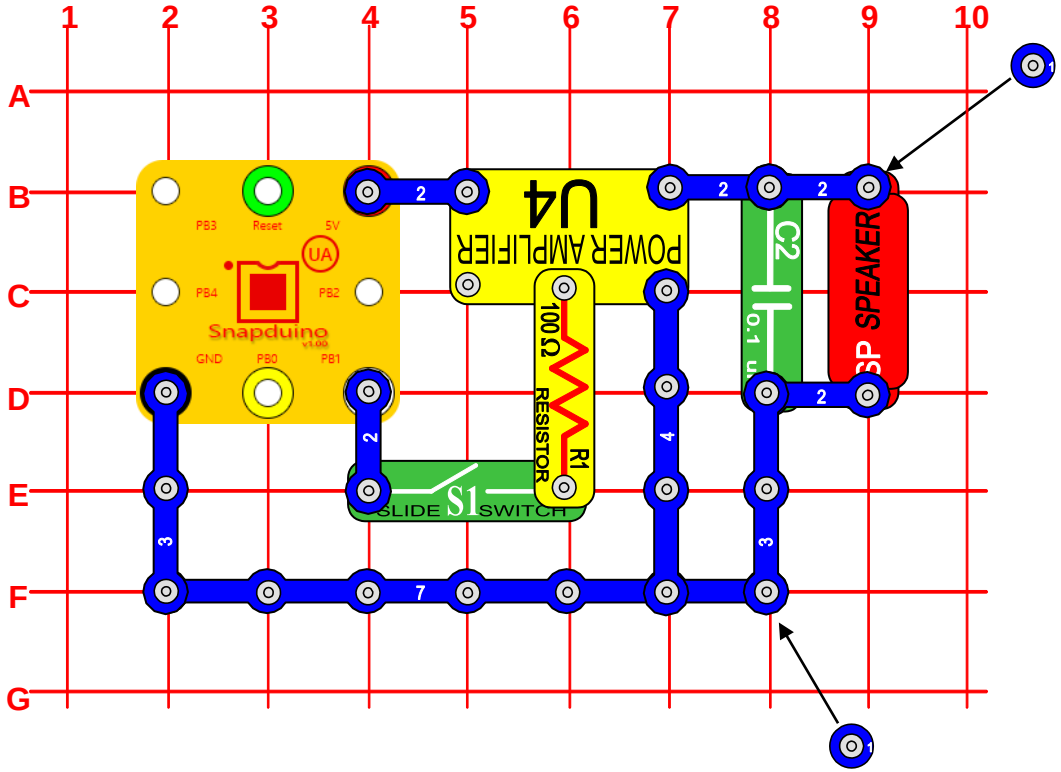
Snapduino Tone by Daniel Porrey
Snap Circuits IoT
https://www.hackster.io/snapcircuits



OBJECTIVE: This experiment will use the Snapduino to generate music through the speaker. The songs are programmed by specifying the note and pitch in the sketch. Additional songs can be added.

Parts List

Quantity	ID	Name	Part #
1		Base Grid Base Grid (11" x 7.7")	6SCBG
2	1	1-snap wire	6SC02
5	2	2-snap wire	6SC03
2	3	3-snap wire	
1	4	4-snap wire	
1	7	7-snap wire	
1	UA	Snapduino	
1		Snap-FTDI Cable	
1	S1	Slide Switch	6SCWS1
1	R1	100 Ω Resistor	6SCR1
1	C2	0.1µF Capacitor	6SCC2
1	U4	Power Amplifier Integrated Circuit	6SCU4
1	SP	Speaker	6SCSP

Step by Step Guide

1) Place the upper-left corner of the Snapduino at **B2**.
2) Snap component **S1** between position **E4** and **E6**.
3) Snap component **C2** between position **B8** and **D8**.
4) Snap component **SP** between position **B9** and **D9**.
5) Place the upper-left corner of the component U4 at B5 making sure the component is oriented upside-down.
6) Snap a 2-snap wire over the components between **B4** and **B5**.
7) Snap a 2-snap wire over the components between **D4** and **E4**.
8) Snap a 2-snap wire over the components between **B7** and **B8**.
9) Snap a 2-snap wire over the components between **D8** and **D9**.
10) Snap a 7-snap wire over the components between **F2** and **F8**.
11) Snap a 1-snap wire on the component at **B9**.
12) Snap a 1-snap wire on the component at **F8**.
13) Snap a 2-snap wire over the components between **B8** and **B9**.
14) Snap a 3-snap wire over the components between **D2** and **F2**.
15) Snap a 3-snap wire over the components between **D8** and **F8**.
16) Snap a 4-snap wire over the components between **C7** and **F7**.
17) Connect the **black** lead of the FTDI cable to the **GND** snap marked with a black ring on the Snapduino (*snap it over the top of any components that may already be connected to this snap*).
18) Connect the **green** lead of the FTDI cable to the **Reset** snap marked with a green ring on the Snapduino (*snap it over the top of any components that may already be connected to this snap*).
19) Connect the **yellow** lead of the FTDI cable to the **PB0** snap marked with a yellow ring on the Snapduino (*snap it over the top of any components that may already be connected to this snap*).
20) Connect the **white** lead of the FTDI cable to the **PB1** snap marked with a white ring on the Snapduino (*snap it over the top of any components that may already be connected to this snap*).
21) Connect the **red** lead of the FTDI cable to the **5V** snap marked with a red ring on the Snapduino (*snap it over the top of any components that may already be connected to this snap*).
22) Place the switch **S1** in the OFF position. Since the output to the amplifier is using one of the pins on the Snapduino that is also used to upload the sketch, the speaker will make a lot of noise while you upload the sketch.
23) Open the sketch for this project in the Arduino IDE and upload it to the board.
24) When the upload has completed, place the switch **S1** in the ON position. Music will begin to play through the speaker.
25) There are additional songs defined that are not playing. This is due to the memory limit on the Snapduino. Uncomment a song and put a comment in front of the another (look for the `#include` statements). Don't forget to update the `_songs` array with the

names of the songs to play.

26) *Advanced*: Try to add a new song or change one of the existing songs. You can find simple music on the Internet. In the Arduino IDE, you can add a new tab by clicking the down arrow icon all the way to the right of the tabs. Place your new song in this new file and then add an `#include` statement for your new file.