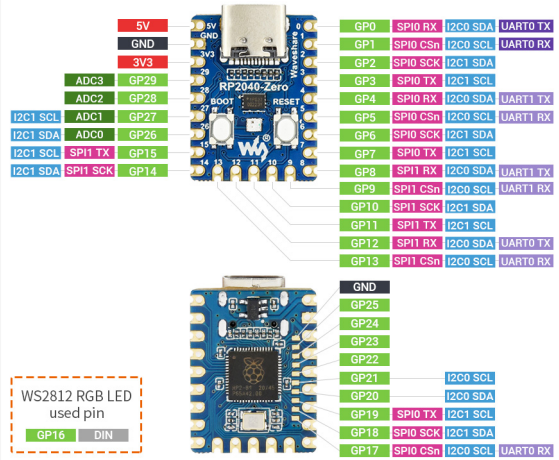
Manufacturer: JST SM04B-SRSS-TB
Digikey: 455-SM04B-SRSS-TBTR-ND
LCSC: C160404



DEMO CONTROLLER FUNCTIONS
INPUT 3-5V from Badge or USB-C
GROUND
3V3 regulated output to SAO
VIN/2 input voltage measurement

SAO GPIO2
SAO GPIO1

User Button



DEMO CONTROLLER FUNCTIONS
SAO GPIO2 pass-through or Badge RX / SAO TX
SAO GPIO1 pass-through or Badge TX / SAO RX
SDA IN from Badge
SCL IN from Badge
SDA OUT to SAO
SCL OUT to SAO

COMMON I2C ADDRESSES

OLED (SSD1306) 128x32	0x3C
OLED (SSD1306) 128x64	0x3D
OLED (SSD1327) 128x128	0x3C

SAO STANDARDS

PRIMARY: https://docs.google.com/document/d/1EJqvkkLMAPsQ9VWF5A4elWoiOqMlKyr5Giw5rqRmtnM/edit?usp=sharing
SUPPLEMENT: https://hackaday.io/project/175182-simple-add-ons-sao

All non-polarized capacitors are X7R or X5R ceramic unless otherwise noted.

Design by Andy Geppert @ www.MachineIdeas.com

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Title: SAO Demo Controller

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