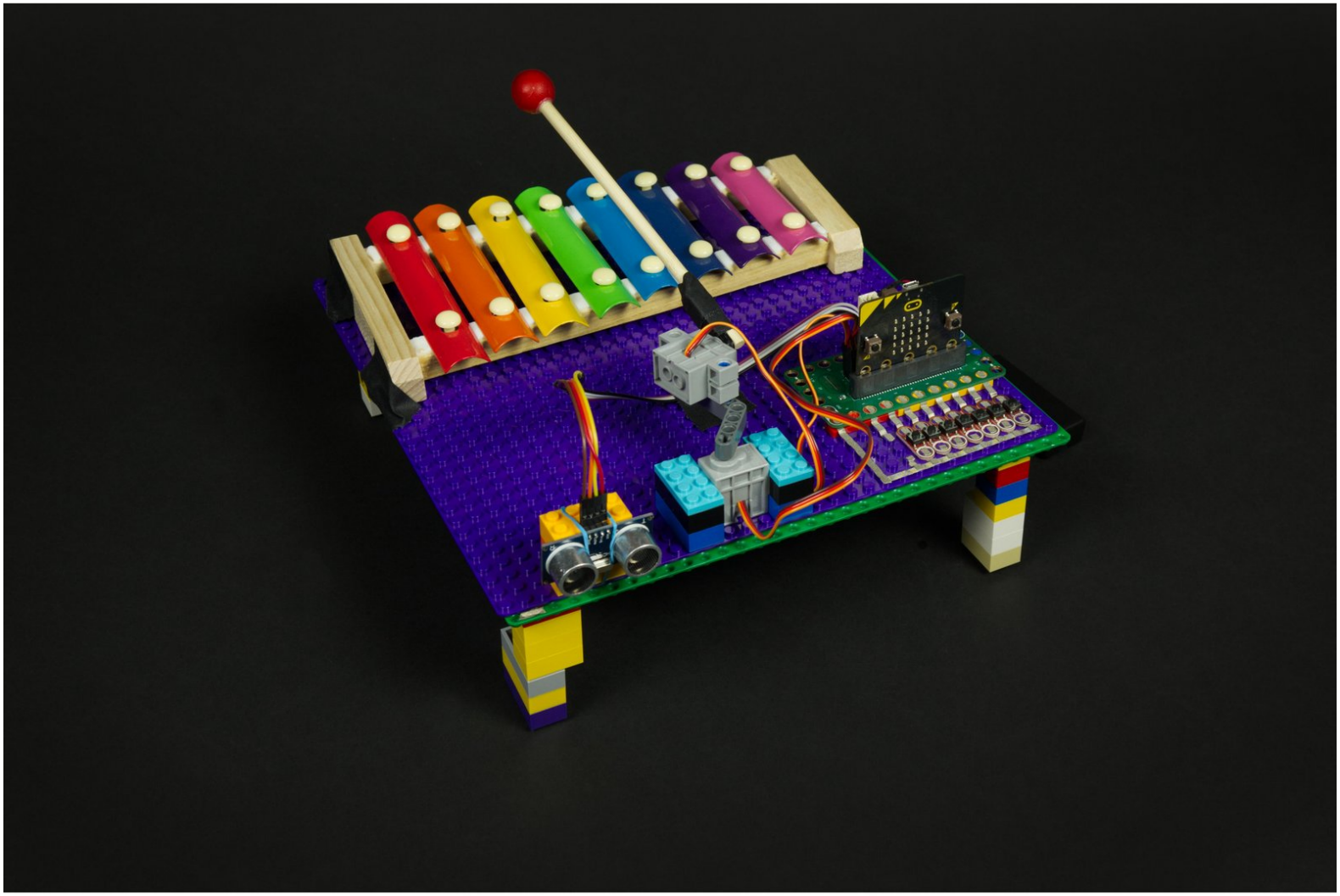
Distance Xylophone

Written By: Pete Prodoehl



INTRODUCTION

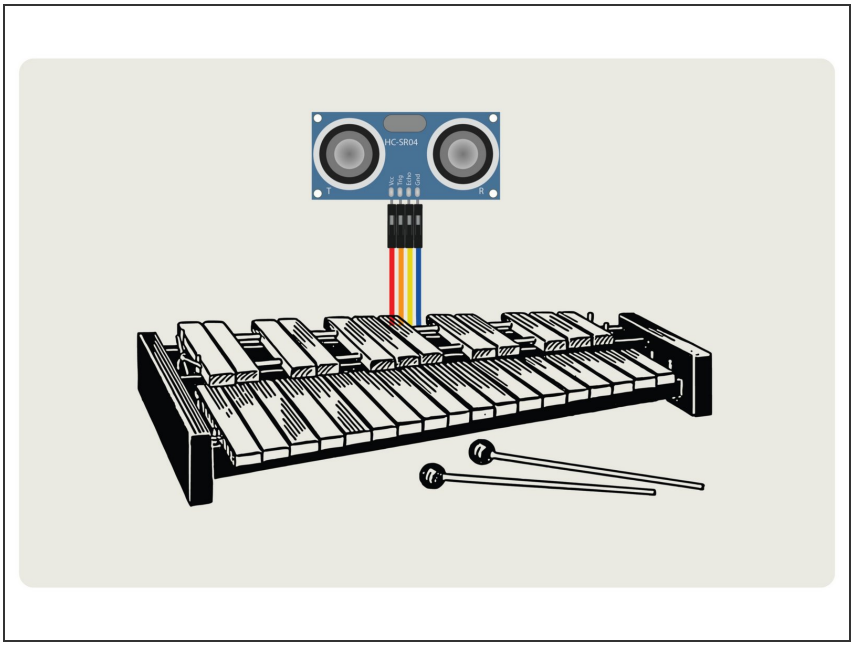
Add a distance sensor to your micro:bit powered Xylophone and play songs by waving your hands or running around.

TOOLS:

- Computer (1)

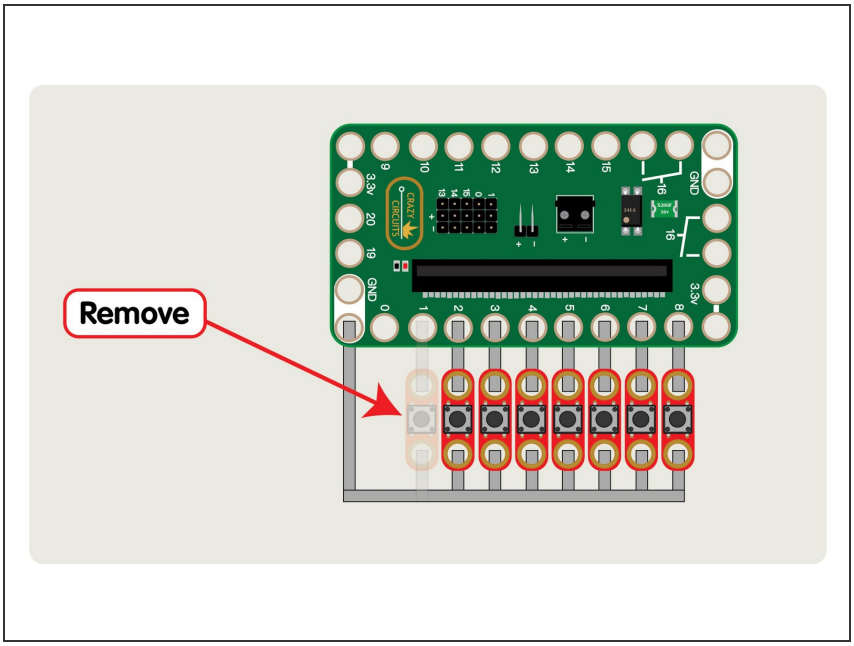
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Step 1 — Build a Xylophone



- If you haven't built a micro:bit powered Xylophone yet, start with our Xylophone guide.
- If you want to check out another distance sensor project, or see more information on the sensor, see our Distance Display guide.
- Once you have a working (micro:bit powered) Xylophone you can add your distance sensor.

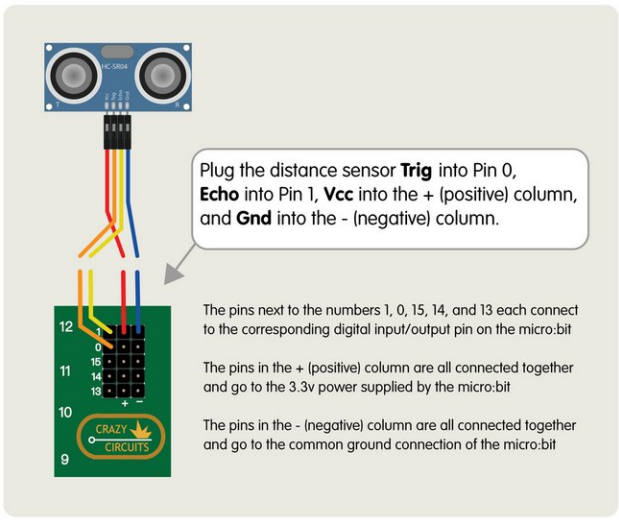
Step 2 — Remove Button 1

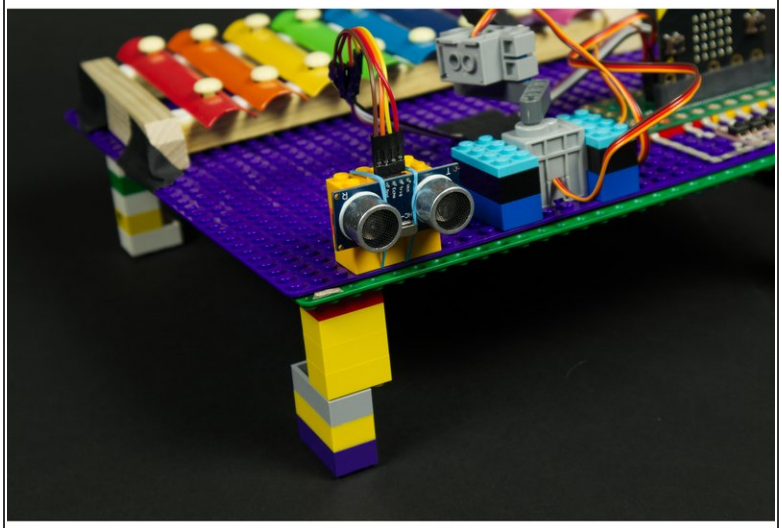


- If you've build the micro:bit powered Xylophone from our previous guide you'll have a row of 8 push buttons that were used to trigger the mallet to play notes.
- We're going to remove the first button, that is connected to Pin 1 because we'll be using Pin 1 to connect our Ultrasonic Distance Sensor.
- You can remove all the buttons if you want to do a full conversion (or just skip adding them when you build your Xylophone.)

ⓘ If you already have buttons it's easy to keep them in place if you want to switch back to button control later.

Step 3 — Add the Distance Sensor

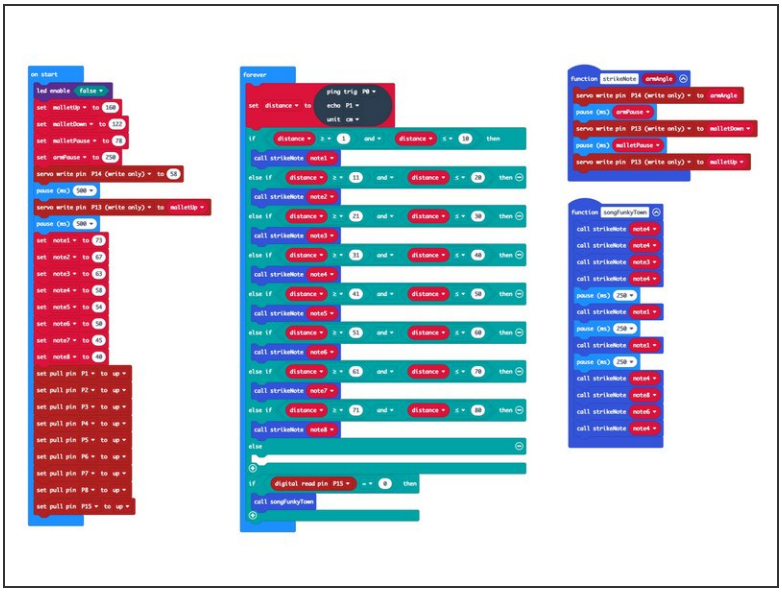


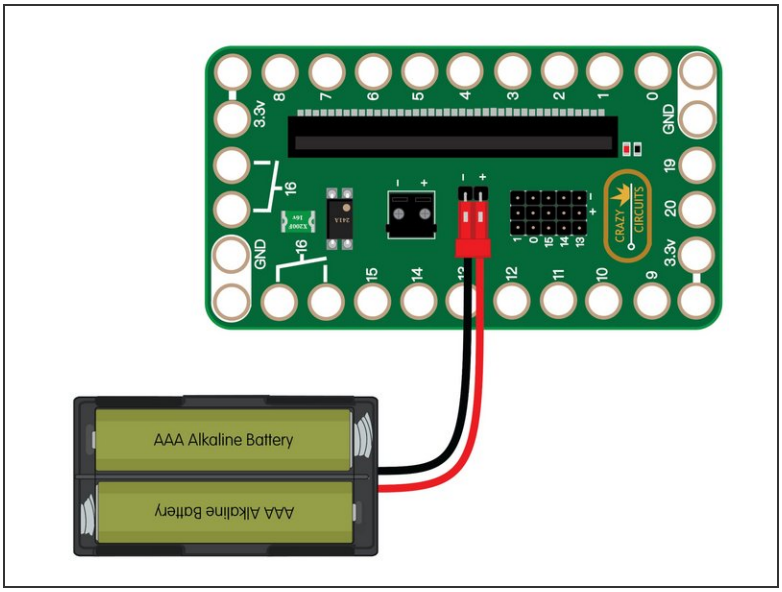


- Use the 4 jumper wires to connect the Ultrasonic Distance Sensor to the header pins on the Bit Board.

ⓘ We found that a few rubber bands and LEGO bricks work well to hold our sensor in place pointing in the right direction. (Tape can also work.)

Step 4 — Load the Code

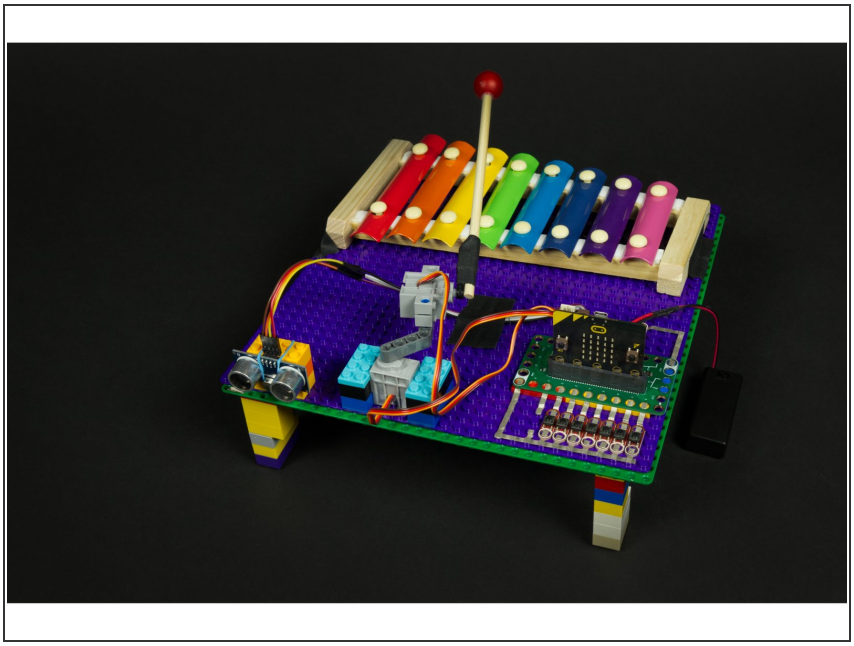




- Connect a USB cable to the micro:bit and then plug it into your computer.
- We'll be using makecode.microbit.org to program our board. It uses a simple drag and drop block interface.
- We're going to load the following code for our **Distance Xylophone** program: https://makecode.microbit.org/_aAC0vX4Rp...

⚠ Remember that when the USB cable is plugged in it will power the micro:bit but not the servos for the Xylophone, so you'll need to add a battery pack before it works.

Step 5 — Test it Out!



- Once you've got your battery pack connected to the Bit Board you can test it out!
- Try standing at least half a meter in front of the distance sensor and then walking slowly towards it (or just run fast if that's your style!)
- Try standing out of the line of sight of the distance sensor and lowering your hand at different distances... can you play a song?