Spooky Tesla Spirit Radio

by mrfixits on July 16, 2009

Table of Contents

Author: mrfixits .................................................. 2
License: Attribution Non-commercial Share Alike (by-nc-sa) ........................................ 2
Intro: Spooky Tesla Spirit Radio .................................. 2
step 1: Parts List And Schematic Diagram .......................... 4
step 2: Make a Clear Cover and Drill It ................................ 5
step 3: Mount the Components on the Cover ......................... 7
step 4: Prepare the Induction Coil ................................. 8
step 5: Wiring and Soldering ...................................... 9
step 6: Make the Tesla Spiral Antennas ............................. 10
step 7: Make a Peculiar Tesla Football Antenna .................. 11
step 8: Testing the AM Radio Circuit .............................. 15
step 9: Spooky Effect # 1 - Detect Lightning and Predict Storms ........................................ 16
step 10: Spooky Effect # 2 - Disembodied Spirit Voices .......... 17
step 11: Spooky Effect # 3 - Make Sound With Light ............... 17
step 12: Spooky Effect # 4 - Create Freaky Music .................. 18
step 13: Spooky Effect #5 - Van Eck Phreaking .................... 20
step 14: Spooky Effect #6 - Make Fright With A Mike ................. 20
step 15: Spooky Effect # 7 - There's A Woodpecker In Your Modem! ........................................ 21
step 16: Spooky Effect #8 - Bring A Screensaver To Life ............. 21
step 17: Links To Tesla And Spirit Radio ........................ 22
Related Instructables ............................................. 24
Advertisements .................................................... 24
Comments ......................................................... 24

I am re-inventing myself as an inventor, after too many years as a mechanic!

I enjoy learning from Tesla Turbines, magnetic motors, and Crystal Quantum Radios.

“All children are artists. The problem is how to remain an artist once you grow up.” - Picasso

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Intro: Spooky Tesla Spirit Radio

News Flash!!!
The Spooky Tesla Spirit Radio and Mrfixitrick are now featured in a PC game called “Tesla”. Monsters and bats are battled, while helping Mrfixitrick find the seven parts of the Spooky Tesla Spirit Radio. Intriguing background music. From GODD Games at: www.goddgames.com/tesla.html

Have a look at the Crystal Quantum Radio devices of EJ Gold that helped inspire this instructable: http://www.yoyodyneindustries.com/

“My first observations positively terrified me as there was present in them something mysterious, not to say supernatural, and I was alone in my laboratory at night” - Nikola Tesla, 1901 article “Talking With The Planets”

The Spooky Tesla Spirit Radio is more than just a crystal radio circuit in a jam-jar. It’s a sound maker that plugs in to a computer, and makes awesome spooky sounds by responding to electromagnetic fields or light sources in real time.

Although Tesla used different parts, this radio’s basic L-C (Inductor-Capacitor) circuit uses a similar schematic to what Tesla experimented with in his early days. The versatile 1N34A crystal germanium diode used here, substitutes for the tricky rotating nickel detectors and sensitive relays, used by Tesla in the late 1800’s.

You can listen to AM broadcasts with this radio, but it was made to have fun with in other ways. (Besides, AM radio wasn’t exactly what Nikola Tesla was interested in...in fact, he believed it was a waste of energy to transmit and receive Hertzian waves!)

By using a program like Audio Hyjack Pro (Mac), the radio’s output is tweaked at the computer to give some great real-time sound effects...and you can record them at the same time.

In the following accompanying movies, I show how the Spooky Tesla Spirit Radio reacts to lightning, radio frequencies, the light spectrum, the computer screen, RF pulses, electromagnetic fields and more!

In the following video, the Spooky Tesla Spirit Radio is used to give voice to a Mac Hyperspace screensaver! The simple crystal circuit is apparently sensitive to the screen synchronization RF frequencies, and so it provides awesome background sounds...check it out:

The next movie shows “Spooky”, the radio, beside a Dancing Ghost homopolar motor. The motor emits electromagnetic waves that are picked up by Spooky’s antenna coils, and we hear the results translated through computer software in real time...spooky!!

Here's a movie of the action in the new PC game "Tesla", featuring the Spooky Tesla Spirit Radio:

**Image Notes**
1. Tesla style flat spiral "pancake" antennas add to the spirit of this radio. Tesla used spiral windings in many of his coils, such as in patent # 512340 "Coil for Electromagnets" and # 649621 "Apparatus For Transmission Of Electrical Energy".
2. Crystal Radio parts are in the jam jar.

3. Antennas plug in here by banana plug.
4. One wire only...an audio patch cord connects the non-powered radio to the computer sound-in port.
5. Mac software Audio Hijack Pro makes real time sounds from the radio input. Gain, pitch, reverb and many other variables can be set on the fly, in real time.

Image Notes
1. Special bi-conical Tesla “Football” coil. Rumoured to have anti-gravity effects in Tesla's original!!
2. Plug-n-Play antennas use simple banana jack technology. Try your own antenna designs to see what effect it has.

step 1: Parts List And Schematic Diagram

List of Materials

1- Small Jam Jar, (Mason Jar) with large mouth
1- 3 1/4 inch dia Plexiglas (or polycarbonate) cover lid, 1/8 inch thick
1- C1 - 60/160 pf Variable Capacitor (ComtrolAuto #VAR160-1)
1- Extension Shaft and Knob for above (ComtrolAuto #ExtKnob-1)
1- L1 - 680 uh Ferrite Loopstick Antenna (ComtrolAuto #LSA680-1)
1- D1 - Germanium 1N34A Diode (*Allied Stock#: 935-0301) $2.16 ea
1- C2 -.001uf Capacitor (marked 102) (*Allied Stock#: 507-0822) $.21 ea
1- R1 - 47k Resistor (*Allied Stock#: 296-6641) $.05 ea
1- Chassis Banana Jack Red - (*Allied Stock#: 528-0158) $.53 ea
1- Chassis Banana Jack Black - (*Allied Stock#: 528-0159) $.53 ea
2 - (or more for each antenna) Banana Plug (*Allied Stock#: 528-0302) $1.21
2 - 3.5 mm Mono Chassis Jack (*Allied Stock#: 932-0260) $1.16
a few inches of 20 gauge hook-up wire
solder
1- Audio Patch Cord, 1/8 inch plug ends

Total Cost less than $30.

Note1: Most of the above crystal radio parts are available in kit #SC-Kit-1 from ComtrolAuto
Note2: Complete crystal spirit radios that can be adapted are available from EJ Gold at YoyodyneIndustries.

Note3: For Each Spiral Pancake Antenna, 6 feet of #14 gauge solid copper wire
Banana Plug

Note4: For the Football Style Antenna, 4 feet #10 gauge solid copper wire.
40 feet of #30 gauge coated magnet wire.
Heavy Paper
Scotch Tape
Hot Glue
SuperGlue
Banana Plug

Tools
Needlenose pliers
Wire Cutter
Soldering iron
Computer w/ Audio Hijack audio software (Mac), or equivalent

step 2: Make a Clear Cover and Drill It

The first step is to create a clear lid so we can see the simple but effective radio components. I chose polycarbonate just because that is what I had on hand. Acrylic can be used, but it won’t machine as easily.

Use a circle cutting attachment on a drill press to cut out a 3.25 inch disc cover lid out of 1/8 inch Lexan polycarbonate.

Next, 1/4 inch holes are drilled in the cover lid for the two banana jacks and for the two audio jacks.

The two banana jacks will receive banana plugs with pre-mounted antennas.

Two audio jacks will also be used. One is for audio out to the computer, and one is for an optional auxiliary input modulation from a hand gripper or other source.

Drill holes as seen in the photos, or lay out your own hole design. I drilled a total of nine holes; Two 1/4 inch holes for antenna banana jacks, Two 1/4 inch holes for audio jacks, One hole for the variable capacitor shaft, and two small 1/16th inch holes for its screws and two 1/16th inch holes to feed the diode wires to mount the diode on top of the jar lid (This is for better light-to-sound effects; as the 1N34A diode is light-sensitive)
Image Notes
1. Jam Jar
2. Polycarbonate (Lexan) lid
3. Variable Capacitor
4. Knob for Variable Capacitor
5. AM ferrite induction coil
6. .001 uf capacitor
7. Resistor
8. 1N34A Diode
9. Banana plugs - female
10. Antennas with banana plugs attached.

Image Notes
1. Variable Cap
2. Audio Plug
4. Main Antenna plug-in.
5. Lexan polycarbonate cover
6. 1N34A diode

Image Notes
1. Basic set-up of parts

Image Notes
1. Drilling holes to mount the 1N34A diode on TOP of the cover for better light stimulation.
step 3: Mount the Components on the Cover

Mount the Adjustable Capacitor and Banana Jacks in the clear jam jar cover.

For the variable capacitor, I had to find two screws long enough to feed through the 3/16 inch thick cover. A thinner cover will work with standard screws. The variable cap has an optional shaft extension and knob found at http://comtrolauto.com/

Mount the 1/8 phono jacks as well. I had to countersink the holes to get the threads to start because of the rather thick plastic cover I used.
**step 4: Prepare the Induction Coil**

There is an option with the Induction coil to run it direct with an antenna connection, or to wrap the Induction Coil with about 10 wraps of 22 gauge wire that runs from the antenna to ground. The first method gives a better chance of a station signal being loud enough with a short antenna. The second wrapped inductor method is best for using a long (20 foot plus) antenna. See schematic for clarification.

I like the inductive method even with a short antenna, because it gives a clearer signal with less 60 cycle hum. The amplitude of sound will be less in AM tuning unless a long antenna is used however. The amplitude can be partially made up by using the human body as an antenna by touching the jam jar ring, which has a connecting wire that goes to the antenna + wire when the lid is twisted on.

The other advantage of wrapping the inductor is that it gets supported inside the jar by the heavier wires.

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**Image Notes**

1. 10 wraps of 22 ga copper magnet wire. Be sure ends are scraped or sanded to remove coating before soldering. (note pre-tinned wire tips)
2. ferrite core
3. 75 turn coil of very fine wire.
4. Tiny wee wires.
**step 5: Wiring and Soldering**

Ok, once most components are in place, it's time to wire and solder things up. Direct point-to-point wiring can be used with so few components. Follow the pictures and the schematic for the basic connections.

Only a couple of wires need to be soldered in. Run one ground wire from the middle ground post of C1 to the ground connection on the phone jack. Another wire will go from the antenna to the other C1 post.

Note that the centre connection of the C1 variable capacitor is connected to the ground connection of the phone jack. The 160 pf connection is on the right facing C1 from the top looking down, connecting tabs facing away from you. The 60 pf connection is on the other side of the middle ground connection, and was not used.

The D1 diode is heat sensitive and may fail if over-soldered. Use an alligator clip as a heat sink when soldering its leads. I mounted it on top of the cover to make it more sensitive to light.

The L1 Induction Coil thin wire with black paint goes to ground. The other thin inductor wire goes to the non-ground C1 capacitor connection. L2 is simply 10 wraps of wire around the inductor coil.

**Image Notes**
1. 1N34A diode is light-sensitive and sits on top of the Lexan cover for better response in direct light experiments.
2. Antennas plug into banana plug receptors.
3. Variable capacitor tuning knob.
4. Audio out to computer...un-powered, except for electromagnetic waves gathered by the circuit.
5. Spiral Pancake antenna, hand wound of 14 ga copper wire.
step 6: Make the Tesla Spiral Antennas

"The Tesla antenna is a form of wireless antenna or wave launching structure developed by Nikola Tesla in which the transmitted energy propagates or is carried to the receiver by a combination of electrical current flowing through the earth, electrostatic induction and electrical conduction through plasma with an embedded magnetic field."
- Gary L Peterson in "Rediscovering The Zenneck Surface Wave"

This is an area for scientific and artistic license. There is still much debate as to what exactly Tesla was up to with his transmission and reception of power systems. (See Joel Young's blog comments in Design News Magazine on July 8th, 16th and 28th...

I experimented with two types of Tesla antenna design. The first is similar to the flat spiral "Pancake" coil that is seen in several of Tesla's patents. The second is a peculiar "Football" coil made of two cones.

For the basic spiral antenna, I used a 6 foot length of 14 gauge solid copper wire, and bent the wires by hand, coil by coil. I used a needle nose pliers to begin the core spiral, and after a turn or two, gently but firmly worked the wire around with bare hands. I soldered on a short vertical antenna to the centre loop. In retrospect, It would have been better to make the vertical end part with a one piece construction.

Keep working the wire to eliminate kinks and bends, then make sure the coils are evenly spaced. I soldered on the vertical antenna last.
**step 7: Make a Peculiar Tesla Football Antenna**

This coil was one of Tesla's later designs, and is said to have spooky anti-gravity effects when pumped with the correct frequencies and voltages. I won't be working in that high-power range with this un-powered crystal radio!

The core of the Tesla Football Antenna is made with four 2 inch paper cones glued and taped together. The paper cones were doubled up, two on each side, for strength and smoothness.

The 30 gauge wire conical coils are wound laboriously by hand. The thick 10 gage copper wire was carefully bent to conform to the football coil without disturbing the coils of the coil. (Note to self...don't try this again without coating the wires with a resin or glue first, because the coils will start unravelling...)

After this small coil-winding feat, two snazzy Banana Plug ends are put on. These ones were found at an electronics store.

Here's a link to a similar coil that puts out sparks!
Image Notes
1. Special bi-conical Tesla "Football" coil. Rumoured to have anti-gravity effects in Tesla's original !!
2. Plug-n-Play antennas use simple banana jack technology. Try your own antenna designs to see what effect it has.
step 8: Testing the AM Radio Circuit

This step is a circuit test of the Tesla Spirit Radio, to see if it works as an ordinary AM radio. Once the wiring and solder connections are double checked, we can test the AM radio part of the device.

Plug in the Audio Patch Cord into the 1/8 inch jack of the radio, and then into the computer “Sound In” port. Launch Audio Hijack (or equivalent PC software). Set up with a basic 10-Band EQ and two or three AU Pitch controls. AU Bandpass and Reverb won’t be used for this test...use their “Bypass” buttons. Gain may need to be turned up high. AU Pitch controls at the neutral 0 pitch setting. (See screenshot below.)

Turn the variable capacitor knob and the sounds of a local AM station should come through; if not, a long antenna may be required in your area. Try touching the jar ring or antenna to see if that makes a difference.

If you have no sound at all, then something is likely wrong. Check for a dry solder connection. Also, if too much soldering heat was used close to or on the diode connection, the diode may be burned out. Substitute to check, or use the diode checker function of your multi-meter to test it if necessary.
**step 9: Spooky Effect # 1 - Detect Lightning and Predict Storms**

“No doubt whatever remained: I was observing stationary waves.”

Nikola Tesla, commenting on reception of lightning in his receivers.

The Spooky Tesla Spirit Radio can detect lightning! Check out the main intro movie.

You can listen to AM radio if you really need to, but Nikola Tesla spent most of his radio listening time tuning into natural Earth (and beyond Earth) pulses, and the high and low frequency vibrations that were around him. He was a storm-chaser from the comfort of his own laboratory.

During Tesla's Colorado Springs experiments, he would listen in on approaching and receding lightning storms, which he could detect up to hundreds of miles away. He noticed standing waves produced by the lightning that inspired him to develop his wireless power apparatus.

It helps to have a long antenna (be sure it is safely grounded with a spark-gap arrester!), but even with the short antenna, this crystal radio can be made very sensitive with the computer software adjustments. When a storm is near, you can really hear it! (It's a loud crashing sound in the audio ;)

Requirements: Mac computer and Audio Hijack software. “Super-Sensitive Lightning” software setting adjustment, as seen in the screenshot below...and a nearby storm! PC owners will need to use an audio software solution that is able to alter pitch, gain and reverb in real time. And preferably record it.

Here's a fun site devoted to "Nature Radio Signals and strange emissions at very low frequency." [http://www.vlf.it/](http://www.vlf.it/)
step 10: Spooky Effect # 2 - Disembodied Spirit Voices

"The sounds I am listening to every night at first appear to be human voices conversing back and forth in a language I cannot understand. I find it difficult to imagine that I am actually hearing real voices from people not of this planet. There must be a more simple explanation that has so far eluded me."

-Nikola Tesla 1918

Nikola Tesla, and many others of the early radio pioneers, often thought they heard voices in their radio receptions. Both Edison and Tesla claimed to be working towards communicating with disembodied spirits.

Dale Afrey, in the book “The Lost Journals Of Nikola Tesla”, says . “At one point Tesla chided Edison for stealing his idea on using a form of radio to contact the dead.”

You can get the impression of disembodied spirit voices by tuning close to an AM station, then use the Au Pitch Controls of an audio software such as Audio Hijack to raise the pitch to a squeaky high, ghostly sound. Add Reverb for the final touch. Au Bandpass is also used in this effect. Check the settings in the screenshot below.

Alternatively, the AU Pitch can be used to lower the pitch instead of raising it, for a moaning type effect.

step 11: Spooky Effect # 3 - Make Sound With Light

The 1N34A germanium diode in this crystal radio circuit is sensitive to light of all kinds. It responds to sunlight, light-bulbs, laser, flashlights, and even candlelight! The laser will work to activate sound from the radio from many feet away, but only when the laser light is actually moving across the light-sensitive diode.

Light-bulbs affect the radio diode from a couple of feet away, and the 60-cycle hum can be heard from them. The radio or light does not have to move to make sound in this case of AC power.

Candlelight must be close and moving to affect the diode, and then it is a very low frequency that is hard to catch. The AU Pitch control must be raised high to hear the low bass sound from the flame. See CandleSetup screenshot, below.

The use of various light sources to make sound is shown in the main movie.
step 12: Spooky Effect # 4 - Create Freaky Music

The computer monitor, speakers and the computer itself are all sources of cool and spooky sounds for the Spooky Tesla Spirit Radio. You can go for extreme feedback and resonance effects, or you can keep it simple and just hear what's going on inside your computer box.

By altering the AuPitch, Reverb, and BandPass module controls, the normal static, clicks or hums become rich soundscapes. The cool thing is, once the controls are set, the radio does the rest!

All of the sound effects on the main video are generated in the above way. In the following video, the AuPitch controls were set before the main Hyperspace voyage.

CLICK TO PLAY VIDEO

Here's another example of making sounds and music live in real time, with another crystal radio I have that's made by EJ. Gold:

Image Notes
1. Tesla style flat spiral "pancake" antennas add to the spirit of this radio. Tesla used spiral windings in many of his coils, such as in patent # 512340 "Coil for Electromagnets" and # 649621 "Apparatus For Transmission Of Electrical Energy".
2. Crystal Radio parts are in the jam jar.
3. Antennas plug in here by banana plug.
4. One wire only...an audio patch cord connects the non-powered radio to the computer sound-in port.
5. Mac software Audio Hijack Pro makes real time sounds from the radio input. Gain, pitch, reverb and many other variables can be set on the fly, in real time.
**step 13: Spooky Effect #5 - Van Eck Phreaking**

What is Van Eck Phreaking?

Wikipedia:
"Van Eck Phreaking is the process of eavesdropping on the contents of a CRT and LCD display by detecting its electromagnetic emissions."

Can a simple crystal radio circuit really sense the colours and movements of windows on a computer screen??

Yes it can! Check out the above video... and also the main video that shows colors being discerned electromagnetically by the radio.

**Image Notes**

1. The Spooky Tesla Spirit Radio responds to screen synchronization frequencies.(or, what appears to us as colour)

**step 14: Spooky Effect #6 - Make Fright With A Mike**

Who would have thought it was possible, but the addition of a magnet on the side of the jam jar can turn the radio into a temporary microphone! Experiment with holding a neodymium magnet close to the ferrite coil inside the jam jar. Then talk at or into the jam jar. Hit the record button in Audio Hijack to see if it records the sound. It will be faint in the background...perfect for recording alien or scary voices!

Use the Super-Sensitive audio set-up for this experiment.
step 15: Spooky Effect #7 - There’s A Woodpecker In Your Modem!

Wireless modems put out a strong EM (ElectroMagnetic) pulse when operating...even if you are not using the wireless part of the modem.

I discovered that a modem pulses at about 10 Hz, and sounds very similar to the controversial Russian Woodpecker radar transmissions. (http://en.wikipedia.org/wiki/Russian_Woodpecker).

Other electronic and electric items such as calculators, cellphones, and computers can be investigated to hear what fields they emit. Motors like a Dremel tool are also fun to listen to...but not for very long!

step 16: Spooky Effect #8 - Bring A Screensaver To Life

In this example, the Spooky Tesla Spirit Radio is placed in front of an iMac computer screen. The radio is able to read the moving RF contents of the screen and make them audible. If it seems impossible that a simple crystal radio could do that, then watch the following...
The "Hyperspace" screensaver is available at download.cnet.com/Hyperspace/3000-2257_4-90475.html

Image Notes
1. Take a wormhole trip and not even leave the farm!

step 17: Links To Tesla And Spirit Radio

Tesla's article "Talking With The Planets" in Colliers Weekly, Feb 19, 1901 earlyradiohistory.us/1901talk.htm

Here's Tesla's Colorado Springs Notes that show much of his early experiments with radio LC circuits:

Here's a detailed investigation into Tesla's Colorado Springs receiver experiments:
www.teslasociety.com/teslarec.pdf

Tesla on Mars:
www.borderlands.com/archives/arch/marscom.htm

Two Tesla radio related patents:

Patent # 645576 "System Of Transmission Of Electrical Energy"
www.pat2pdf.org/patents/pat645576.pdf

Patent #649621 "Apparatus For Transmission Of Electrical Energy"
www.pat2pdf.org/patents/pat649621.pdf

Michio Kaku's site: mkaku.org/
"Renowned physicist Michio Kaku explores how mind reading, the routine use of force fields, and other feats that are currently science fiction may become commonplace tomorrow."

Link to EJ Gold's line of BetaBlocker Crystal Radios:
www.yoyodyneindustries.com
The above controversial video from EJ Gold shows an alternate use for crystal radio circuits... to partially suppress Beta brain waves to allow the Alpha-Theta waves to predominate for better meditation and psychic work.

Decide for yourself if it could be true!

Image Notes
Related Instructables

- How to Enter the Instructables, MAKE, and PopSci DIY Halloween 2007 Contest! by Contest Robot
- Free Energy by guyfrom7up
- Cobweb Spider Gun - Simple Build (video) by rollingstock
- Build an Amazing Tesla CD Turbine by mrfixits
- Best of 2009: Best of Each Category by Instructables Guides
- Build a 15,000 rpm Tesla Turbine using hard drive platters by sbtroy

Comments

louie_gee_gee says:
Nov 5, 2010. 5:56 AM
Absolutely awesome Instructable! Truly amazing effects and perfect for a Hallowe'en party. An attractive little thing to look at too.

Such a shame Tesla wasn't recognised as its inventor before he died.

Thanks so much for posting!

duboisvb says:
Oct 8, 2010. 12:27 PM
Hello, I built this radio and it works!! Thanks for the instructable. When I was testing it with jumper cables ,I could get a station very clear and loud at 1390 on the dial. After soldering it all together, I get a station at 950 but not the 1390 one and it is not so loud or clear but still pretty good. Do you have any insight into what may have changed or what can I do to get the 1390 one back?.

mrfixits says:
Oct 8, 2010. 2:45 PM
Congrats on making this project!
Welcome to the sensitivities of the crystal radio set... I too, find it difficult to reproduce these crystal circuits with any accuracy, due to the funkiness of the assembly, the "loose coupling" of the antenna, the difference in length of wires, the ground system used, etc.

It's all about resonance... Perhaps the jumper cables you used were enough to lengthen a wiring connection, and so alter the resonant frequency of the circuit.

Perhaps the antenna connection is different, with a shorter or longer lead to the induction coil or antenna.

You could try less (or more) wraps of wire around the induction coil to alter the receiving frequency range. Or try changing the antenna length. Good luck!

carlos lopÁergolo says:
Oct 1, 2010. 7:59 AM
Hi sir, Very nice project ! I would like to know why did you use that capacitance / inductance. I mean, 680 uh and a variable capacitor that is 60/160 pf. According to my calculator your circuit will resonate at 0.483 mhz to 0.788 mhz. Why do you choose that range on the band ? Is it for any special reason ? Very nice radio. Thanks in advance. Carlos

mrfixits says:
Oct 1, 2010. 1:23 PM
Hi Carlos,
Glad you like the project. It has much to offer an experimenter.

Generally, AM band radio waves transmit best, and are easiest to pick up with a crystal set. The AM radio band frequencies are 535-1605 khz. (or .535 to 1.605 mhz) so the radio is tuned to the low end of the AM spectrum. A variable or tapped induction coil can provide a greater range of tuning.

The spirit radios of EJ Gold inspired my Spooky Tesla Spirit Radio. His circuit is tuned to two AM stations that are close in frequency and by wave cancellation, the resultant resonating frequency is 7.8 Hz.

7.8 hz is the Schumann Resonant Frequency of the ionosphere, and it also happens to be our Theta brain-wave frequency. For more on that aspect, see http://www.brane-power.com

riverreaper says:
Sep 26, 2010. 2:57 PM
you say picks up radio unless you turn freq way up , do u have a knob that you can turn the freq up an down on , is it picking up am or fm radio freq. ? an if you hooked up diferent tunners to it would it then work like my scanner an or c.b. radio could it also pick thoues freq. up ? if i had dipole antenas of like say ham or c.b. could thous be hooked to it , if so im thinking a swichbox for antennas might be in order . what grounds it or is that why its all in a jar ..also when you talked into the jar if your niebor had one an was on the same freq. would they have been able to pick u up ?
The tuning knob is an adjustable capacitor that usually changes the resonant frequency of the circuit to be in tune with a different range of the AM band.

Crystal radios tend to be tuned to the AM radio band because that is easiest part of the electromagnetic spectrum to pick up with the relatively crude technology.

This radio uses sources other than the AM band, such as direct magnetic waves, capacitance, light waves, etc. The tuning knob helps tune in a resonant or otherwise interesting waveform to listen to.

I sometimes attach a 22 foot indoor antenna for much better reception of AM and lightning. You should use a properly grounded antenna for lightning detection. ;)

The ground is through the computer internally by waay of an audio cord. I find the computer ground works better than a ground to earth wire or a wall-plug ground wire, because the computer sound input ground seems to filter out 60 cycle AC hum.

I don’t know much about the talking in the jar thing you mention. The radio may act as a transmitter, especially when hooked up to a separate antenna, but as an unpowered transmitter it would have a very short range if it worked at all.

You said that you will charge $130, Canadian, plus shipping. That is alright. You also said that you have to use a Mac computer to get the sound effects you do. I do not have a Mac computer. I have a flat-screen iMac. Mine won’t run the latest system software, but it can run the Audio Hijack Pro software fine. Macs are the best machines. if this doesn’t have all the variables you need just keep looking into FOSS as there is literally hundreds if not thousands of interesting Fee open source software projects with binaries available for many platforms. $130 is okay if you the type to really just buy things and not want to really get the parts etc and DIY fab your own setup, Currently I think I might like to incorporate a nifty little circuit bent GR setup with some sort of mid interface/ light curtain sytem for live performance of my band called “Fecal Fetus”

Ok, let's communicate by e-mail, as this is the Instructables comments section. My e-mail is mrfixits@telus.net. Send me a message. You may wish to delete your last instructables comment with your address, etc in it. I have saved it to another app. You would be better off with a Mac, because I have not found suitable PC software. There may be PC software that will work in a limited way. It can be an older iMac like one I have that is 4 years old. (flat-screen type iMacs) Mine won’t run the latest system software, but it can run the Audio Hijack Pro software fine. Macs are good for sound and music recording and playback. It will likely cost a couple of hundred $. (Can) Audio Hijack software is free for trial use up to 10 minutes at a time. $32 gets the full version with no time limits.
Has any body tried this as a BetaBlocker yet and if so how did you do it? Do you hold the coils or put your head between them? I would like to try and see if it works but not show how and I do not wont to pay 2 or 3 hundred dolars to find out. BTW That is a very nice radio I just love the coil look TOP JOB.

didgeridoodle says:
hello i love the invention and would like to incorperate it into my music, but dont know where i can get all the supplys (i live in canada and cannot get the parts shipped from the company you suggested, is there a canadiaan based one?) and was also wondering if you knew any sugested programs for using the radio on windows computer.

mrfixits says:
The supplies can be bought from http://www.comtrolauto.com who do ship to Canada. They use Paypal as well. I have not found an adequate and cheap sound program for PC that will work in real time. Some programs will work as audio amplifiers, and some work to modify the sound file after it is recorded. I'm willing to try a PC program if you can suggest one.

riverreaper says:
if you make that 130.00 take that an go buy a AUDIOBOX-USB it will come with studio one artist program as well , nice little bounes . that will alowe you to use a pc an not limit you to mac .

didgeridoodle says:
i sent controlauto an e-mail and they say do to to much lost products in mail out of america he only ships in america now. so i would have to get him to mail it to a friend in america to mail it to me. Are there any canada based companys i can look for? or someone in america i can ship it to to ship it to me

thinkdunson says:
there are companies dedicated to simply reshipping to different destinations.
i searched google for “reship to canada” and immediately found two options. just figure out what is best for you.

0bs1d14n5h4d0w says:
Hey didgeridoodle. Sorry you can't get your parts but for recording check out Audacity. You need the lame mp3 encoder but it's all free. Works well.

mrfixits says:
I'm sorry to hear that, and I'm working on it.

meanbean says:
I just want to know how to make the spinning ghost!!

mrfixits says:
The Spinning Ghost is simply a homopolar motor with a tissue set on top.

A homopolar motor consists of a neodymium magnet, a AA battery, and a piece of solid copper wire (any gage from 8 to 16 gage will work).

The wire is bent into a heart shape and the lower legs contact the magnet while the top of the heart contacts the battery.

See my Youtube movies on the homopolar motor at http://www.youtube.com/user/MrfixitRick#grid/user/CE35CBBF6EF6E365

Articas says:
Sorry probably stupid questions but do i have to make the jam jar enclosure of can i use a bread board to make it also where do i connect the ground of the variable capacitor and can i use head phones with it

mrfixits says:
You can use a bread board instead. The middle connection of the variable capacitor is ground. Regular headphones won't work if you are trying to use this as a normal crystal radio. High-impedence earphones work with crystal radios and some old-time phone handsets too. If you run the radio output through a computer or other form of amplifier, then you could use headphones.

Articas says:
so i could use a crystal earpiece

pbebergal says:
Hello, Must I use a PC for this project, or can I use a small amplifier? Thanks, Peter
Some small amplifiers will produce sound, but the sounds will be mostly static, humming or a radio station. Adding a pre-amp may help, because the gain must be turned up high to hear the background sounds we are looking for. The software alters the pitch in real time, which is critical for picking up interesting harmonics in the upper and lower than hearing ranges. That's why the software helps so much for fine-tuning. For example, lightning sounds like simple static when using a plain amp, but it can sound like real thunder with the real time audio software, through pitch alteration, reverb, and lots of gain. I use a Mac and Audio Hijack Pro software. I don't yet know of an equivalent real-time program for the PC, but there must be something that's close.

Your program will not have the same settings as Audio Hijack Pro, the program I used.

There is a new screenshot of the settings in step 8, third picture. ?

Basically, there are three pitch modules in series as well as two other forms of gain, "Gain" and "10-step EQ". The reverb also adds to the volume.

The radio's audio signal must be amplified severely in order to get the effects I do.

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Good to hear you wish to become an electrical engineer!
The basic crystal radio parts can be had for about $10, then there are the fittings for banana plugs and so on that can add up to another $20 or so. So with $30 to $40 in parts, this device can be built.

The antenna will make a big difference in getting sensitivity out of this radio. Generally, the longer the better, but 22 feet is often chosen as a harmonic compromise.

There are reports of hearing the sounds of the cosmos through one of these little units, and of parallel worlds we will not speak! (hehe)
odiekokee says:
Very nice instructable, I've got parts on their way for mine. I do have the question regarding the 22' antenna. Does this need to be linear, or is the 22' coiled up what you're talking about. Would longer produce different results?

Thanks.

mrfixits says:
I was referring to an external linear 22' antenna. I string mine across the living room ceiling. A longer antenna usually produces a louder sound (more gain). For sounds from a local source, the antenna on the radio works fine. Most local electromagnetic disturbances are picked up by the ferrite loop-stick antenna anyway. The longer antenna is for more sensitivity to AM broadcasts or listening to lightning.

odiekokee says:
So this antenna must be linear instead of the coiled/football? This thing will spend most of it's time in my office, so it would be helpful if it is as compact as possible.

mrfixits says:
I would try the radio as is, and see if it works ok for your purposes with just the coiled antennas. The football coil is tricky and less sensitive for AN use, so avoid that. And a longer linear antenna may pick up on office equipment noise anyway.

odiekokee says:
Ok. 100% built according to instructions, but with a different container. Electrics are good. Now, I don't have access to any apple based computer. What other windoze programs could server the same purpose?

odiekokee says:
anyone know of a windows or linux program that will give me the real time editing needed??

arhodes18 says:
thank you for the information, just out of curiosity, do you 'have' to use the audio jack to the mac? I do have a mac but I was just wondering if you could hook it up to some little speakers instead, or if I was understanding this part wrong...

mrfixits says:
In order to get the sounds that I did, you need to run software that can amplify and co-create the sound in real time. The Audio Hijack software pitch control, for example, allows certain resonance's to occur, and both ultra-low and ultra-high frequency sounds to be somewhat brought into the normal audio range. Also, normal audio can be raised or lowered in real time to a whole new level.

You can hook up this radio to amplified speakers, and you should get AM radio, and some other static sounds. An external antenna and a good ground may be needed to hear it well. However, without a way of increasing gain (volume), and adding the pitch control and reverb, the sounds will be relatively flat and empty. The audio software adds a whole other dimension to the sounds, and is actually part of the L-C (inductor-capacitor) tuning process.

arhodes18 says:
oh ok i understand... is the software free? and would it be effected to make an amplified speaker circuit using an op amp, because i have found how to make one that has adjustable gain and volume controls...

mrfixits says:
If you have a Mac, the software to use is Audio Hijack Pro. It's available as a free download that is full-featured, except for static is overlaid after about 10 minutes of use each time it's used. It's $32 to buy it, which I think is a great deal.

If you have a PC, there's a chance that a program like ProTools can be used, or a similar real-time sound editing PC program. I hope to experiment with a PC soon with the Spooky Radio.

The op amp may work; I don't know. How about experiment with it and get back to me?

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