

Lightning Light Box (LLB)

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2005 Halloween Update on the LLB: All I can say is WOW! Did this work great! I set it up with three 100 Watt white flood lamps pointing up at the front of my house haunt. I set it to flash about every 15 seconds. It only triggered when my infrared motion detector picked up the TOTs arriving at the front door.

[Take a look at this video of the LLB in action in AVI format 552K](#)

You'll see plenty of DIY home haunter's lighting devices out on the Web. I created something a little different. My requirements: I wanted something to simulate lightning in a big way outdoors. Not with the dinky lightning simulators you can buy at Halloween stores. I wanted it to be cheap. That rules out buying high powered photographic flash lamps. I didn't want to drive it with speakers to simulate lightning AND thunder—like some hobbyists have built—even though that's really a great setup. I already have outdoor speakers for my home haunt where I play Halloween sounds, so I didn't want to clash with that. I wanted to be able to vary the time between lightning "bursts". In nature, lightning rarely flashes like a regular strobe light! It varies randomly with the burst rate, burst duration, and delay between bursts. One design tradeoff I made was to have a set delay (I picked 1 minute), but still get the random burst. And of course, I wanted the thing to just keep flashing over and over--- and be reliable.

With this circuit, I used the commonly available light dimmers (I used a \$7 one) to achieve 600 watts of lighting capacity modified per the [flicker box](#) method. However, instead of driving the photocell with a flicker bulb, I drive it with a high intensity blue LED (\$3 at Radio Shack) to get sharp light bursts to simulate lightning. A single 150 Watt white flood lamp can light up your graveyard setup, or in my case...the front of my house.

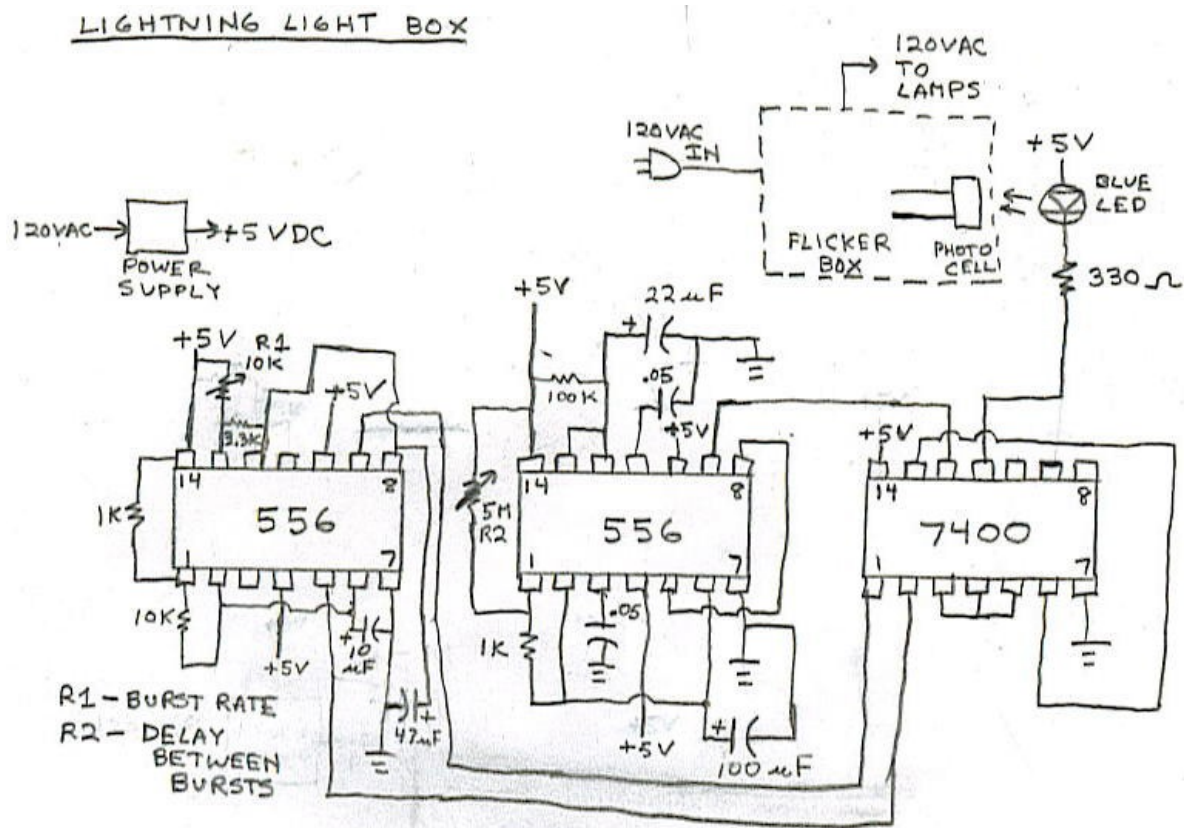
The LED is driven by a relatively simple circuit that uses only one +5 volt power supply. All the electronics and the dimmer can be housed in one plastic hobby box (readily available at Radio Shack). Of course, don't leave this outdoors in the rain unless you can make it watertight! Electricity and water don't mix! You could safely put the box indoors and run an extension cord out to the outdoor light fixture. Of course, all your outdoor electrical items should be run off [GFCI](#) protected outlets. Your risk and your responsibility!

I chose the 7400 TTL chip because you can drive the LED directly from its output...and get good intensity from the LED. TTL requires a +5 volt supply. The two 556 timer chips can be driven with 5 to 15 volts, so +5 works fine. These chips (about a dollar apiece) are

readily available at Radio Shack or tons of other places. If you've read this far, you're an electronic hobbyist ...and know how to create a simple +5 volt supply with a small transformer, rectifier, capacitor, and 7805 chip already. About \$9 in parts. I've leave that to you.

If you want to delete the lamp dimmer circuit entirely, you can use the high intensity LED itself to light up props outdoors (or indoors if you like). These new blue high intensity LEDs just put out an amazing bunch of light--even driven by the little 7400 chip. The blue light flashing on a "cheesecloth ghost" would probably be quite awesome!

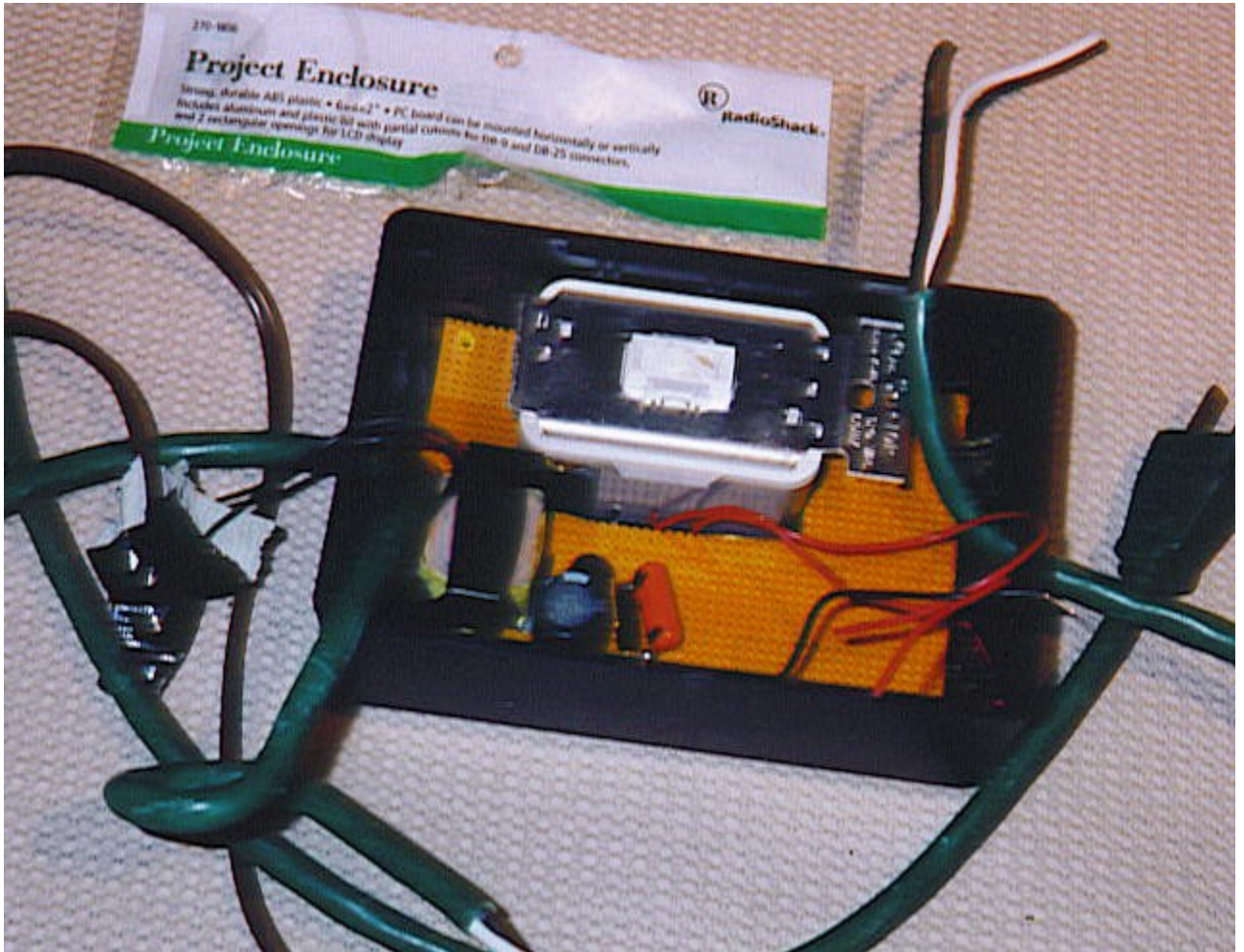
This schematic is a bit rough, but it is accurate to what I built! It works!



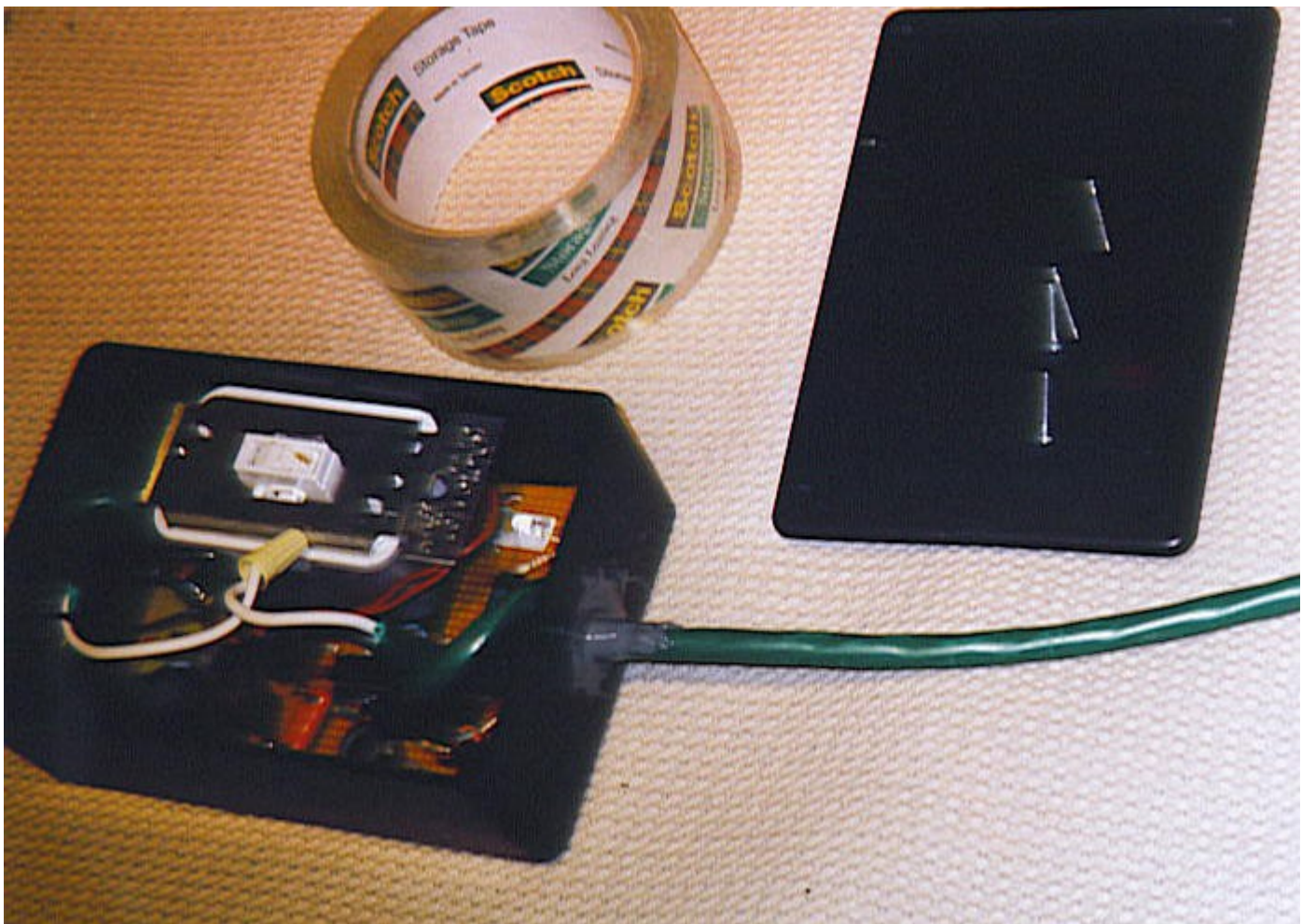
You can play with the bursting patterns of light by varying R1. The first 556 chip drives two "conflicting" pulses...that when combined in a NAND gate on the 7400 chip...can flash like "random" lightning. Their output is further NAND combined with an enabled "window" output from the second 556 chip. This chip allows you to vary the delay between bursts (with R2)---from a few seconds to over 3 minutes. If you want to vary the burst DURATION, you can vary the 100K resistor. The 100K gives a nice 4 second burst.

Here's the LLB under construction. Note that I fit the entire dimmer box inside the project box. It's neatly tucked in alongside a perf board to mount the electronics. I had to shear off the dimmer light switch to get it to fit in the project box, but no matter...no one

is going to need it. I just moved it to the full "on" position. With the photocell to regulate the output through the triac gate, this works great!



Here's the LLB completed with the top off the project box. Note the JB Weld epoxy around the extension cord hole in the side of the box. As an additional measure, I always put a knot in the cord just inside the box as strain relief in case it accidentally gets yanked. Finally, I use clear package storage tape to seal the box after the top is screwed on. Four pieces of tape to cover the small gap around the edge.



When I tested this out the first time in my darkened workshop with a 150W flood light, I was amazed how close it was to the real thing! Can't wait to try it out next Halloween. I'm thinking I might put a small tree branch limb a few feet in front of the light to get scary patterns to show up on the house. :-)

HAPPY HAUNTING!

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