A really magic Harry Potter wand for Lumos and Reveal Your Secrets charms
by KaptinScarlet on July 11, 2007

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Author: KaptinScarlet dadcando

Eldest of five, son of two doctors, 10 years in Graphic Design and marketing, then retrained as a Biomedical Materials Engineer, don’t ask me why, I think it was because I had always wanted to design artificial limbs (still haven’t done that though). I have four beautiful children and although I have been divorced twice I am now very happy. I love Instructables, its ethos and the quality of people who populate its shores, and I am proud to be a member.

Intro: A really magic Harry Potter wand for Lumos and Reveal Your Secrets charms

Further to my instructable for the "Awesome Harry Potter Wand", here is a more technical version. Still as beautiful to look at (more so if you have practiced on the simpler version) and yet this one actually performs magic (albeit science driven magic). A simple UV LED is used in line with a battery and a home made switch to make a wand that is able to illuminate otherwise invisible UV marker pen writing, and is bright enough to be a torch for the Lumos and Lumos Maxima charms.

Actually, it’s very easy to make. If you have wanted to do something vaguely electronic, but the whole electronic thing frightens you, this is a good place to start. You will be building about the simplest circuit there is (a light, battery and switch), but the effect is incredible. This project provides a nice combination of craft and technical challenges with an equally interesting result.

If you thought the other wand was amazing wait till you have seen this, it'll blow you away.

For more great making and doing projects, free printables and templates of the highest quality please see my site dadcando.

And if you make one of these post up a picture of it, or better still email me and I'll put a picture of your wand up on dadcando.

Please Note: You should never point a bright light into someone’s eyes. Apart from the fact that it is not very nice to be dazzled, bright LEDs and Bright UV LEDs can in certain circumstances cause damage to the retina (the back of the eye that does the seeing!) and the cornea (the bit the light goes through). When scavenging bits from another device, never increase the battery voltage or add other components designed to up-rate the output of LEDs or lights, unless you really know what you are doing, because you can easily break them, give your self a shock or create a fire hazard.

As Zootboy has pointed out, only use the batteries suggested in the instructable because they have the correct internal resistance. Using batteries with a lower internal resistance could cause the batteries to heat up or the LED to get hot and burn out.

However, this is not a problem at all if you use the batteries suggested.

Happy Making
Step 1: Get a cheap UV marker and key ring LED set

you can get these off the web, or from Amazon. I have searched for them and there are some links on the Magical Wands page of dadcando for the cheapest I could find, but most big office stationers or art shops should stock them.

Step 2: Take apart LED keyring

take the LED key ring light apart. take care to see which of the LEDs legs is touching the positive battery terminal, in this case it was the short one. If the leg is bent like this one is, it might need straightening out to fit inside a drinking straw (you’ll see why on a few steps).

The batteries which come with most keyring lights are these CR2016 (that's 20mm diameter and 1.6mm thickness BTW). I felt that the diameter of 20mm was too much for a wand handle so i looked around for a narrower 6 volt battery. The best i found was the 6V camera battery 4LR44. As all our joins to the battery are going to be by taping the wires on the less batteries we have to join together the better, so a single battery for the whole 6v is what you want.
Step 3: Solder wire to the LED

Basically the electronics part of this project involves soldering a couple of flying leads onto the LED and positioning the battery and switch at a slight distance from it, not exactly rocket science, but tough if you don't happen to have a soldering iron. BUT seeing as you can probably buy one for less than the value of the wand you are about to make, maybe now is the time to get one.

To make it easier to solder, push the LED upside down into a piece of plasticerine, blu-tack, corrugated or foam core cardboard. That way it is held steady while you concentrate on the soldering.

To get a goo solder join, tin the wire first (to tin the wire, hold the soldering iron on the wire and touch the solder on to the wire as well, when the wire is hot enough, the solder will melt and run along the strands of wire solidifying them together.)

Handle the soldering iron with extreme care as they get very hot and will burn you easily and badly, and will make holes in tables and carpets if knocked off their stands when hot. Also never pick a soldering iron up by the metal bit, you just don't know if it is still hot or not... always use the handle.

Step 4: Thread wires through drinking straw

you might have to file the flange of the LED to get it to fit in the drinking straw. Just before you slide the LED in put a small blob of glue gun glue in the end of the straw to hold the LED in place.

You can put a blob of glue at the other end too just to make sure that it is all nice and secure.

Step 5: Prepare your batteries

We are going to be sticking the wire on the end of the battery using tape to hold it in place. As this is a rather rough and ready (although perfectly ok) way of attaching a wire to a battery, it is a good idea to insulate the rest of the battery to make sure that the wire doesn't slip and short across to the metal casing of the battery.

I cut a hole in a piece of sticky tape using a hold punch (punch sticky side up) which makes a hole in the tape that is a perfect fit for the battery terminal.
Step 6: Insulate both ends of the battery
But remember to mark which end is positive and which is negative, using permanent marker or two different colours of insulating tape.
Step 7: Attach the wires to the battery
It is quite tricky to solder straight onto a battery terminal, and quite easy to damage the battery when doing so, but it is ok (for this application) to press the wires against the battery. So coil up a bit of the bared end of the wire and place over the bare battery terminal and hold in place firmly with sticky tape pulled hard over the top of it.

Step 8: Connect both wires and strap to battery sides
make sure that the positive battery terminal is wired to the positive leg of the LED and that the negative terminal is wired to one half of the switch and that the negative leg of the LED is wired to the other half of the switch.

I have taken each wire from the battery and doubled it back over the battery and strapped it to the battery side with even more tape. This doubling back is to make sure that it is not easy to pull the wires directly off the battery terminals

Step 9: Now start to make the wand outer itself
Much like the Awesome Harry Potter wand you are going to roll up a piece of paper (I strongly recommend paper due to the size and thickness of the battery).

This is not going to be that easy. You must roll to get a taper, so that the big end is tight round the battery and the little end is as tight as possible round the straw without it all wrinkling up.

Start by folding the corner over and start by rolling it round the wires, as shown in the picture.

I really helps to have a couple of strips of double sided to help keep things in place while the glue is setting. DO NOT out too much glue on, it takes ages to dry and is not needed.

Try and aim to get the end of the straw lined up with the end of the paper. You don't have to get it to line up exactly, becuse we are going to be adding another bit of paper when we have done this anyway.

Be careful of the wires don't let them be twisted too much nor strain against the contacts.
Step 10: The end will protrude
better that it pokes out that is to far in.

Step 11: Roll up the end with a new piece of paper
using a strip of double sided to hold it in place, cut out and then roll up a corner of paper so that the tip of the wand is covered right down to the LED

Step 12: Trim larger end
being very careful not to cut the wires, trim the larger end straight. the thin end will already be nicely wrapped and straight so will not need trimming.

Step 13: MAKE THE SWITCH
To make the switch, take two little paper clips and gently bend them out before re-bending them into the shapes shown. The little end bits are for soldering to and these should be roughed up a bit with sandpaper or an emery board.

To make the hoop, bend the wore round a stick or handle of the same diameter as the larger end of the wand.
Step 14: Solder on the wires

Solder the wires to the solder tabs. For each solder tab, cut a small vee shaped hole in the top of the large end rim. When you have soldered the wire on to the solder tab of the paper clip, rest the paper clip down into the vee shaped cut out and secure with a small blob of glue gun glue, do the same for both paper clip parts, making sure that they don’t touch at the top.
**Step 15: Set the switch gap**

Put a small blob of glue gun glue under the top of the straight paper clip and while it is still hot hold it so that it is spaced off the hoop of the other clip so that there is a 1mm to 2mm gap. Let the glue set. Now you can try your switch.

Now you are nearly ready to decorate your wand. But first you must fill the end with glue gun glue.
Step 16: Fill the end of the wand

The big end of the wand will be at least the same diameter as the 4LR44 battery, so it will take some filling. Remember glue gun glue is very hot so filling it up all in one go would be dangerous, use up loads of glue and take ages to set.

I suggest that you roll a small bit of tissue into a small ball and pack the wand a little first, then fill the end in tow or three stages, making sure it has cooled a bit in between each filling. This should only take you about 10 minutes.

For the last bit make sure that the end bulges slightly so that you get a nice rounded finish.

If you go over the metal of the switch it might heat up the previous glue you did there and the switch might relax its position and touch the other contact. This is not a problem, just be aware that you might have to support the switch while the glue sets again. You could put a scrap of card between the switch contacts to stop them touching while the glue is setting.
**Step 17: Add surface features with the glue gun**
use the glue gun to add surface detail to the wand. Rotate the wand while applying the glue. You can see from the pictures here and on the Awesome Wands instructable, that everyone does this differently.

**HOWEVER,** it is a good idea to hide up the switch part so that no one will guess the more muggle working of your magical device. As they are only thin little paper clip wires it is quite easy to glue gun over them as part of the design.

In the second picture here you can see how I have gone over the metal clip and even carefully gone past the end of the metal so that the glue gun glue (plastic) joins back onto the wand.

**NOTE:** This is the finished wand with all the distressing (and some black shoe polish) done to it.

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**Step 18: Paint and distress your wand**
These steps have been more or less covered in greater detail in the HP Awesome Wands instructable and in the Wizardry & Magic section of dadcando, but I have put a brief description here. You have to mind you don't paint over the switch contacts and the LED.

1) Seal the wand with spray paint or emulsion (must be something that sets or dries water proof).
2) paint with wood colour or colour of your choice
3) paint with black mixed with a little water and wipe off as you go so that paint stays in the cracks and corners
4) detail with gold paste, gold paint, gold or silver marker pen or gold or silver leaf

Don't worry if you get a little bit of paint on the switch contacts and they stop working, all you have to do is carefully scratch off the paint to reveal the metal at the point where they touch.

**HOWEVER** take care not to spray the LED, the best way to do this is to wrap a scrap of tape round the end when you are spraying so that it stays unpainted.
Step 19: Finally your working wand

I finally finished my wand by covering it in show polish and burnishing it up with a soft brush and a duster and then touched in the odd bit of gold over the top for full effect.

Now when you want to use the wand, remember to Swish and Flick and while holding it feel how you can press the switch without anyone noticing and say Lumos, or if it is dark say Lumos Maxima, very good, now then you are ready for the much harder charm, “Reveal your Secrets”.

Experienced wizards know that for this to work, they first have to get a UV security Marker and draw or write a design that they will later want to reveal. You have a marker from the set you bought, so get drawing. Draw a marauder’s Map, put the feet on it and then you can follow them round with the wand, but until you use your magic on the page no one will be able to see it.

NOW how cool is that?

To draw a Marauder’s Ma I recommend drawing it in normal pen first and putting that under the page so that you have something to trace over with the UV pen, because it is very hard to draw or write things when you can’t see what you are doing.

I am going to design a marauder’s map and put it up on dadcando as soon as I can so that all you magical wizards and witches can really have some fun.
Related Instructables

Lumos! - Adding some punch to your Harry Potter wand! by macgeek800

Related Instructables

Related Instructables

Steampunk Harry Potter Wand (Photos) by sir-zeke

Harry Potter Style wands (Photos) by Rainspuddle

HPC Prize -- Magnetized! (Photos) by technick29

Comments

50 comments Add Comment view all 194 comments

harry potter rules says:
where can i buy a uv led key-ring light

Feb 24, 2011. 9:38 AM

harry potter rules says:
i already have a harry potter wand which doesn't light up
could i cut it near the end and put the light in and then glue/or tape(lots)it back together
i really want to make it for world book day

Feb 24, 2011. 9:29 AM

harry potter rules says:
this is amazing
please can u subscribe to me then show me easier ways on how to make a
light up harry potter wand on my orange board :)

Feb 24, 2011. 7:06 AM

craziemutant says:
From the tip to the battery, there's a lot of empty space after rolling. Is there a remedy to this problem? I don't think hot glue will pass the battery to fill that area.

Dec 17, 2010. 6:33 PM

Imperkins says:
I made a couple of these wands (excellent Instructable BTW) with a slight twist. I used the Joule thief circuit (described in another instructable, http://www.instructables.com/id/Make-a-Joule-Thief/) so I could use an inexpensive AAA battery. The larger battery with this circuit should give a very long lifetime for the wand. They came out quite nicely IMHO.

Dec 16, 2010. 1:58 PM

AF-Geek says:
Small, but wide, rubber/elastic bands work well to hold wires to batteries (or regular size, looped around several times). They keep pressure on the connection, so you don't have to worry about the tape pulling loose.

Oct 29, 2010. 7:57 AM

KaptinScarlet says:
Brilliant idea, wish I'd thought of that.

Oct 30, 2010. 8:32 AM

wirecutter says:
Brilliant a Wizard Instructable !
If you fit a changeover switch with a centre off you can have a white LED at the tip and two UV LEDs at the sides of the tip and if the leds are covered if a UV filter its effect really spooky as the LED's are invisible under the filter

Oct 28, 2010. 2:53 PM

twocvbloke says:
I wonder if you can get UV ink for inkjet printers? :D Could make some interesting thing for revealing with a UV light... ;)

Jul 15, 2009, 2:07 PM

wirecuter says:
Hi
If you find it don't put it in a Epson type The Da... stuff kills the ink jet head
A better way is to get a couple of UV pens and dissolve the ink out with I.S.P. and then use that in a washed out cartage.

Oct 28, 2010, 1:43 PM

Bluedove2897 says:
Yea that would be awesome

Aug 4, 2009, 12:07 AM

maruawe says:
You can get glow powder from glowinc.com Mix this with black ink (quarter teaspoon with 5 ml of ink). Heat for 30 seconds in microwave stir thoroughly refill black ink cartridge and print away... Be sure to 400 powder, the granules will explode in the microwave (happened to me). Don't know about uv ink but ask about it at the site they have everything else

Jul 19, 2009, 6:54 AM

twocvbloke says:
I was thinking of transparent ink, like what you get in security pens, you print out seemingly blank documents, but under UV light, all is revealed... :D

Jul 19, 2009, 11:04 AM

KaptinScarlet says:
Derrr, check out my comment below and the website I linked to, they already make it and sell it!

Jul 19, 2009, 11:22 AM

twocvbloke says:
Oh yeah, I forgot about that... :

Jul 19, 2009, 12:14 PM

Redgerr says:
common mistake to read the top posts before the bottom ones :)

Jul 20, 2009, 7:46 AM

twocvbloke says:
My memory's useless, I forget things I've read, so I had read it, I just forgot I read it... :P

Jul 20, 2009, 3:08 PM

KaptinScarlet says:
It has been postulated. The question is, could you hack a UV ink pen (or pens) and fill an inkjet ink reservoir to see if it works? My feeling is that in principle it sounds feasible, but in reality the viscosity and conductivity of the ink is crucial to the correct functioning of the inkjet, so unless you can buy UV ink formulated for ink jet machines then you have absolutely no chance. So why not try out these people (only pay using paypal though) http://www.fake-proof.com/printer_uv_ink.htm which I just found by searching on the web, seems to me that they have a solution of most common inkjet machines!... cool.

Jul 15, 2009, 3:28 PM

maruawe says:
thanks for sharing this, I have been looking but the best I could was with glow powder... I use the glow powder on my business cards and get a lot of comments ...... One person left it on his desk and the cleaning woman had a cow when she went in to clean and saw the glowing cad on the desk( wish I could have got that one on film.......)

Jul 20, 2009, 6:48 AM

thepelton says:
I solemnly swear that I am up to no good.

Jun 24, 2009, 11:40 AM

nebih says:
mischief managed!

Sep 13, 2010, 6:50 PM

Redgerr says:
well thats good to know :)

Jul 20, 2009, 7:48 AM
gamer444 says:
does somebody know how to make a wand box, I can't find instructions anywhere!!! (sorry if there are spelling mistakes but I am french so...)

Jun 6, 2009, 5:51 AM

REPLY

mggfarrand says:
Just shooting from the hip here... If you have a box, you could probably use that floral foam stuff and easily make an indentation for your wands in that, then glue either felt or velvet over it for that finished look.

Jun 30, 2010, 8:37 AM

REPLY

KaptinScarlet says:
not a bad idea at all. Better still if you made the indentation and then let some white glue mixed with a little water permeate into it and then dry hard, that would stock the floral foam crushing further in use once the fabric was over it. Thx for the idea.

Jun 30, 2010, 9:15 AM

REPLY

(YOUR N says:
this to 2 complecated y cant u use real pics insted of drawings :C good idea :D

Aug 7, 2010, 1:23 AM

REPLY

mggfarrand says:
Or... What about either spraying it with clearcoat or brush on varnish, just in case humidity could make the glue, gummy...

Jun 30, 2010, 10:06 AM

REPLY

KaptinScarlet says:
try here <a rel="nofollow" href="http://www.dadcando.com/default_MAKING.asp?project=WandBox&catagory=Wizardry_and_Magic&lhs=Wizardry_and_Magic">http://www.dadcanc this is the link to the page with a great wand box project.<br/>

SonicX 22 says:
"You should never point a bright light into someone's eyes. Apart from the fact that it is not very nice to be dazzled." But that could be our first spell, lol

Jun 24, 2010, 9:33 PM

REPLY

makendo says:
Fantastic project - many thanks for the instructable!

Dec 26, 2009, 8:55 PM

REPLY

whscameragal says:
dont buy them from amazon they are available at the dollar store!

Sep 15, 2009, 5:06 PM

REPLY

aabarrera says:
Can you send me one of yor wands because i cant make one i'm having trouble plaese send me one reply back

Aug 19, 2009, 7:57 AM

REPLY

yahya kurdi says:
nice

Aug 13, 2009, 3:13 PM

REPLY

Arvondor says:
I have a suggestion, like instead of black paint, maybe if you rub some art charcoal on your fingers and rub the wand a bit and then wipe it, it could turn out nice. (I haven't tried it but it seems possible)

Jul 31, 2009, 5:53 PM

REPLY

V.K.P says:
This is my wand. Its Lord Voldermort's wand. I moulded the handle of the wand with glue gun glue. It was very hard doing it! I used a white LED. I also used a normal switch to make it. I didn't make a switch. Do you like it? Does it look like Lord Voldermort's wand?

Jan 6, 2008, 4:32 AM

REPLY
It looks fantastic, and that light looks really bright... Is there any chance you can take a slightly less bleached out picture of the whole wand, with the light on so that I can put it up on line at Dadcando Dadcando in the Your Own Models section. Don't worry too much about the back ground, I can always take that out.

Well done, It looks really fab, and I think you have done a really good job with the glue gun glue, that is a very tricky skill to master!

I am having a few problems with my led wands. the first one I made was the same design in the example. My next try was at a harry potter version. It all worked fine until I had to paint it. I have done another two wands now and for some reason when I paint them the led is lit the tiniest bit, when you press the two wires together it lights up really bright. But for some reason when the wires aren't touching (and i have made sure they really aren't) the led is still lit up a tiny bit. Who knows why? Does paint have metal in it or something? I am lost as to how it can be lit up without the circuit being closed (i.e. the two wires touching). Any help is appreciated
Redgerr says:
that must have taken a while eh? O-o very nice

Mar 28, 2009. 12:57 PM REPLY

devilzmercanary114 says:
which store has a UV key ring light wit thee marker

Mar 28, 2009. 1:41 PM REPLY

KaptinScarlet says:
amazon and only a dollar or so

Jul 17, 2009. 11:18 AM REPLY

The Jamalam says:
I thought that you were English?

Jul 20, 2009. 7:50 AM REPLY

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