Subject: Portal Themed Rings
Posted by sbruins on Mon, 08 Aug 2011 17:02:08 GMT
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Still a WIP but here are the designs so far. As a sort of mini-project the members of GrabCAD and I are working to design an LED illuminated GLaDOS ring.

Let me know what you think!

Turret Ring

GLaDOS Ring

Subject: Re: Portal Themed Rings
Posted by cadalu on Mon, 08 Aug 2011 17:37:50 GMT
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I think they're absolutely fantastic!!! I want them all!!

Subject: Re: Portal Themed Rings
Posted by phildlight on Fri, 12 Aug 2011 16:03:33 GMT
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Very cool! Check out 0402 SMLED's! Smaller than a pin head. Might help.

Subject: Re: Portal Themed Rings
Posted by sbruins on Fri, 12 Aug 2011 16:07:06 GMT
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Thanks phildlight! I have already ordered 10 of these http://www.kingbrightusa.com/gapg1608.asp?gclid=CNPypLnmsaoC FYgUKgod_yvr9w to experiment with. They are very small but still very bright. The big problem is proving to be finding the right battery and adding a switch.

Subject: Re: Portal Themed Rings
Posted by phildlight on Fri, 12 Aug 2011 16:12:31 GMT
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Could you use a small hearing aid battery and design the ring so that you twist the two sides in opposite directions to engage contacts inside to be the switch?

this might help: http://en.wikipedia.org/wiki/List_of_battery_sizes

Subject: Re: Portal Themed Rings
Posted by sbruins on Fri, 12 Aug 2011 16:17:21 GMT
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I have some SR416SW size batteries on order but they haven't arrived yet. I don't know much about electronics so I'm hoping they will work without frying the LED (or not being powerful enough).

Subject: Re: Portal Themed Rings
Posted by phildlight on Fri, 12 Aug 2011 16:24:02 GMT
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Yep, that's probably your best bet. You wont fry the LED's. Especially not with watch or hearing aid batteries.

When you get your LED's, keep in mind that LED's have a cathode and anode side which isn't marked or identified on the little SMLED's. You just have to solder leads on the contacts and test them. Mark them when you determine which is which. You won't fry them if you get it wrong, they just wont light up.

For soldering, get double stick tape and stick the LED to the tape. Tin the lead (put solder on your iron and then dip the bare wire in the solder) then when you lay the lead on the LED, just touch the wire with the soldering iron and you should be good. Keep the heat away from the LED as much as possible.

Sorry if you already knew this.

Subject: Re: Portal Themed Rings
Posted by sbruins on Fri, 12 Aug 2011 16:29:33 GMT
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I've done some basic soldering in the past but nothing this small. Thanks for the tip on using double side tape!

Subject: Re: Portal Themed Rings
Posted by Youknowwho4eva on Fri, 12 Aug 2011 17:05:19 GMT
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Usually with LED's the longer wire or connector or whatever is positive (same with most electronics).

Subject: Re: Portal Themed Rings
Posted by phildlight on Fri, 12 Aug 2011 17:07:38 GMT
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yes, but SM (surface mounted) LED's don't have leads. They have contacts that are typically indistinguishable in the smallest sizes. Even with a magnifying glass the 0402 (what I work with) you cannot see any difference between sides. It's easy to test w/ a 9v battery.

Subject: Re: Portal Themed Rings
Posted by Youknowwho4eva on Fri, 12 Aug 2011 17:13:47 GMT
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Philip, you are right. I did find this though.
http://www.kingbrightusa.com/images/catalog/SPEC/APG1608CGKC -T.pdf
I went to the site sbruins said they got their leds from and it says their is a polarity mark on the bottom. This part I'm not sure about, I'm not an electrician either, but seeing the flow is from left to right, the positive is the left and the negative on the right?

Subject: Re: Portal Themed Rings
Posted by phildlight on Fri, 12 Aug 2011 17:19:23 GMT

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I see. The ones I deal with don't have a mark and I'd imagine even if they did you would need one hell of a magnification device to see it. The way these things come doesn't help either.

here's a pic to help illustrate the size of these things: (btw. not my finger. LOL)

Subject: Re: Portal Themed Rings
Posted by Youknowwho4eva on Fri, 12 Aug 2011 17:28:02 GMT
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You can't see that? I can see it jk. I have a little trouble thinking in mm. 1/32" wide is a little small to see an arrow that is probably no more than 1/64".

Subject: Re: Portal Themed Rings
Posted by Drawn-SteelHero on Fri, 12 Aug 2011 18:11:46 GMT
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You have trouble thinking in naturally tiny measurements, but have no trouble with bizarre fractions of less tiny ones? You people are backwards.
Those are some frickin' minuscule LEDs - how are you even supposed to wire them up - train nanobots to do it for you?

Subject: Re: Portal Themed Rings
Posted by phildlight on Fri, 12 Aug 2011 18:14:09 GMT
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LOL. I'm American but I can't stand imperial engineering. I can only visualize in mm now.

Soldering these things is insanely difficult. I usually destroy about 5 to get 1 good one.

It's easier to surface solder them using solder paste than to try to add leads.

Subject: Re: Portal Themed Rings

Posted by Morhighan on Sun, 14 Aug 2011 15:42:09 GMT
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I approve of this project. So very, very much.

Also, my roommates want these as wedding rings.

Subject: Re: Portal Themed Rings
Posted by sbruins on Sun, 14 Aug 2011 15:51:15 GMT
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Thanks! I'm glad you like them!

Subject: Re: Portal Themed Rings
Posted by tree on Mon, 15 Aug 2011 01:37:54 GMT
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for switches have you thought of having it so the light is on when the ring is warn, as the battry wont be strong using the wearer as the contact completing the circuit is a viable option.

two metal rings on the inner of the main ring would work. (wow did that discription blow)

Subject: Re: Portal Themed Rings
Posted by jeff on Wed, 17 Aug 2011 19:04:59 GMT
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philip, ef, those are small. you are a patient man.

scott, you keep us updated on this project as it goes along, lots of fun.

Subject: Re: Portal Themed Rings
Posted by sbruins on Wed, 17 Aug 2011 19:11:11 GMT

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Will do! I discovered I ordered the wrong size batteries
So I'm going to make a RadioShack or Ax Man run tonight and see if I can find the right ones.

Also I ruined 2 of the LEDs already trying to solder them. I think they got too hot so I'll try again tonight or tomorrow.

I have a Printed GLaDOS ring now (off our ProJet 3000 SD at work) so hopefully it won't take too much longer to get everything working!

Subject: Re: Portal Themed Rings
Posted by thatdecade on Thu, 18 Aug 2011 05:28:45 GMT
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Yep, those smd LEDs are sensitive to heat. Count to 5 when soldering. If you get to 5, allow the LED to completely cool down before continuing.
What gauge wire are you using?

I've been thinking about the switch. Using a person's finger as a conductor to complete the circuit wouldn't work, not enough current would pass to light the LED. Skin conductivity can be as much as 500k ohms. Could maybe wipe some conductive jelly on your finger,

Instead what I would suggest is to have two metal contacts on the ring. One would be flat to the ring, the other would be an outstretched arm as a spring.
If placed on the inner surface, light would be on when wearing. If placed on an outer surface, light would be on when squeezed.

More spit-balling ideas, has a diameter of 1cm, sorry I wasn't able to find steady yellow. Runs on CR927 batteries. These types of lights go by a few names, body lights, candy lights, round blinkies, etc... lol
http://blinkee.com/product.php?id=Red%20Yellow
http://blinkee.com/product.php?id=Red%20Steady

Subject: Re: Portal Themed Rings
Posted by mctrivia on Sun, 21 Aug 2011 19:01:43 GMT
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when soldering surface electronics i use liquid solder. much easier. for this project i would get flexible pcbs made that way you can get the led battery and resister easily connected(resister not essential with tiny batteries that provide less then 20mA).

on the back side there is a tiny mark that shows which side is which but if you buy in the real then the cathod is always specified to which side of the tape it is on the data sheet.

have fun.

Subject: Re: Portal Themed Rings
Posted by Nunatak on Tue, 23 Aug 2011 01:28:58 GMT
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These look fantastic. Believe it or not, I was listening to Portal 2 sounds clips five minutes before I found this thread.

Needless to say - do want.

Subject: Re: Portal Themed Rings
Posted by MitchellJetten on Tue, 23 Aug 2011 08:46:59 GMT
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Your portal themed rings looks fantastic!
Would love to see how they turned out when printed.

If you can deliver the models like on the render (so with the colors and glazed look) you will make lots of people happy!

--
Kind regards,

Mitchell Jetten
Customer Service Agent
Shapeways

Subject: Re: Portal Themed Rings

Posted by sbruins on Tue, 23 Aug 2011 11:16:53 GMT
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I will do my best not to disappoint!

Subject: Re: Portal Themed Rings
Posted by sbruins on Tue, 30 Aug 2011 22:02:38 GMT
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The Turret ring has arrived! It already looks great but needs some polishing and painting to be complete. I'll post some pics later. I have made the Turret ring available for purchase at my shop.

I am still working on the GLaDOS ring (finding time to work on it has been a problem). But I will post progress as soon as some is made

Subject: Re: Portal Themed Rings
Posted by caesar on Wed, 31 Aug 2011 07:38:09 GMT
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very nice models.
could you please provide pictures of the rings unpainted and painted? I would like to know what they look like without painting.

Subject: Re: Portal Themed Rings
Posted by Psychobob on Sun, 04 Sep 2011 11:54:59 GMT
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I think these are absolutly fantastic. I think the turret and Glados are my favourites

Great idea!

Subject: Re: Portal Themed Rings
Posted by sbruins on Mon, 05 Sep 2011 17:51:43 GMT
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Sorry for the wait (I don't own a camera so I had to borrow one) here are the unpainted pictures. I

polished it a bit but not to a mirror finish as it is getting painted after all.

Subject: Re: Portal Themed Rings
Posted by Jettuh on Mon, 05 Sep 2011 18:33:35 GMT
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sooooo coool

Subject: Re: Portal Themed Rings
Posted by sbruins on Tue, 06 Sep 2011 11:51:36 GMT
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Just wanted to let everyone know the Portal Turret ring is now available in sizes 8-13 (including fractional sizes).

http://www.shapeways.com/model/305903/

Subject: Re: Portal Themed Rings
Posted by shbunie on Thu, 12 Apr 2012 20:46:30 GMT
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Nice work, that looks amazing, will you be making a black and white (and red and blue..) like the original disign as well?
Also are you considering making other ring sizes available?
As i may need to get me one of those