



Wireless Inductive Power Night Light

Created by Tyler Cooper



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Overview



Every time I hear about wireless power systems, or see a wireless charger in action, it feels like some sort of crazy magic. The idea of harnessing an electromagnetic field to produce enough power to even glow an LED is amazing to me.

So, when Adafruit started to carry a couple of [Inductive Charging modules \(https://adafru.it/e3L\)](https://adafru.it/e3L), I knew I had to create a project with it beyond just charging a battery.

I often go to bed much later than my wife, and like to do a bit of reading before going to sleep. I decided to create a nice little night light / reading light that I could easily set at just the right brightness without waking up my wife. With this light, all you need to do is slide the LED block closer to the power block to make the light brighter.

It's a bit of a hack, which takes advantage of the fact that the inductive chargers work 'better' the closer they are together. In this case, pulling them apart dims the LEDs because the voltage drops. This won't work with Qi chargers, which don't have this 'bug'! I mean, you can still use a Qi charger, but it will only be on or off, no dimming.

The Wireless Inductive Power Night Light is a very simple and easy to complete project. All you need is to make one is an inductive charging set, a power supply, leds, an enclosure, and couple other pieces.

No microcontrollers or programming required!

I am not going to go too deep into why I wired up the LEDs in parallel or how to choose the correct resistors for the LEDs you choose. For a great guide on everything LEDs, please click the button below.

<https://adafru.it/e3K>

<https://adafru.it/e3K>

Also, before you continue, make sure you know how to properly solder. Need to learn how to solder? Well, you have come to the right place! Click the button below.

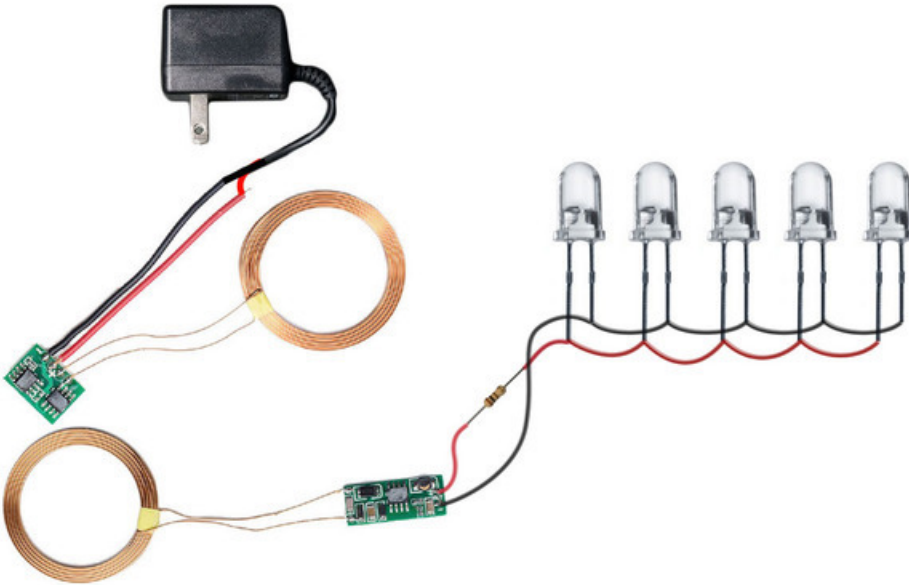
<https://adafru.it/drl>

<https://adafru.it/drl>

Lets get started by taking a look at how this simple project is wired up.

Wiring Diagram

Like I said...this is a pretty simple project. You just need to wire up the LEDs in parallel, and connect them to the inductive charging receiver. You can use the 5V or 3.3V inductive charging set, depending on your LED voltages. The 5V is best for white leds, just add in a 'choke' resistor (about 220-1K ohm, adjust as necessary)



Make sure to include the proper resistor for your LEDs so you don't burn them out!

While I don't show it in the image above, I did a 2.1mm DC barrel jack to the transmitter side of the inductive charging set.



As you can see in the image above, I wired up the LEDs in parallel, then wrapped everything up in a healthy amount of electrical tape as best as I could to prevent a short circuit. The white piece of plastic was cut on a laser cutter to fit into my enclosure. There are plenty of ways you could make a nice enclosure for this with items found around the house.

Let's take a look at how I built my enclosure and assembled everything.

Enclosure & Assembly

I happen to be lucky enough to have access to a CNC and laser cutter at my makerspace, [Nordeast Makers \(https://adafru.it/e3I\)](https://adafru.it/e3I). I decided to build a nice enclosure out of wood, and a laser cut white LED diffuser.

I started by designing a quick enclosure in Sketchup and exporting to a DXF to CNC and laser cut.

<https://adafru.it/e3J>

<https://adafru.it/e3J>

I then cut out the wood boxes out of a nice piece of walnut on the CNC.



After cleaning them up, and sanding them, I applied a few coats of polyurethane to make them nice and shiny.



I used the same DXF file and cut out the diffuser and cover out of a 1/8" thick white acrylic. I cut out a circle in one piece for the panel mount barrel jack to fit into.

Then, I stuff everything inside the boxes, and used a bit of hot glue to keep everything in place (and to prevent the LEDs from shorting out). The white panels just locked into place perfectly (I didn't even need any glue).



Plugged it in, and it worked!



What projects have you built with an inductive charging set? [Let us know in the forums! \(https://adafru.it/cer\)](https://adafru.it/cer)