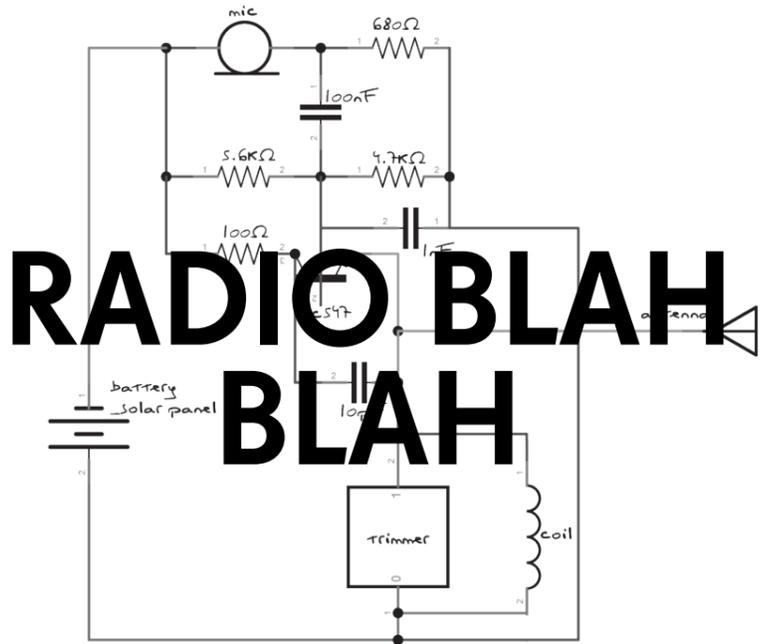


MAKERS MANUAL #38

Maël Hénaff



RADIO BLAH BLAH

INTRODUCTION

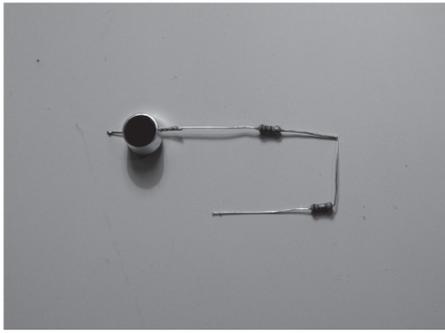
Radio Blah Blah is a DIY FM transmitter to broadcast your climate anxieties (or anything else!). “Green economy. Blah blah blah” stated Greta Thunberg during the Youth4Climate summit in Milan, September 2021. “This is all we hear from our so-called leaders. Words that sound great but so far have not led to action. Our hopes and ambitions drown in their empty promises.”

Radio Blah Blah is a DIY FM transmitter made in response to the COP26. Using it will allow you to hack into local radios and broadcast your climate anxieties, fears, and hopes for the future of our communities. This manual aims to engage, and repurpose technologies for social good!

Before we get to make the FM transmitter, you can salvage e-waste in your area. Skips are a precious source of materials, where you can find fully functional resistors, capacitors, wires, etc.

STEP 1

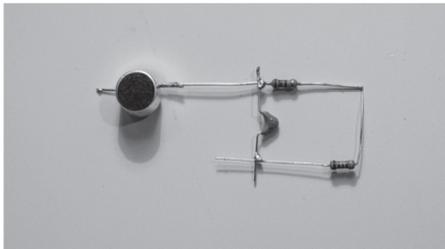
Roll your 18AWG copper wire around a bolt until you get 5 turns with a 0.8cm internal diameter. Using the sandpaper remove the coating at both ends of the wire. We’ve just made an inductor! Put it aside as you are going to link it to the circuit later on.



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STEP 2

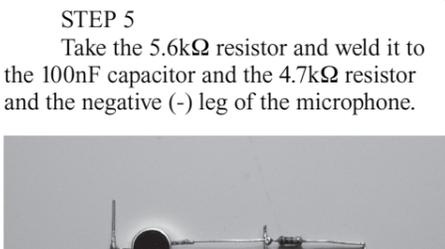
Using your soldering station, connect the positive leg of the microphone to either leg of the 680Ω resistor. Get the soldering iron and weld the two legs together.



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STEP 3

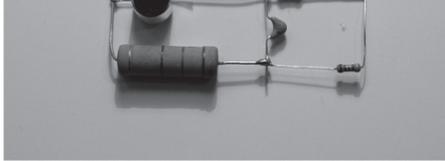
Connect and weld the other 680Ω leg to the 4.7kΩ resistor. Give a 90° angle to the 4.7kΩ resistor, creating a shape for our circuit.



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STEP 4

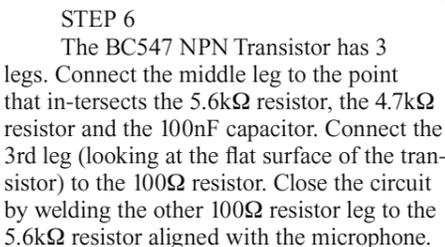
Now, the 100nF capacitor needs to sit on two points of our circuit: Between the microphone and the 680Ω resistor and after the 4.7kΩ resistor.



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STEP 5

Take the 5.6kΩ resistor and weld it to the 100nF capacitor and the 4.7kΩ resistor and the negative (-) leg of the microphone.



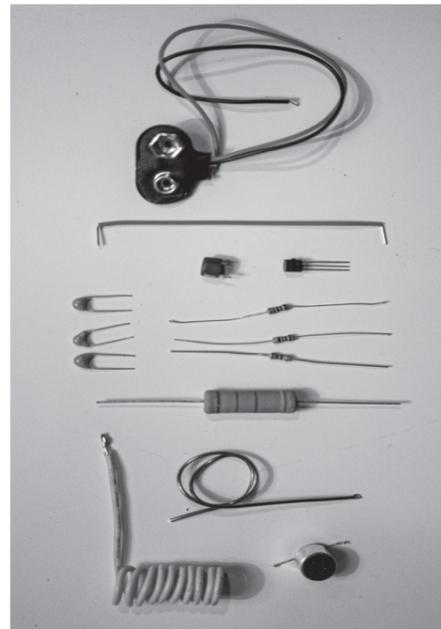
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STEP 6

The BC547 NPN Transistor has 3 legs. Connect the middle leg to the point that intersects the 5.6kΩ resistor, the 4.7kΩ resistor and the 100nF capacitor. Connect the 3rd leg (looking at the flat surface of the transistor) to the 100Ω resistor. Close the circuit by welding the other 100Ω resistor leg to the 5.6kΩ resistor aligned with the microphone.



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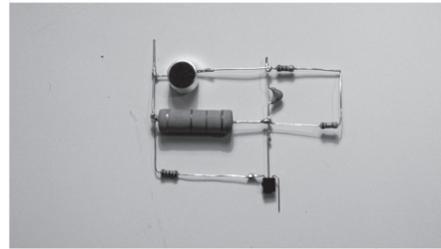
LIST OF THINGS

MATERIALS

- 680Ω resistor
- 5.6kΩ resistor
- 4.7kΩ resistor
- 100Ω resistor
- 100nF capacitor
- 1nF capacitor
- 10pF capacitor
- 60F trimmer
- BC547 NPN Transistor
- 5-9V battery pack
- One core wires
- 18 gauge copper wire
- 9v battery or solar panel
- 9v battery clip

TOOLS

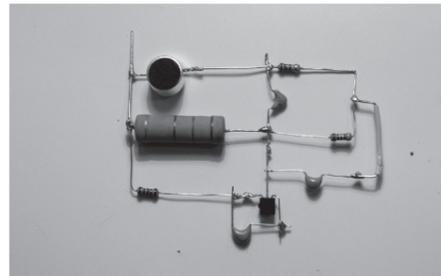
- Soldering iron
- Soldering clamps
- Solder wire
- Sanding paper 120 grit
- Bolt



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STEP 7

With the same transistor, we will now weld one leg of the 10pF capacitor with the 1st leg of the transistor. Weld the other 10pF capacitor leg to the 3rd leg of the transistor. Finally, link one leg of the 1nF capacitor to the middle leg of the transistor, and link the other leg to a point between the 680Ω and 4.7kΩ resistors.



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STEP 8

Almost there! We are now going to add a trimmer and our homemade inductor allowing us to tune in different stations. Let’s start! Connect the flat face of the 60pF trimmer to the transistor’s 1st leg. Connect a wire that links the other leg of the trimmer to the 1nF capacitor that is connected with the 680Ω and 4.7kΩ resistors. Finally weld the two legs of the inductor with the legs of the trimmer.

STEP 9

Let’s power our FM transmitter! Connect the red wire (positive/+) of the battery clip to the trimmer’s leg that’s connected to the wire. Then connect the black wire (negative/-) to the negative leg of the microphone. You can make a 5cm DIY antenna that is



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BIO OF THE DESIGNER

Maël Hénaff is a French designer and filmmaker examining the intersection of technology and social sustainability. Maël investigates the impact emerging innovations have on our society by elaborating case studies and speculative scenarios. His work explores situations where technologies are hacked and democratized to create a real debate on how we should use them for the benefit of our communities.

FURTHER READING

- Resistor fundamentals: <https://eepower.com/resistor-guide/resistor-fundamentals/resistor-properties/>
- Inventing the Future, Demand Full Automation, Demand Universal Basic Income, Nick Srnicek and Alex Williams
- Fully Automated Luxury Communism Aaron Bastani

NOTES

Resistors and Capacitors work differently from a component such as a microphone, meaning that it doesn’t have negative (-) or positive (+) legs.

Makers Manual is a collaborative project between exciting makers and STORE STORE. This is a collection of manuals encouraging people to make objects from what is around them. These manuals are both a practical guide to making for beginners and experts, and a journey into the designers’ practice. You can share your creations using #makersmanual.

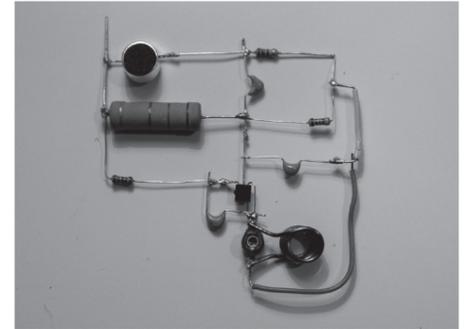
This project is supported by G.F Smith.

STORE STORE

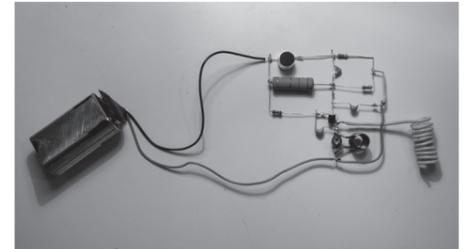
www.storeprojects.org
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made with one coiled wire. Connect it to the first leg of the transistor.

Tip: You can replace the 9V battery pack with a 5-9V solar panel.



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STEP 10

Switch on a radio (an app on your phone can do the trick), and tune it to any channel frequency by turning the trimmer screw with a small screwdriver or the tip of a knife. Keep rotating until you catch a feedback from the radio.

STEP 11

Hello World! You have a fully functional FM transmitter. Don’t hesitate to tweak the components, especially the antenna, if you need to amplify the signal.

OPTIONAL

Give shape to your FM Transmitter with household e-waste or from your local skip. My megaphone transmitter combines a dysfunctional desk lamp that integrated a solar panel and an old power tool!

