

ref1: <https://hackaday.io/project/175182-simple-add-ons-sao> - SAO Connector

LEVEL 3 - JED's WET DREAM GO WILD BADGE - Two options here.

- Dice Roller Badge - Full D&D Dice Roller. Either individual dice with LEDs for Pips, or a 7-segment display, or a TFT. Touch sensor or button to trigger the rolls. USB-C powered.
- Social Network Badge - Keeps track of what other synshop badges you get within IR range of, and when you come back to the SYNSHOP table, updates the central receiver which displays a graph map of the encounters. USB-C powered.

Both types are on the same board. A 3d printed cover would improve the looks.

A Jumper PD4:PD5 is used to select which type of badge. Test on Reset. Short: Dice Roller Open: Social IR

ISSUE: Modern power banks shut down in 30 seconds if power draw is less than 100ma.

Added three places for 51 ohm 1/2w shunts across USB-C power and ground pins. Only one needed in test.

Features

1. Dice Roll: Two 7-segment LEDs for display.

D4	Left Digit: Blank	Right Digit: 1,2,3,4
D6	Left Digit: Blank	Right Digit: 1,2,3,4,5,6
D8	Left Digit: Blank	Right Digit: 1,2,3,4,5,6,7,8
D10	Left Digit: 1 or Blank	Right Digit: 1,2,3,4,5,6,7,8,9,0
D12	Left Digit: 1 or Blank	Right Digit: 1,2,3,4,5,6,7,8,9,0. If LD=1, then 1,2
D20	Left Digit: 1 or Blank	Right Digit: 1,2,3,4,5,6,7,8,9,0. If LD=1, then 1,2,...,9
D100	Left Digit: 0,1,...,9	Right Digit: 1,2,3,4,5,6,7,8,9,0.

2. Touch Button: Capacitive. Touch once to roll dice. Touch and hold to change modes.

3. USB-C powered with 3.3v linear regulator.

4. All components are through-hole except USB-C connector.

5. IRID Communications: Using 38kHz IR signal to detect and communicate between badges.

6. Beeper

Mode Control

1. Press and hold button (300ms): Display will cycle 4,6,8,10,12,20,99. Release on the number to use for dice roll.

2. Dice Roll: On Touch (roll), displays randomly scroll though available digits quickly and then slows down to a stable display. One second fast, then two seconds to slow down.

Social Network Badge

ISSUE: Pre-programmed micro or have a programming station?

Host will give the badge a unique ID number (stored in EEPROM).

User could also create a User Name (four characters max) for Host to display with ID.

Final: Send KEY, not ID for contact. Host will have to look up ID in dictionary.

Appendix I – Ordering Information

With Touch Sense - UPDI

150-AVR32DA28-I/SP-ND	AVR32DA28-I/SP	8BIT 32KB FLASH 28SPDIP	2.58/ea	2.15/100
150-AVR128DA28-I/SP-ND	AVR128DA28-I/SP	8BIT 128KB FLASH 28SPDIP	3.22/ea	2.68/100

SAO Connector

732-5394-ND	CONN HEADER VERT 6POS 2.54MM	0.43/ea	0.405/50
-------------	------------------------------	---------	----------

USB-C Connector

USB4125-GF-A-0190	USB4125-GF-A-0190	CONN RCPT TYPE C 6P SMD RA	0.59/ea	0.429/100
-------------------	-------------------	----------------------------	---------	-----------

Regulator - LDO

MCP1700-3302E/TO-ND	MCP1700-3302E/TO	LINEAR 3.3V 250MA TO92-3	0.50/ea	0.37/100
---------------------	------------------	--------------------------	---------	----------

LEDs

7-Segment

160-1576-5-ND	LSHD-5503	7SEG 0.56" SGL RED 10DIP	1.42/ea	0.642/500
---------------	-----------	--------------------------	---------	-----------

Capacitors

BC1084CT-ND	K104K15X7RF5TL2	CAP CER 0.1UF 50V X7R RADIAL	0.26/ea	0.095/100
1189-2322-ND		CAP ALUM 10UF 20% 50V RADIAL TH		0.1141/100

Resistors

CF14JT15R0CT-ND		RES 15 OHM 5% 1/4W AXIAL		0.0169/100
CF14JT150RCT-ND		RES 150 OHM 5% 1/4W AXIAL	0.10/ea	0.0142/100
CF14JT2K00CT-ND		RES 2K OHM 5% 1/4W AXIAL		0.0142/100
CF14JT10K0CT-ND	CF14JT10K0	RES 10K OHM 5% 1/4W AXIAL	0.10/ea	0.0126/100

Transistors

4878-2N3904CT-ND	2N3904	TRANS NPN 40V 0.2A TO-92	0.14/ea	0.0512/100
------------------	--------	--------------------------	---------	------------

IR LED

475-SFH4545-ND	SFH 4545	EMITTER IR 950NM 100MA RADIAL	0.76/ea	0.3861/100
----------------	----------	-------------------------------	---------	------------

IR Receiver

751-1227-ND	TSOP38238	SENSOR REMOTE REC 38.0KHZ 45M	0.80/ea	0.5691/100
-------------	-----------	-------------------------------	---------	------------

Beeper

445-2525-1-ND	PS1240P02BT	BUZZER PIEZO 3V 12.2MM TH	0.57/ea	0.3527/100
---------------	-------------	---------------------------	---------	------------

Jumper

732-2678-ND		JUMPER W/TEST PNT 1X2PINS 2.54MM		0.242/100
-------------	--	----------------------------------	--	-----------

Appendix II - Support

Programming

Use SNAP pod - \$11 Supports all micros used.

Appendix III - Revisions

DC2026_Type3a: mTouch D&D Dice Display with USB-C Power

Copy DC2026_Type2c.kicad_pro project to DC2026_Type3a.

DC2026_Type3b: Social Contacts through IRID with USB-C Power

Copy DC2026_Type2c.kicad_pro project to DC2026_Type3b.

DC2026_Type3: All designs consolidated into one.