



Lightbox inspired picture shelf with battery operated LED's

by **Zoe Morrison PDX** on July 7, 2015

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Ever curious

Intro: Lightbox inspired picture shelf with battery operated LED's

I've been making digital photo collages for years using Photoshop and photo copies of family photos. These are awesome gifts for displaying photo transfer : paper tiled mosaic boxes, vintage photos on wood, foil tape 'embossing, fabric art, cool music boxes & Plexiglas projects are some gift ideas to consider using this method.

Even though wood is my favorite transfer medium, I love the way pictures pop when illuminated from the back (probably a throwback to handheld slide viewer days.)

Looking around my house I'd noticed I had 'artwork' on the walls but family photos were stored in boxes. I wanted to remedy that by making something unique to display those photos. For a couple of years I've engineered a **backlit photo shelf** in my mind. After finding a 16 ft- 66 bulb LED battery & remote controlled light system online, I set to work making the backlit photo shelf I'd imagined.

[This instructable inspired me to get to work on my own lightbox inspired idea.](#)

Ever since my six year old self proudly displayed a macaroni encrusted treasure box on my nightstand, I've been making and personalizing upcycled art projects out of all manner of boxes. (I'm particularly fond of cigar boxes though).

Recently I've made wall mounted charging stands, stash boxes, music boxes, and keepsake boxes for family and friends. Gifting friends a cigar box is reciprocal when friends show me how they are repurposing their own box.

You want to adapt these instructions to fit your skill level (toolbox). For example, the Plexiglass edges could be routed to slide in the cover channel. If you are handy, you could make your project less rustic.

These aren't your granny's stash boxes....This is my first instructable.

Materials, Parts, Tools

The shelf unit cost about \$30 overall. I gathered materials in bits & pieces, assembling a stash of materials.

If you have lumber or other bits around your house, adapt this idea to make your own art. And please share YOUR own upcycled cigar box project.

For this project I used:

1) 8-Series R-**La Gloria Cubana** No.4 Mahogany finish cabinet style cigar boxes (size: 5 ¼" X5 ½"X4 ½" deep)

2) 8 Plexiglas panels: opaque 5" X 5 ¼"x 1/8". Snap panels to your project size.

I bought a piece of opaque Plexiglas 5" x 45" from the scrap bin at TAP Plastic for \$3.00.

Scavenge more if you want to rotate your image display.

3) **Nashua Multi-Purpose HVAC Foil Tape** (2-7/8" X 50 Yards) You won't use all of this but it is so handy for other craft projects, you'll be glad to have the roll on your tool shelf.

4) Soft gel matte transfer medium. (Golden)

5) One piece of 1/8 inch birch scrap approximately 3" x 42" (mounting board): I was offsetting my boxes for visual interest so needed a mounting strip that was small enough to remain hidden when mounting the shelf.

6) 8 laser photo images 4-7/8" x 5" tall (portrait orientation) or photocopies. Use everyday paper stock to print your images to cut down on burnishing and 'reveal' time of the images.

7) **Homestarry 66 Micro LED String Lights** (approx. 16 ft long)

Photo editing software: Gimp, Photoshop, etc

Hand Tools:

Safety Goggles

Sharpie

Utility knife

Yardstick

C clamps

Pliers

1/2" dowel pieces 2-4" long

Needle nose pliers

4 inch plastic offset spatula (student painter style)

Carpenters or tacky glue

1/2 inch drill bit and power drill

Small hand Saw to cut mounting board to size

Optional Items:

- * Dremel tool with Cut Off Wheel or sanding bit
- * Shims as needed:(toothpicks, small strips of wood, folded paper, rolled foil tape)
- * thumbtacks
- * wax paper, kitchen parchment or freezer paper
- * picture mounting hardware & hammer (if you want to hang your masterpiece)





Step 1: Prepare Plexiglas panels

Measure box lids to create cutting template for the Plexiglas panels.

Put on your safety goggles. With a ruler or straight edge mark score lines on the Plexiglas with a sharpie.

This instructable shows the method I used to score and break the panels to size.

Secure the Plexiglas over the edge of a work bench: Clamp the straight edge over the Plexiglas with c-clamps. I used a utility knife to score the Plexiglas, scoring the cutting line 10-15 times before snapping the cut. This makes a deeper cut and will save edge clean up time.

Continue marking, scoring and snapping 8 Plexiglas panels.

Set the panels aside for edge clean up.

Edge Cleaning:

I used a dremel tool fitted with 1-1/2" Fiberglass Reinforced Cut-off Wheel to clean up the edge. A sanding wheel tip can make this process simpler & faster too.



Step 2: Image Transfer onto Plexiglas

This Instructable demonstrates how to photo transfer images onto Plexiglas.

Apply two coats of gel medium on each image

1 horizontal layer

1 vertical layer

Dry thoroughly between each coat.

When dry, cut the image to fit the Plexiglas without folding the image over the edges. Don't mount images edge to edge. Leave a 'frame' 1/8" between edge of image and edge of Plexiglas. (Leaving a blank frame of plexi around the image will keep the artwork from tearing.)

Smoothing out bubbles in the image:

Apply the medium acrylic gel matte directly to the Plexiglas. Place the prepared image face down onto the gel matte medium.

Immediately after you've placed the image on the coated Plexiglas, use an inexpensive offset paint spatula to burnish the image onto the gel medium. (I start from the center of the image, working bubbles from center to edge).

Allow coated panels to dry in the sun or in front of a fan.

Optionally, you can weight the image with a book to flatten. Add a layer of wax paper, freezer paper or kitchen parchment paper over the image to keep the image from sticking to the book.

Allow the image transfer panels to dry thoroughly.



Step 3: Revealing the images

Lightly dampen the image

Burnish the paper off the image with your finger.

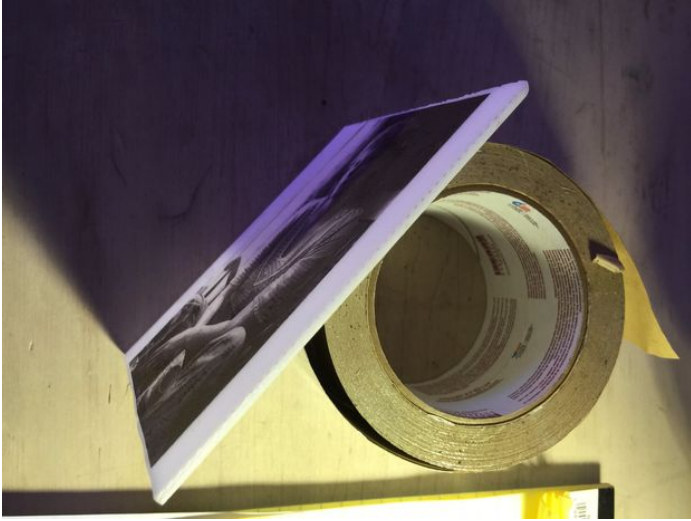
Allow to dry between layers of paper to keep from overworking the image.

For the last layers of the paper removal process, dampen a corner of a washcloth, then gently rub the last paper remnants off of the image.

Set revealed images aside to dry thoroughly.

When the Plexiglas panels are dry, apply a thin coat of gel matte or mod podge to the top of the image to seal the panel.

Set aside to let the sealer coat dry while assembling the light box.



Step 4: Line the boxes to reflect light onto the displayed images

Get ready to illuminate!

Remove lids.

Using a ruler, measure the boxes for lining the box interiors with foil tape strips.

Smooth the foil strips with the offset paint spatula when applying the layer.

Cover the entire interior surface of the box with foil.

Clean up: With an exacto knife even off jagged edges that might prevent panels from sliding freely.

Complete the remaining box interiors. Set aside.



Step 5: Marking and drilling holes for threading the lighting

Note: The exterior sides of box #1 and box #8 will not be drilled.

Arrange the boxes on the strip of birch. I oriented all the boxes vertically with openings facing the top of the shelf.

** If you are lining the boxes up right next to one another, you can eliminate the step of lining up drill holes that follow. Create a template of your own to mark the drill holes. (I offset the boxes to create visual interest.)

Measure the birch strip so that the first and the last box overhang the strip by about 2 inches. Mark the birch strip & cut this piece to size.

Lay the birch mounting strip on your work surface. Starting from the left place the first box where will be glued to the birch mounting strip.

Using a pencil or awl center two vertical marks on the inside right-hand wall of the box. Mark one drill hole.

Measure 2 inches below and mark that hole.

Turn the box opening to your left.

Set the box so that the right wall is facing up.

Using 1/2 inch drill bit, drill two holes in the right hand side wall of box # 1.

Place this box into position on the birch Mounting strip. Set box #2's edge flush with the first box making sure the sides touch one another.

Mark the two drill original drill holes from box #1 onto the exterior of box # 2 with a pencil or awl.

With a ruler, center a horizontal line from center of the first drill hole to the right side wall of box #2. Mark this line with the awl.

Move the ruler down two inches & mark the second hole on the right hand wall of box #2.

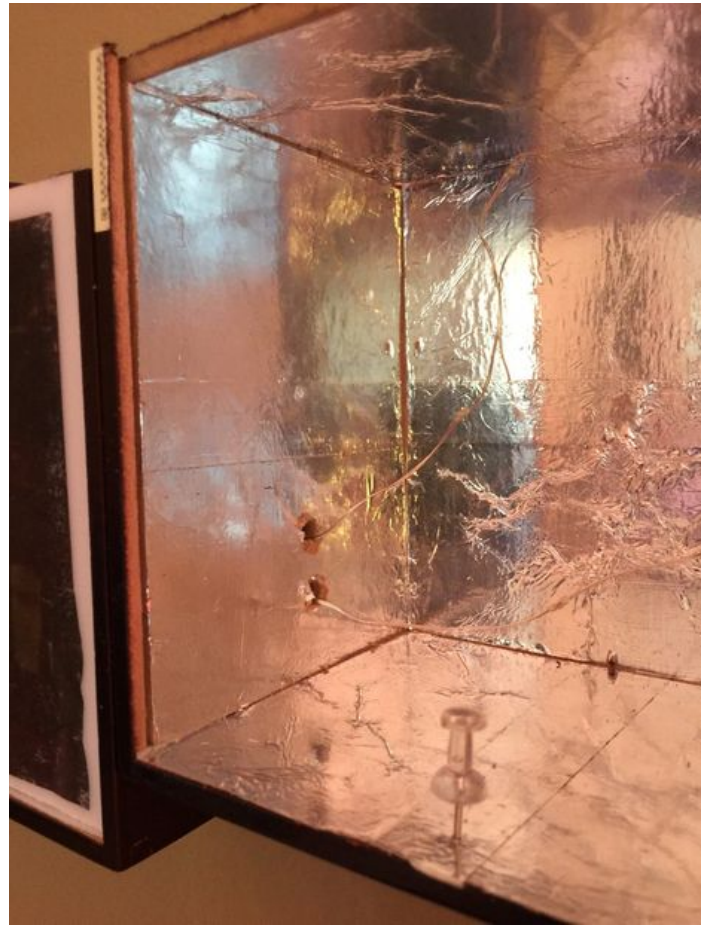
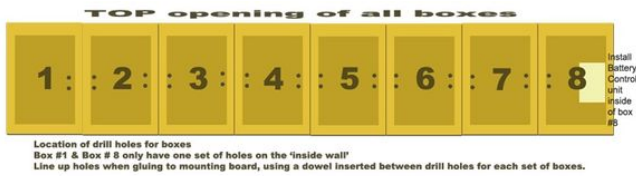
Drill two holes on the left wall and the two holes on the right wall of box #2.

Place box #2 into place on the birch mounting board. Line up previously drilled holes.

Set box #3 flush with box 2 on the mounting strip. Mark drill holes on left & right walls.

Drill two holes in left wall & two in right wall. Align drill holes. Continue the marking, drilling & aligning process for boxes 5, 6 & 7.

(Note: box # 8 only has 1-set of holes on left hand wall)



Step 6: Mounting and Gluing the boxes to the birch mounting board

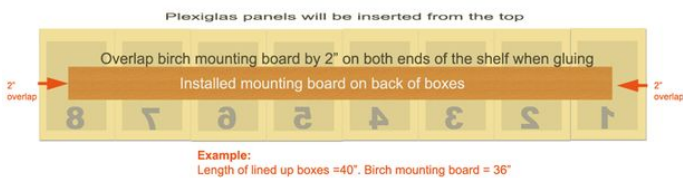
Apply a generous amount of glue to the face of the birch mounting board

Glue the boxes into place on the board. Allow a two-inch of each end box (#1 & #8) to overhang both ends (see image).

Use small dowels or chopsticks to align the holes between boxes. Clean off excess glue with a damp rag before weighting the boxes. Set a plank on the top of the box assembly.

Weight the plank with bricks, heavy objects or clamps.

Set aside to dry.



Step 7: Install the LED Lighting system

* Ideally each box will have 8-10 lights illuminating the interior.

Uncoil the 16 ft. battery powered light strand. Start with on box #8 (the battery pack will reside in box #8), thread the light strand through the top drill holes. Keep wire slack so each box has 4-5 lights in each box while threading the top course. Continue threading all boxes.

Create return loop:

Threading the bottom course of drill holes, (leaving 4-5 lights in each box).

Secure lights by gently bending the wire toward the bottom of the box.

*Use short strips of foil tape to secure the wire if necessary to keep the light source toward the bottom 1/2 of the boxes.

NOTE: lights in the upper half of the box create a distracting aura under the image (unless you plan your piece that way). Hmm, that gives me an idea.



Step 8: Let There be Light

Place 3AA batteries in the light control box and snap shut.

Fasten the control box inside box #8 with a short screw. Turn on the remote to check batteries are installed correctly and that your boxes glow.

Skip to step 9 if you are displaying the art shelf on a tabletop.

Once everything is working correctly, turn the lights off and flip the unit over.

Install the photo mounting hardware on the back of the birch board, approximately 15 inches apart. (Secure the hardware directly into the birch mounting board but not through the cigar boxes.)

Affix picture wire between the mounts. Using needle nose pliers, tighten the wire to eliminate excess slack in the wire between the mounting hardware.

Wall mounting: Mark picture hanger placement on your wall approximately 8" apart, level with one another. Nail or screw the picture hangers in place.



Step 9: Install the art panels

Slide the Plexiglas panels into the box channels.

Insert the panel into the top of the boxes and slide the images down and into place.

If the panels aren't a smooth fit you may need to adjust:

- a) Shim the panels slightly
- b) Place a thumbtack behind the panel to keep the bottom of the artwork from sliding back in the box.

Mounting : You may need to add some shims behind your shelf to prevent downward droop.



Box bottom becomes the top

Plexiglas image panels replace original lid, sliding into the channel from above



Step 10: Display your upcycled illuminated art shelf

Use the remote feature to turn the fixture on at night and impress your friends with your cool DIY art project!

Stand back and admire your upcycled cigar box project.

I hope you enjoyed this instructable.

Feel free to share your own projects with me.



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Basic Cigar Box Guitar Amp With Tripod Stand by Roy Glen Gilliam



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