

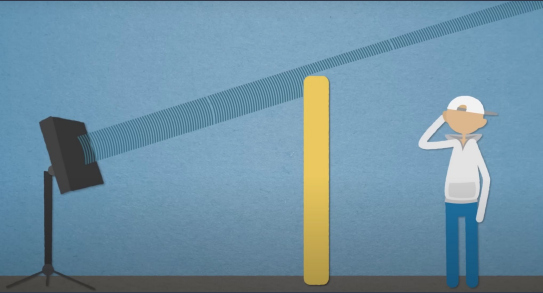
Making an ultrasonic speaker

By: Nicholas P

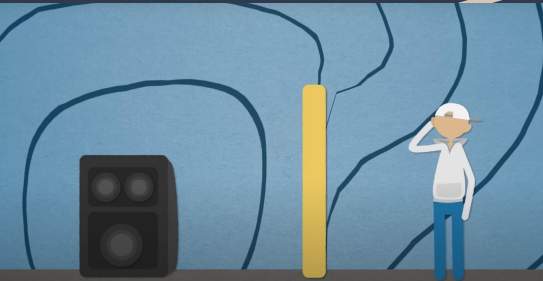
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Why ultrasonic?

Ultrasonic Speaker

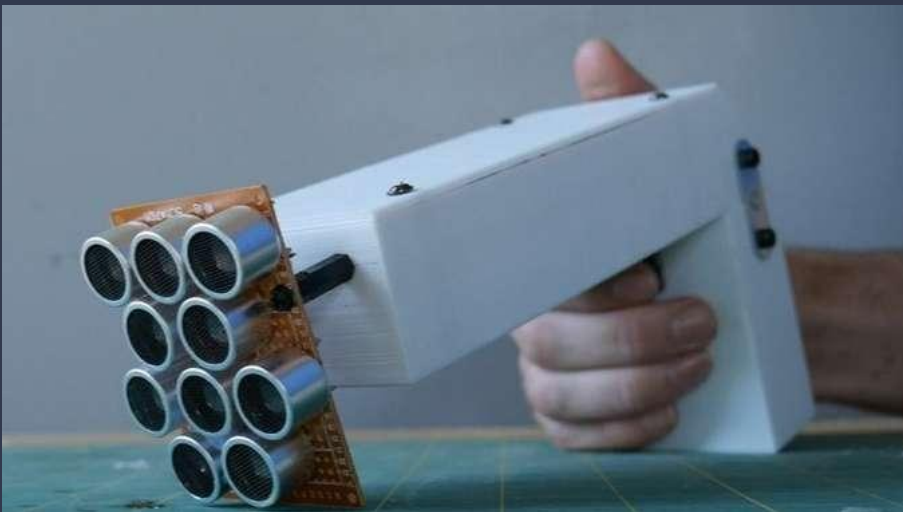


Normal Speaker

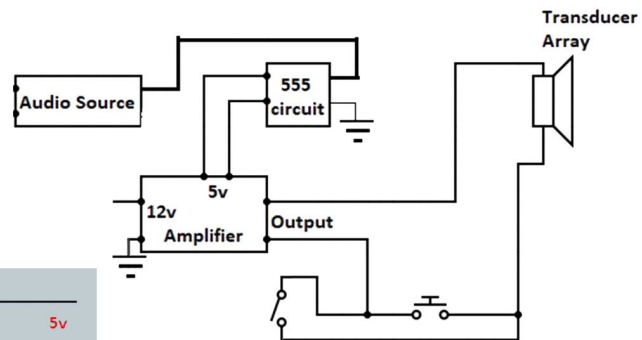
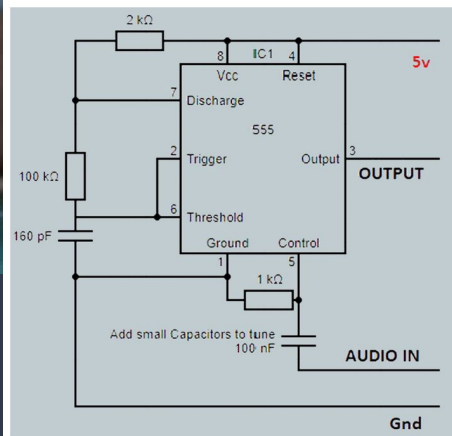


Normal speakers have a long wavelength so the waves travel around objects like fences and you can hear it on the other side. Ultrasonic speakers have a very short wavelength so they don't travel around objects like a fence and you can't hear it on the other side. This means that an ultrasonic speaker creates a very directional beam of sound.

Planning phase

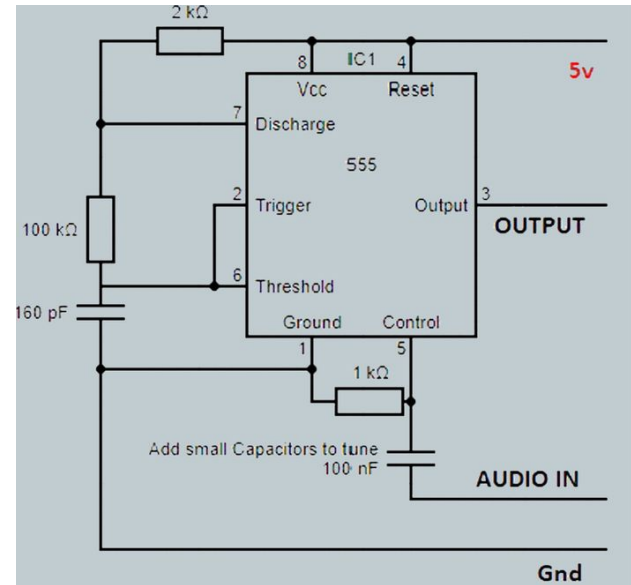


I had a couple of videos and websites I was going off but they were all very similar and they all used the same circuit.



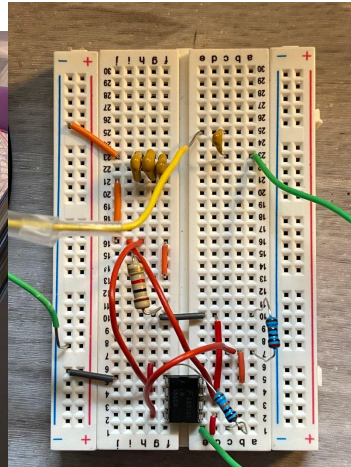
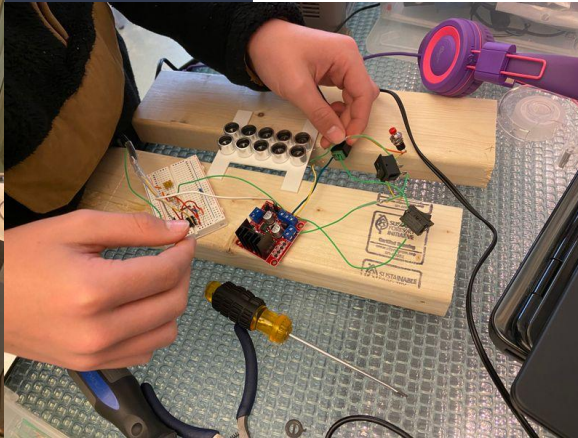
Circuit building

I built the 555 timer circuit and connected it to all of the other components. However it was not working so I rebuilt the circuit and it worked. The tricky part about this circuit is that the capacitors you use to tune have to be the perfect capacitance or it won't work. I didn't quite get it to the perfect capacitance but it was mostly working.



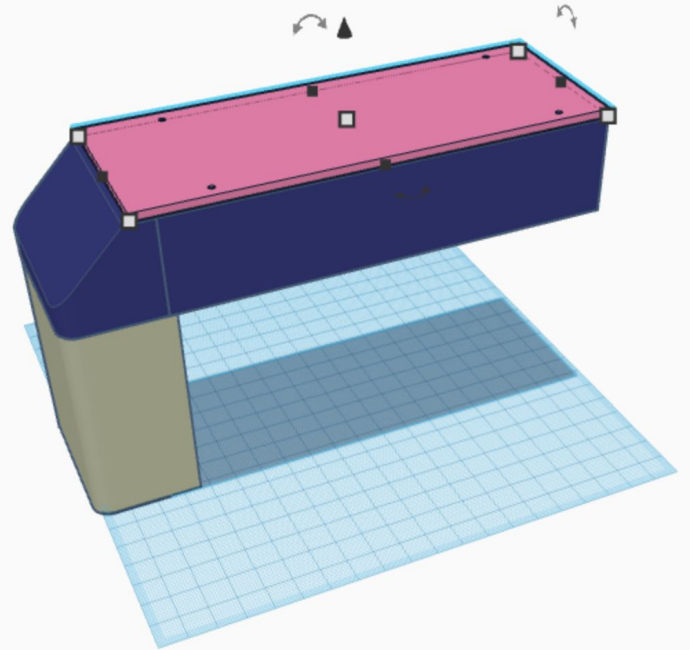
Tuning and Testing

The next step is tuning and testing and at first i was trying to use the oscilloscope to tune the circuit to the right frequency however the number changed depending on what scale you looked at it and it might not have even been measuring the right thing. The amplifier we were using was a actually a drive control motor. The reason we used a drive control motor is because most amplifiers only go up to 22kh because anything above is outside our hearing range. The drive control amp worked for other people but it didn't work for me.



Next steps

Eventually my plan was to make something to encase the circuit but I didn't get to that point because tuning the circuit proved to be a really big challenge.



Thanks for
stopping by

This bird has been in every single one of my IMP presentations so here it is again:

