Build an Inexpensive Cigar Box Guitar at Home

by **nickdrj** on July 23, 2010

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Intro: Build an Inexpensive Cigar Box Guitar at Home

Hello. As a birthday present for my brother, I decided to make him a nice cigar box guitar. This is the first one I've ever made so it was a bit of a learning experience.

Before making the guitar, I decided that it should be made from either found or very cheaply obtained materials. Most of the items I used were not originally meant for use in a guitar, I don't think I spent more then \$50 for all the parts. It's not a dirt cheap guitar, but it wont hurt the wallet either.

Also, since I don't have any big power tool, I had to be able to make it in my kitchen using handheld tools i already had. (with the exception of the fingerboard which i had cut for me from from a scrap of plywood at a hardware store)

And lastly, I wanted to make this instructable because I wanted to share everything I learned, plus to give back for all the helpful guides I used for this project. There are lots of fantastic cigar box instructables on this very site, just do a search!

This project has a lot of steps, so i tried to divide it up in to logical sections. Hope its not confusing!

Here are some essential tools:

Dremmel (best tool ever) different sand papers couple of different files coping saw drill lots of clamps hot glue epoxy





Image Notes

- 1. dremmel
- 2. drill bits
- 3. ruler
- 4. clippers
- 5. coping saw
- 6. The clamps!
- 7. dremmel cutting kit
- 8. hot glue gun 9. file(s)
- 10. drill
- 11. big cutters
- 12. wood glue
- 13. needle nose plyers
- 14. gorilla glue epoxy
- 15. screw driver
- 16. wire stripper
- 17. drill bits for dremmel
- 18. not pictured sand paper

Step 1: The Body
The Cigar box! I found this nice box at a cigar shop that sell them for \$2 (I'm paying for garbage!) Its important to find a box you really like, it will make your guitar stand out! I liked this one because it had rounded sides, made it really stand out.

Since the neck will be glued to the top of the box lid I first made a cut where the neck will go through. I cut it down with a saw and then filed it down.

Next I wanted two circular sound holes on either side of the guitar, this way i can run the neck all the way down the body. I also wanted to make the rims of the sound holes be metal. So i found a nice chrome metal pipe at home depot that had nice rims at the end. I cut those off with my coping saw.

I also want the option of this guitar being played electrically, so i will install a piezo pickup in a later step. But I have to make a hole for the mono jack. Since the jack is pretty short, i had to grind down the inside of the box were the jack will be installed, check the pictures for what I mean.



Image Notes

1. nice cigar box, says torpedo on it. I dont smoke...





Image Notes

1. i liked this box because it had thick walls

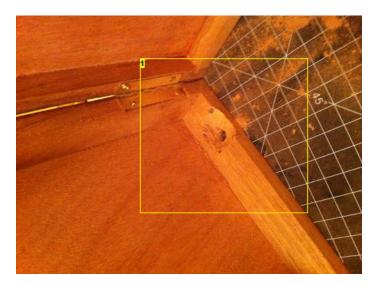


Image Notes

1. to install a mono jack, i had to grind down some of the wall.

Image Notes

1. cut a hole to fit the neck using saw and files



Image Notes
1. to line the sound holes i bought two of these chrome pipes and sawed off the ends.



Image Notes

- 1. making the sound holes. I dont have anything better to cut the sound holes with besides my dremmel.
 2. these pictures were taken at different times so igonor the completed neck until a
- later step....

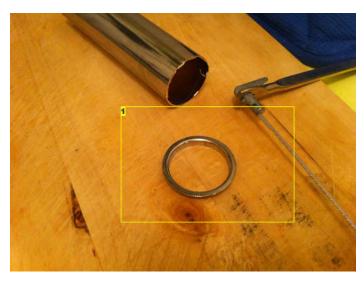


Image Notes

1. nice chrome rim for the sound hole!



Image Notes
1. the sound holes are cut

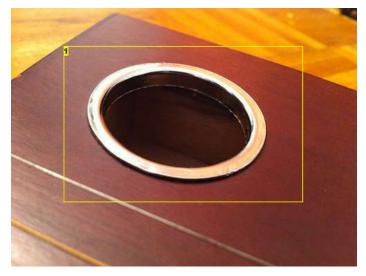


Image Notes1. pipe rim fits perfect. Held in with a little epoxy

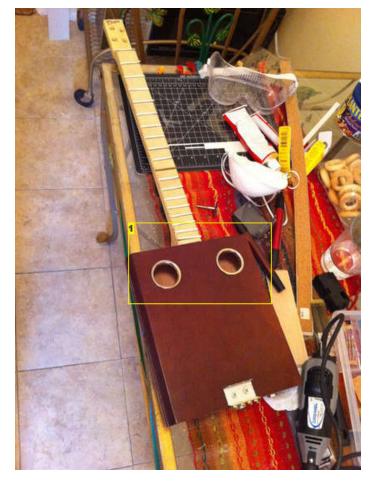


Image Notes
1. perfect fit! Just attack them with a little epoxy.

Step 2: The Neck

The neck basically will take up 90 percent of your time. I wanted it to be nice and round at the back, have a base where it connects to the body (much like an acoustic), and fretted. For the structure, I wanted to keep it simple and run the neck along the whole body, eventually gluing it to the top of the cigar box.

First thing first, I cut the neck to the desired length. I didnt use any conventional length, i just picked it intuitively, whatever felt right. Then I cut the hole in the box where the neck will be glued. This gives me an idea where to add the base.

After cutting the neck. I started to work on the heel at the bottom of the neck. I cut out two pieces of wood about 4" long from the remaining neck wood. I glued them together using Titebond wood glue. Using a clamp I pressed them together and let dry for 30 minutes. Then I glued the two pieces on to the main neck board.

Next I cut the glued heel to the desired profile with my coping saw. And then shaped it using a file.

Next step is the head...



Image Notes
1. mark off where to glue the wood blocks for the heel

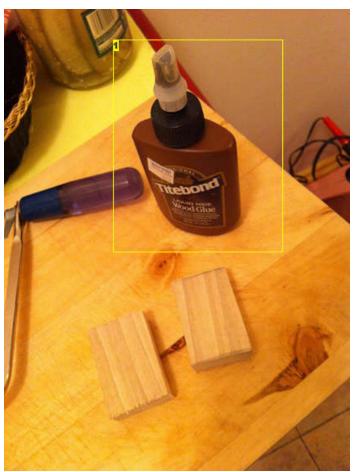


Image Notes
1. use wood glue to bind the heel pieces together, and then bind to the neck itself



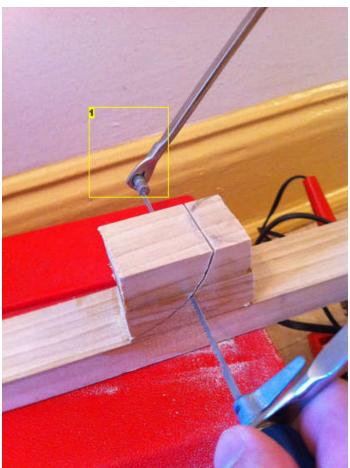


Image Notes
1. carefully cut the heel profile in a curve



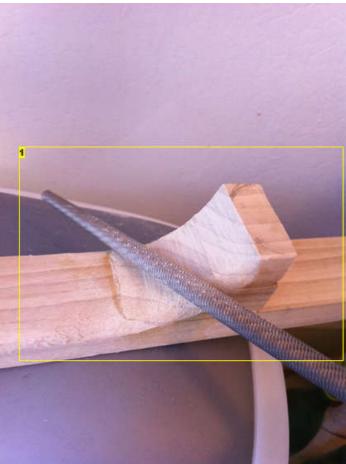


Image Notes1. file down the heel to a nice curve

Step 3: The Head

I wanted the head of the guitar to be slightly recessed so that the strings get more tension.

First I glued another piece of wood to the back of the head. I cut it from the same wood as the neck, and then cut it in half, so that it was about .25" thick.

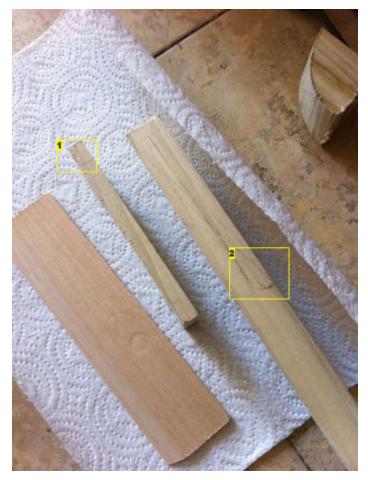
Then i grinded it down with a file to make it nice and curved.

Next I cut 0.25" off the front of the head. Then i filed everything down to make it as smooth as i can get it.

Next I did my best to guess where to put the holes for the tuner. I then drilled them. I dont have power tools so it got a little splintery around the edges. No big deal though, it gets covered up by the tuners.

lastly I put in a decal at the top. I put my brothers name. I used a technique i found at basically printing it in reverse on acetate, then glued it on with photo mount. Then later, when i apply the finish, it gets sealed.

ince the neck and is complete, i smoothed out the back with a file to be nice and round.



- Image Notes
 1. extension for back of head
 2. pencil marks where i will cut the recess for the head

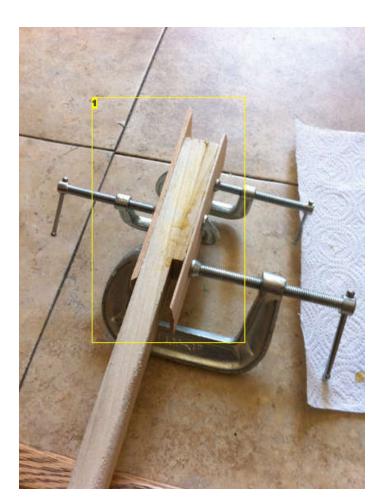


Image Notes
1. gluing on the back of the head

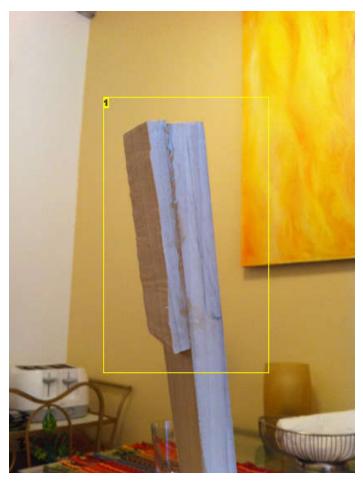


Image Notes
1. the back of the head glued on

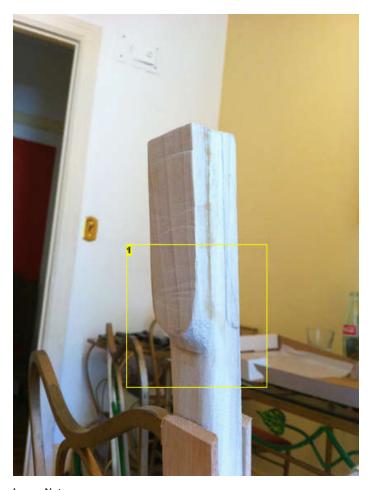


Image Notes
1. i grinded down the back of the head to make a nice shape



- Image Notes1. the completed neck shape, including rounding out the back with a file.2. this part gets glued to the inside of the top of the cigar box

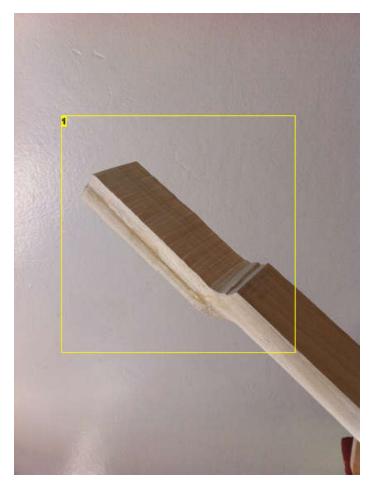




Image Notes
1. using a coping saw I cut off the recess. Then i filed it down and sanded it smooth.



Image Notes
1. I then glued the neck on to the lid of the cigar box.

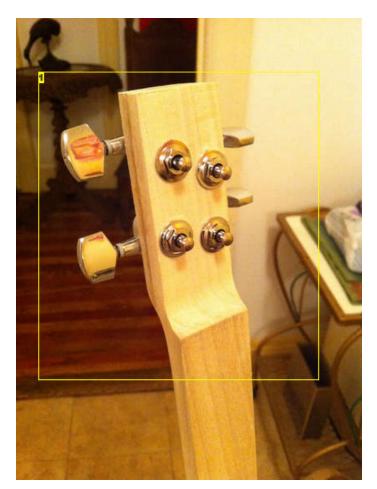
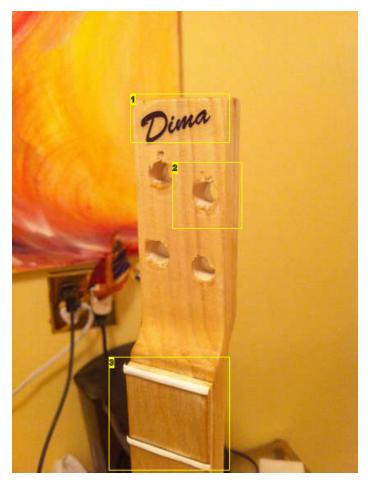




Image Notes
1. the finished head, testing out the tuners



- Image Notes
 1. glued on the decal using photo mount
- 2. oops, sloppy job routing the tuner holes. No worries, the tuners themselves cover up the shame.
- 3. ill get in to this in a few steps

Step 4: The Bridge

The bridge I made in two parts

First, to hold the strings in place I used a heavy duty picture hanger I got at home depot (sawing off the peg that is used for hanging). You can get them at home depot .

I used a large screw to keep it in place. The screw went throught the cigar box and in to the piece of wood for the neck. Making it a pretty solid fit.

Then I found in the trash a handle that was attached to some drawer that was thrown away. This turned out to be perfect for the saddle, just needed some shaping.

I chopped off the sides, cut it down a bit so the action isnt so high.

Then added notches for the strings using the dremmel.

and lastly drileld a couple of holes at the bottom and screwed it in to the body of the guitar.



- Image Notes
 1. saw off the hook
- 2. this thing is used to hang really heavy stuff on a wall, also looks like a good 4-string bridge! Got it at home depot.

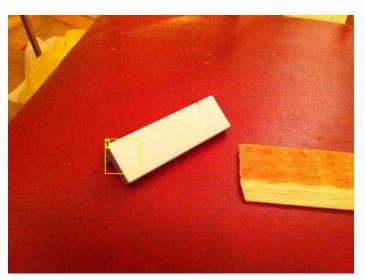


Image Notes
1. handle from a discarded ikea drawer, with a little modification makes a perfect saddle

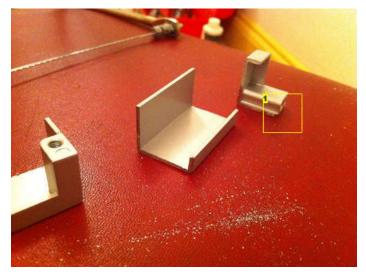


Image Notes

1. cut off the sides with a saw

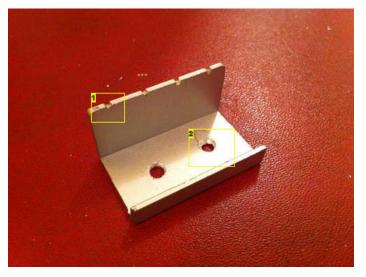


Image Notes

- notches added for the strings to sit in using a dremmel cutter attachment
 drill holes to attach to the body



Image Notes

1. screws in to the body (right under the neck wood)



Image Notes

- 1. Big screw holds the bridge in place (dont bother with glue it will never hold). It has to hold a lot of tention so make sure its tight. Screwed in to the end of the wood used for the neck.
- 2. hole drilled for the strap knob, also will keep the box closed (it has no latch)

Step 5: Fretting

Now for the fretting.

I got a piece of ply wood scrap cut for me to size at a hardware store, its basically the thickness of the neck. I cut it lengthwise and glued it on to the neck.

Keeping with the goal of using found/cheap materials, I decided to use wire cut from a common hanger. I cut up the wire using big wire cutters (later using a dremmel, so much easier) Make sure to cut them a little long, you will grind them down to shape.

I then glued on the very top fret using epoxy.

At this point i measured very accurately the distance from the top fret to the bridge. This is very important as it will determine the spacing of the frete.

Then I went to stew mac website. They have a very good fret calculator. I inserted the length of the scale and how many frets i wanted.

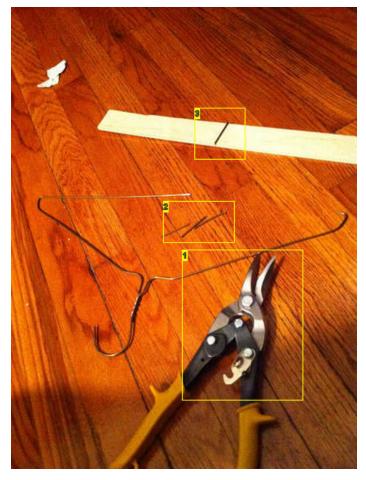
using the measurements stewmac website provided I penciled the all in one by one. Remember to always measure from the top fret, dont measure fret to fret, this is a great way to make a mistake and screw up the notes.

After penciling them in i used a coping saw to saw little gutters for the frets. You may need to go in to them using a file as well.

Once done, you can glue the frets in to place using epoxy.

Use a piece of wood and clamps to hold the frets in place white the glue dries.

Once they are glued solid cut the edges off using a dremmel with a cutting attachment. Wear eye protects, sparks will fly.



- Image Notes
 1. i first used this wire cutter, but its easier to get a cutting attachment for your dremmel
- 2. frets!3. testing one out on the fret board

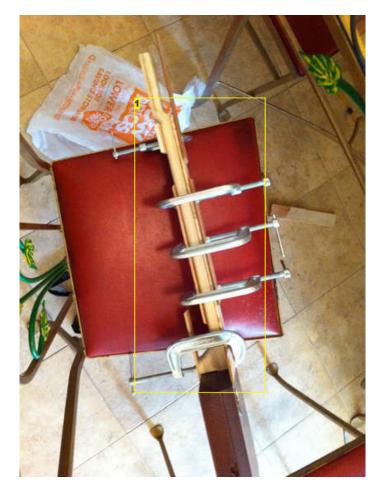
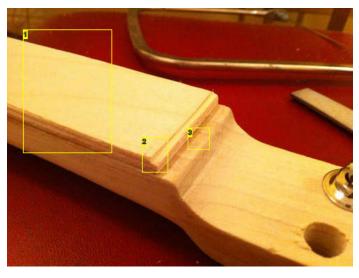


Image Notes
1. I then glued the fretboard on to the neck using wood glue and clamps



- Image Notes
 1. fret board glued on to the neck (cut from a scrap of plywood)
 2. with a saw and file i made a little recess for the top fret
 3. this little step is for the nut

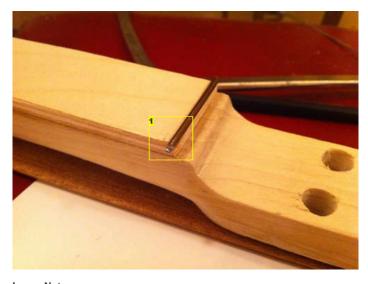


Image Notes
1. fits nice!

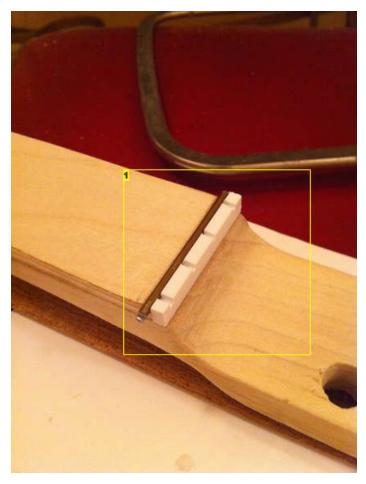


Image Notes
1. The nut is glued in place with epoxy. I made it from some white plastic strips they sell at hobby shops. I had to glue the nut on to the wood because it was sliding towards the tuners when tuning. next time ill design the neck differently to stop it from moving...

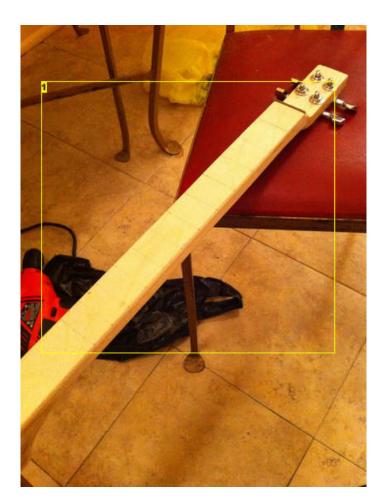
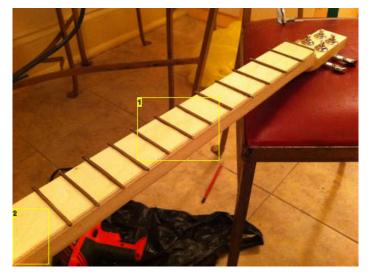


Image Notes
1. Penciled in frets using stewmacs fret calculator. check it



Image Notes
1. made little gutters using a saw and file.



- Image Notes
 1. frets are in palce
 2. i added more frets later



Image Notes

1. press the frets down why the glue. always use a piece off scrap wood on top and bottom so the clamps dont dig in to the neck

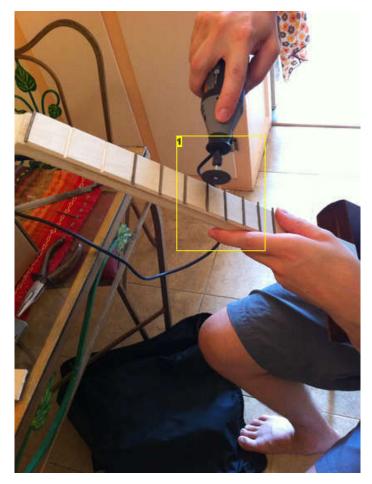


Image Notes

1. once the frets are glued, grind them down to the edge using the side of the dremmel cutting attachment

Step 6: Fret dots

I only decided to add fret marks on the side of the neck. To do this I basically drilled holes on the 3rd 5th 7th 9th and 12th fret (double holes for 12)

Then I hammered in tiny nails in to the holes.

Then sawed them off with my dremmel and filed the down.

Easy!



Image Notes

1. $d\ddot{\text{rill}}$ small holes for the nails with a dremmel (try to go a little less then the length of the nails)

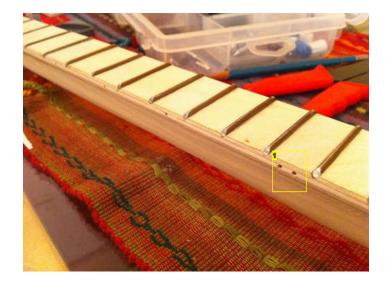




Image Notes
1. the nails i used for the fret marks



Image Notes
1. lightly hammer in the nails, dont knock them in all the way, just enough so that they are tight



Image Notes
1. saw the heads of the nails with a dremmel cutting attachment (and grind them down with it too)

Step 7: Peizo Pickup

The Piezo pickup is a really easy way to get any acoustic guitar play electric. Most of the information i found in this helpful instructable .

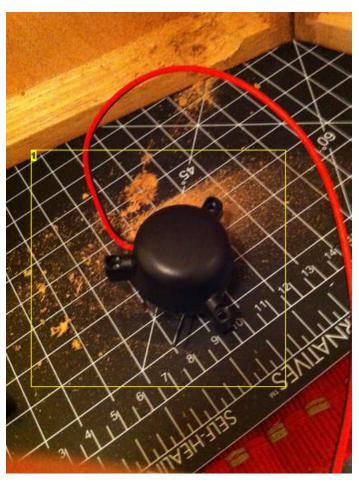
The one thing i'd recommend is getting one that is easy to disassemble, so you can get the metal plate that acts as the mic out. The one i got from radioshack was sealed shut, and i had to grind up the plastic to get to the piezo element inside.

After removing it, i soldered two wires to the yellow ones that came with the piezo element. Then it coiled them together.

Inside the box I added loop screws to run the wire, and soldered it to the mono jack i installed earlier.

I installed the piezo element using a bit of hot glue from a glue gun to raise it above the wood.

Easy!



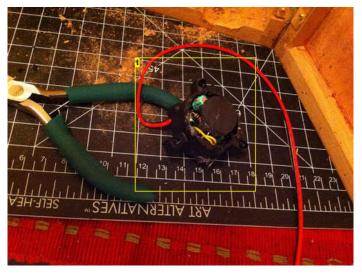


Image Notes

1. grind it with my dremmel! The part were looking for is a silver disk at the bottom so i wasnt too worried about destroying the capacitors and stuff on top.

Image Notes

1. Piezo buzzer thingy i got at radiosack. therewas no way to open it. so.....



Image Notes



1. heres what were after, this is going to be the pickup

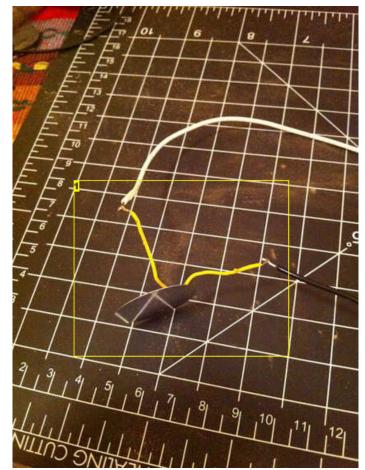


Image Notes
1. solder longer wires to the ones attached to the piezo

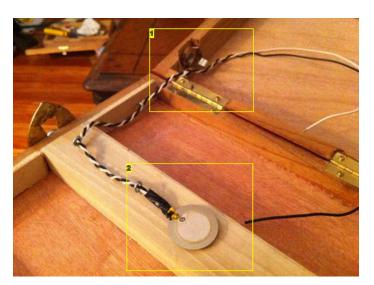


Image Notes

- 1. solder the two wires to the two points on the mono jack. I dont think it matters which goes where, i just did it randomly, and it worked.
- 2. i added a dab of hot glue to the bottom of the piezo and glued it to the neck. make sure that its suspended in, you dont want it touching the wood or it'll pickup up all sorts of nasty sounds.

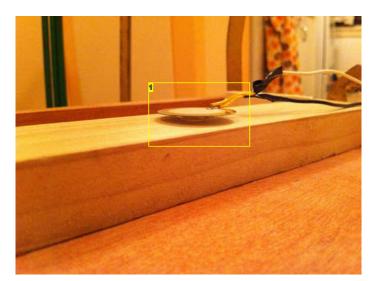


Image Notes

1. piezo pickup floating above the surface on hot glue

Step 8: Applying the finish
Applying the finish to the neck is pretty straight forward. I used a clear lacquer for the job.

I covered the frets up with some masking tape, so that they dont get all sticky. I know im probably doing this backwards, but it is what it is...

i applied a coat and waited about an hour. once dry i used a fine sandpaper to smooth it out. Then i repeated a couple of more times. And thats it.



Image Notes
1. frets are covered with masking tape



Image Notes
1. the lacquer i used







Image Notes
1. couple of coats makes it nice and shiney

Step 9: Finished!

And here is the finished guitar. It wasn't too difficult to make, just a bit time consuming. It was a great learning experience, I hope to improve on it in the next one. And i hope it helps anyone else making these fun DIY instruments.

Here it is in action:

Acoustic:



and electric:



And one more of it playing on video:













Image Notes
1. strap knob on the heel

Related Instructables



Cigar Box Guitar by discontinuuity



Cigar Box Guitar (with cigar box amp) (Photos) by tashiandmo



4 String electric Cigar Box Guitar (Photos) by friger



Home-made Cigar Box Guitar (Photos) by bumpus



The Process of Building a Cigar Box Guitar Amp - Little Gem or The \$5 Crackerbox Amp by tech-tut



Beginner Cigar Box Guitar by gerlindagrimes

Comments

50 comments

Add Comment

view all 105 comments



mushroom1225 says:

Jan 13, 2011. 7:14 PM **REPLY**

Hey, I'm really confused. I'm definitely not a handy man, but I really want to make it. It would be really helpful if you could give me more dimensions and more details, if you could. Or a video of you making it, if you still make them after that one time for your brothers birthday. Like, you could tell me how deep you cut the hole for the neck, and how big the sound holes are, and stuff like that. Please reply!



mushroom1225 says:

Feb 23, 2011. 1:55 PM **REPLY**

Feb 25, 2011. 1:04 PM REPLY



nickdrj says:

here are the dimensions, i hope they help





nickdrj says:

Feb 25, 2011. 1:06 PM REPLY

but use these as a rough guide, these guitars are what you make them, they will still play no matter what size you make them. And as for the frets, youll have to measure the distance from the bridge to the nut and use a fret calculator to get the distances. here is a good one:

http://www.stewmac.com/fretcalc.html



Time Waster says:

Jan 27, 2011. 5:27 PM REPLY

Hey, nice, a good bit of inspiration for me.

Do you reckon it'd work if it was made out of metal? I was going to go an old cake tin for the body... would I get good sound or does wood have special vibratory propeties?



nickdrj says:

Jan 27, 2011. 6:26 PM REPLY

Hey, I think any hollow chamber will do, including metal. I've seen designs around the internet made from all sorts of stuff. The fun of making one of these is you never really know how it'll sound and theres no right way to make them. Believe me it'll make a sound, and it'll be unique and loud. Good luck!



friger says:

Dec 21, 2010. 8:28 AM REPLY

Very well done instructable, and a great looking git. I like the sound you are getting from it, nice and bluesy. I have built about 25 CBG's and am using very similar methods as you, here is a couple of pics from my last commission. keep building!_____







duckman633 says:
would it be nice if i dont have an amp on it

Dec 4, 2010. 2:39 AM REPLY



dirtyroger says:

Hey man thats a great finish on the build! good work

I've started a blog for my first CBG build here dirtyguitarguide.com



nickdrj says:

cool great blog. thanks for sharing.

Oct 19, 2010. 2:35 PM REPLY

Oct 11, 2010. 4:30 PM REPLY



svend says:

my piezo buzzer has three wires on the metal disc. what wires do i solder to?

Oct 18, 2010. 9:58 PM REPLY



nickdrj says:

Oct 19, 2010. 2:34 PM REPLY

Hi. i looked in to it on this forum and it appears its a feedback loop (they say its blue), not sure what that does but i read there that you can just ignore it. Try connecting the other two and see if you pick up sound.

hope that helps



Phsyco Chicken says:

Hey. Did you have to remove any excess epoxy from around the frets? and how did you do it?

Sep 24, 2010. 1:15 PM REPLY



nickdrj says:

Sep 26, 2010. 6:28 AM REPLY

Hi. I first sawed some grooves for the frets to go in to. I didn't put a lot of epoxy, just enough to hold it, any excess epoxy you can just file off when it dries but i didn't have that issue.



Phsyco Chicken says:

Fair enough, Thanks for the help. Cheers!

Sep 26, 2010. 12:02 PM REPLY



tiny3o92 says:

Aug 5, 2010. 9:39 AM REPLY

hey! Awesome work done hey! Just one question... I saw you used steel strings... didn't you need to put in a truss rod or did the neck held up? Thanx!



nickdrj says:

Aug 5, 2010. 11:22 AM REPLY

Hi! Thanks for the comments. The neck is holding up ok, I think that since the neck goes through the entire body, plus its only 4 strings, it doesnt stress it out too much. The action is a bit high towards the higher frets but i think thats more because i made the bridge a little tall. Hope that answers your question.



tiny3o92 says:

Aug 6, 2010. 4:49 AM REPLY

Haha no problem! Thanks for the reply. I want to know if I made a 6 string one do you think that would be a problem with the tension or should I add a truss rod then? I'm just a beginner though but I really want to start building guitars. So I have tons of questions. Thanks for the help!



Canas says:

Aug 13, 2010. 9:03 AM REPLY

I know I keep jumping in on these comments, but mainly because I keep coming back for reference on one I'm building now. If you're a beginner, a 4-stringer is much easier to make. 6 strings is very difficult to work with. I was able to build a 6 string CBG without a truss rod. All I had to do was add a few wood ribs to the inside of the box.



tiny3o92 says:

Sep 8, 2010. 7:31 AM **REPLY**

52

rhysc says:

Aug 20, 2010. 4:24 AM REPLY

Would these be applicable? http://cgi.ebay.com.au/5-Prewired-27mm-Piezo-Disc-Element-Contact-Mic-/270579004794?pt=LH_DefaultDomain_2 I live in Australia and we dont have radioshack:(

okay cool thanx for the help i'll probably start next year when i'm finished with school! all the best



nickdrj says:

Oh yeah, those will work. Good luck!

Aug 20, 2010. 5:22 AM REPLY



poopsiedoopsie says:

i wanna make one with f holes.

Aug 12, 2010. 11:59 AM REPLY



Frozen Twinkies says:

Aug 10, 2010. 5:52 AM REPLY

What else can i use besides actual guitar tuning pegs? The only one I have found are like \$30. Is there cheaper ones, or something else i can use?



nickdrj says:

unfortunately i havent thought of a way of making tuners, but stewmac has some for under \$15

Aug 10, 2010. 6:37 AM REPLY



Mrdantheguitarman says:

Aug 8, 2010. 3:33 AM REPLY

An alternate way I have done frets on homemade guitars is to notch each side at the apropriate mesurement for each side and to wrap fishing line or tiewire. simple and cheap



nickdrj says:

Cool idea, I like it!

Aug 8, 2010. 8:52 AM REPLY



timweaver17 says:

Aug 5, 2010. 4:07 PM REPLY

http://www.radioshack.com/product/index.jsp?productId=2062402 or http://www.radioshack.com/product/index.jsp?productId=2062398 Which one of these is the correct thing to get? I know one needs the "element" but Im not really sure what to get...



nickdrj says:

Aug 6, 2010. 7:36 AM REPLY

they are both probably ok, i used this guide to pick a frequency, but i dont know much about what it means. I would say try to get one that is easy to open, mine was a pain because it was sealed shut and i had to grind the plastic off with a dremmel to get to the piezo.



davidglinski says:

Jul 30, 2010, 7:25 AM REPLY

sorry if this has been already asked but do you think you can make this a 6 string? btw awesome job on it !!



nickdri says:

Jul 30, 2010. 8:31 AM **REPLY**

Hi! it can be a 6 string, but the neck would probably have to be a little thicker, its only 1.5" thick now. Because the strings would be a little too close together and the tuners would get crowded. Also, the bridge solution i thought of used a picture hanger that has 4 nail slots, but they dont make bigger ones that i saw, so the bridge would have to be rethought. Otherwise theres no reason this thing couldn't have 6 strings.



davidglinski says:

Aug 6, 2010. 7:29 AM REPLY

when making it bigger for the six strings wouldn't i need to put a truss rod in there, if so do you know how to do that?



nickdri says:

Aug 6, 2010. 7:33 AM REPLY

Ive never done one, but ive been reading about it. A six string might need one. You have to route a channel in the neck to fit the rod. I found some good videos on youtube. Seems a little complex but doable if you have a way of routing, like with a dremmel router attachment. Theres a lot of good guitar making vids here: http://www.youtube.com/user/OBrienGuitars#p/search/3/tLY3iN1Atn4



timweaver17 says:

Aug 4, 2010. 5:26 PM REPLY

AWESOME! what did you use for strings? Also, would the rough saw dimensions of your poplar be 2 by 1 with a length of 4 feet? Also, did you cut the 4 foot length to get the pieces to build up the neck in those 2 spots?



nickdrj says:

Aug 4, 2010. 7:21 PM REPLY

Thanks! Yeah, i cut it down to what i needed, and used the leftover scraps to construct the head and heel. The wood is actually 1.5" by 0.75" and not sure how long it was exactly, ill have to check it next time i see it (i gave it away as a present so i dont have it here with me to measure)



timweaver17 savs:

What did you do for strings?

Aug 5, 2010. 12:24 PM REPLY



nickdrj says:

oh they are just some steel guitar strings i had lying around. I think they were on a resonator guitar before

Aug 5, 2010. 12:31 PM REPLY



timweaver17 says:

alright thanks. how do you tune it, or do you? (what notes?)

Aug 5, 2010. 1:18 PM REPLY





Aug 5, 2010. 3:58 PM REPLY



prodo123 says:

Aug 4, 2010. 12:36 PM REPLY

How much tension can the neck hold? Because a real guitar has 6 strings, and by adding 2 more strings, the box may not be able to handle the pressure.



Canas says:

Aug 4, 2010. 1:54 PM **REPLY**

You could add ribbing to the inside of the box to add support. I did that on my first build, though I screwed the neck up.



nickdrj says:

Aug 4, 2010. 1:53 PM REPLY

you may be right, if its 6 strings it may have to be reinforced more, perhaps with a truss rod. But the way this is designed the neck goes all the way through the body and the bridge is actually attached to it at the end of it. so its one long piece of wood. The box isn't really feeling the tension, since its just glued on to the neck. I think neck absorbs all the tension created by the strings. I don't know what will happen over time, maybe it'll curve more, but seems to be holding out fine currently. Good point though, its definitely something to consider if making a six string.



nickdri savs:

Aug 4, 2010. 2:11 PM REPLY

this actually the problem i'm trying to figure out for my next one, because i'd like the sound hole to be in the middle under the strings. I haven't quite figured out how to solve for the string tension yet. Since I cant run the neck all the way through the body the box will have to bare some of the tension.



prodo123 says:

Aug 6, 2010. 8:32 AM REPLY

Ah, so it's a through-body neck. Then a truss rod would immensely help with the tension. As for the sound hole, you could sand a portion of the neck in the body into a cylindrical shape so the whole guitar is a giant sound cavity.



Canas says:

Aug 4, 2010. 8:39 AM REPLY

It sounds like the choosing poplar for the neck was pretty lucky. It sounded very good both acoustically and electrically. I've built a CBG before, but it didn't turn out nearly as good as this one. Keep up the good work!



nickdrj says:

Aug 4, 2010. 8:58 AM REPLY

Thanks! i wonder how much of the sound is the neck wood vs. the box i used for the body. i dont even know what wood thats made of.



Canas says:

Aug 4, 2010. 10:04 AM REPLY

Seeing as your guitar is a throughneck design and the pickup is on the neck, I'd have to say that the neckwood plays a large role in the electric sound. Lighter woods, like poplar, can have a very bright and twangy sound, while darker or heavier woods have less twang and a fuller, bassier sound. From a quick check, it appears the boxes themselves are made of cedar. A very soft wood, though it can have very nice mid tones.



nickdrj says:

Aug 4, 2010. 10:22 AM REPLY

That makes sense. Thanks for finding that out!

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