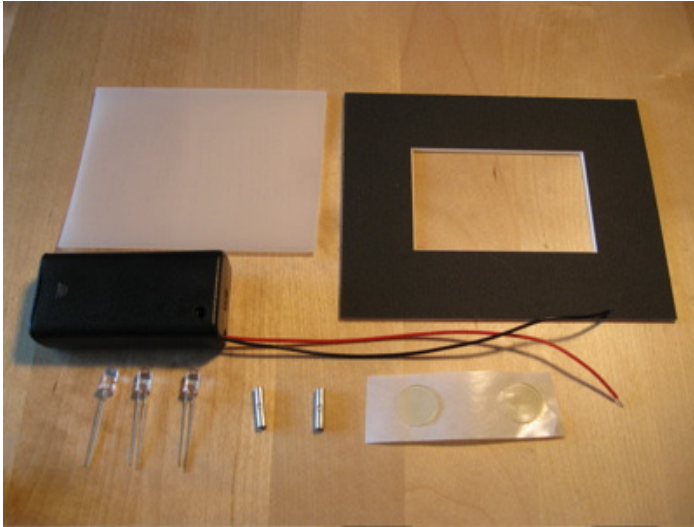# LED ART KIT
Instructions Version 1
©2008 Ken Murphy
www.blinkybug.com

1. Parts and Tools
Your kit comes with everything shown here:

- 4" x 3" plastic screen
- 5" x 4" matboard frame
- Battery case w/ wire leads
- 3 RGB color-changing LEDs
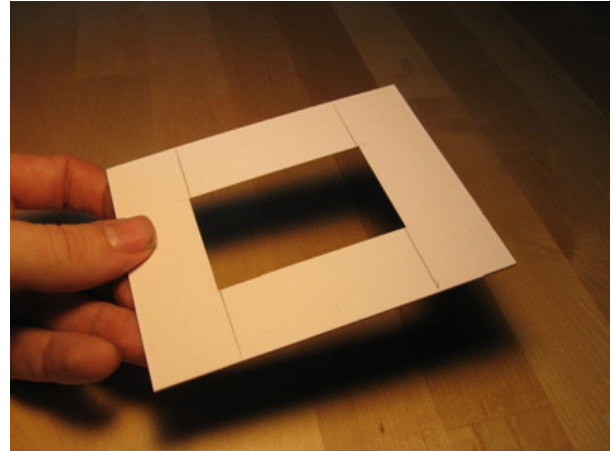- 2 butt splices
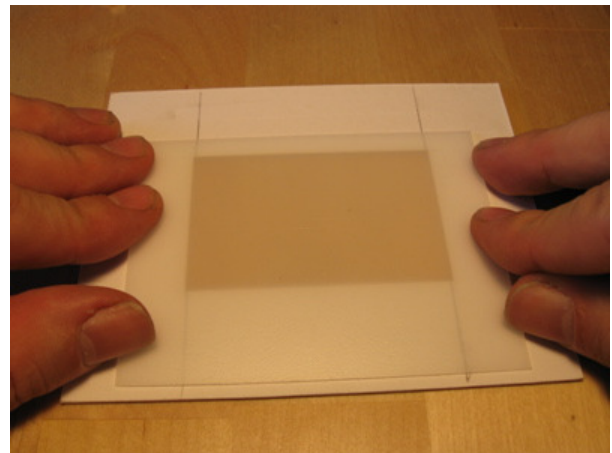- 2 glue dots

The following you'll have to supply yourself:

- Pliers
- 2 AA Batteries
- Scotch tape (not shown)
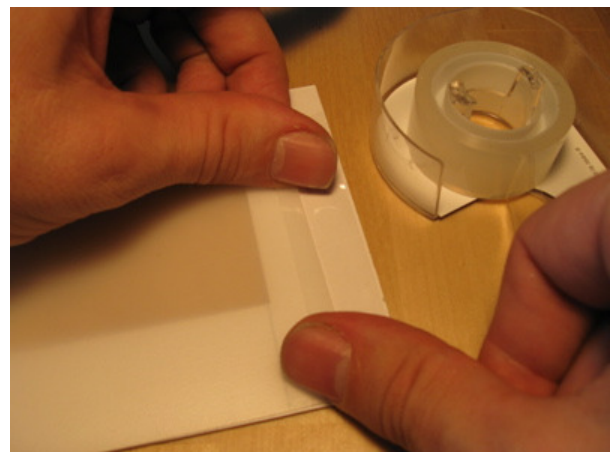- **Optional:** Hot glue gun

2. Prepare the Frame
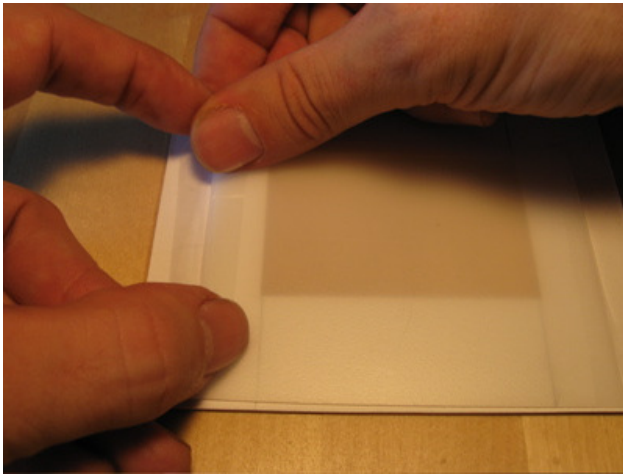Flip the frame over, so you're viewing the white side:

Position the plastic screen on back of the frame so that the window is entirely covered, and the lower edge of the screen is close to the lower edge of the frame:
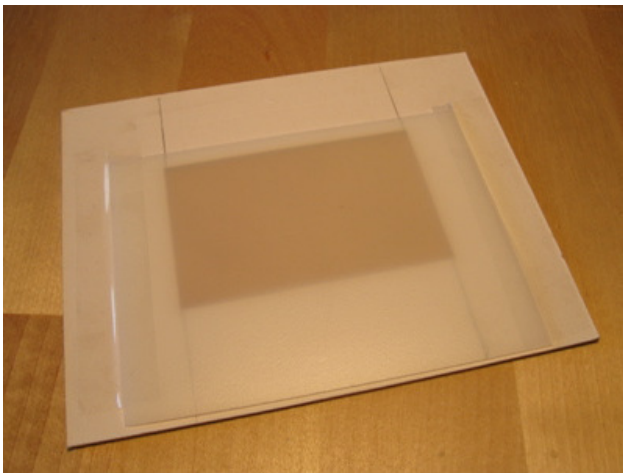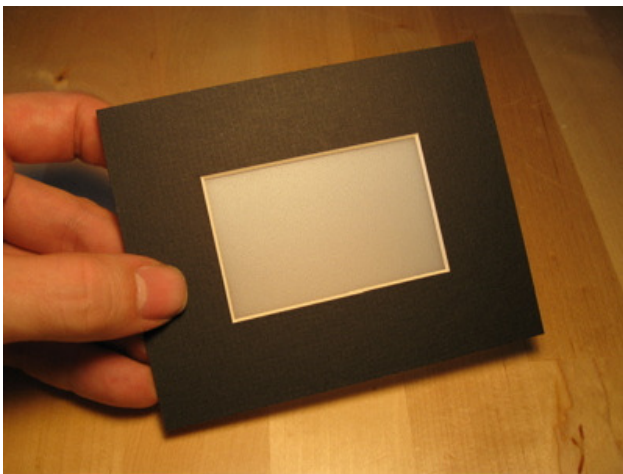

Now tape the right and left edges:
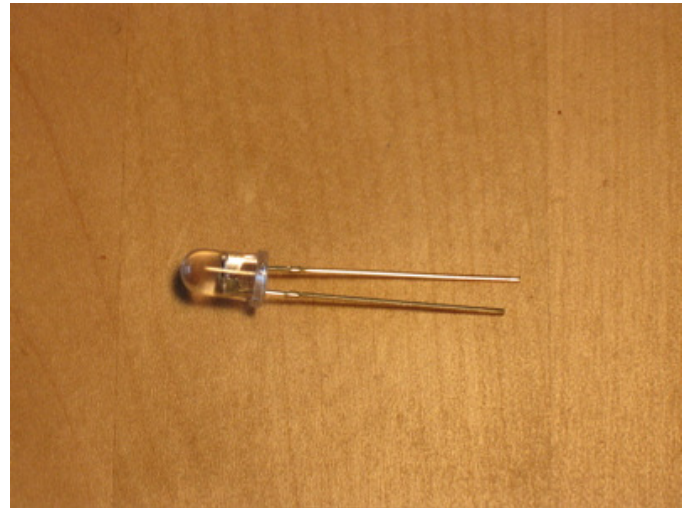
Your frame should look like this:
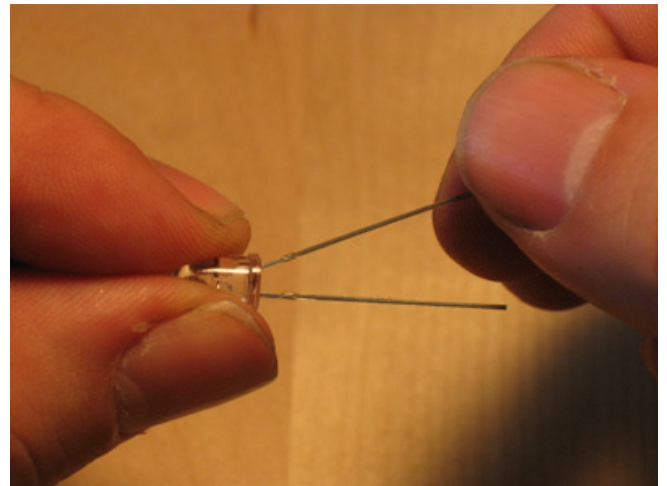
And here's the front view:
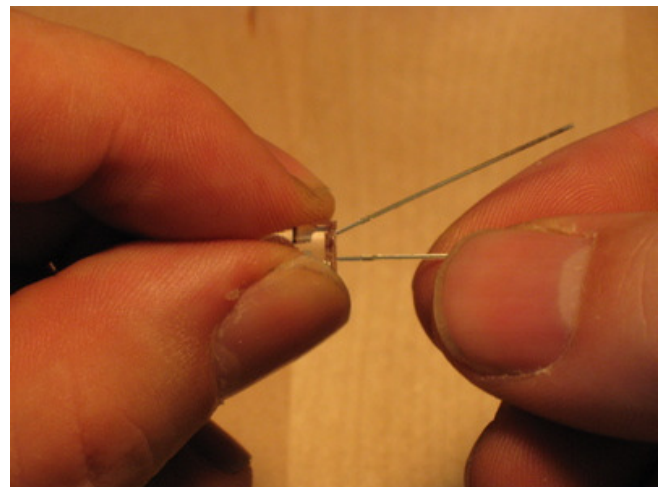
2. Prepare the LEDs

Take a close look at one of the LEDs, and note that one of the wire leads is longer than the other:
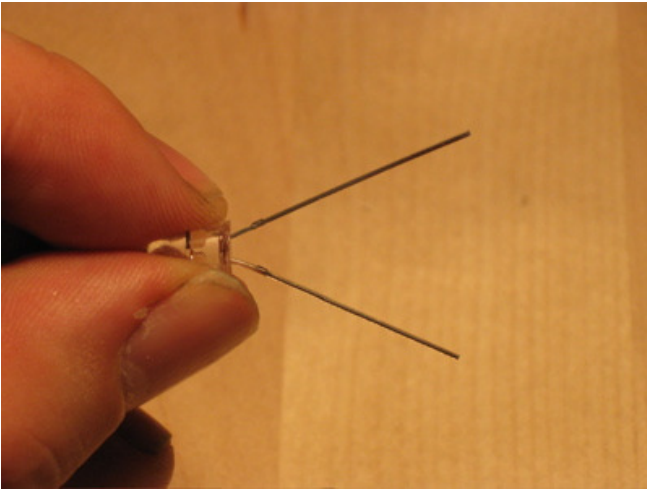
The longer lead is the "positive" lead (this will be important later). Now gently bend the positive lead about 15 degrees:
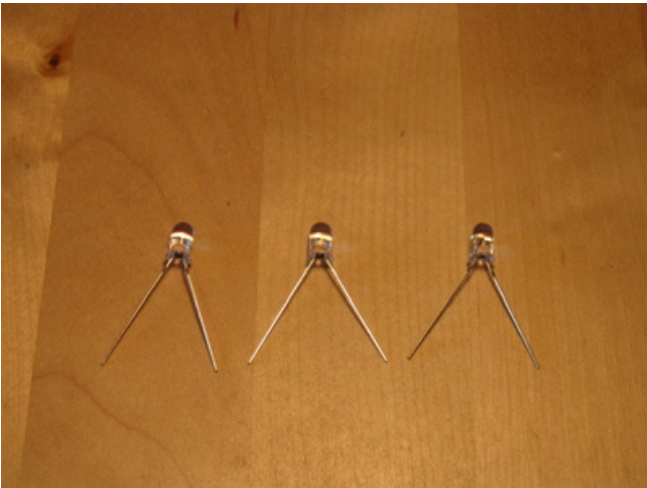
And do the same with the other ("negative") lead:
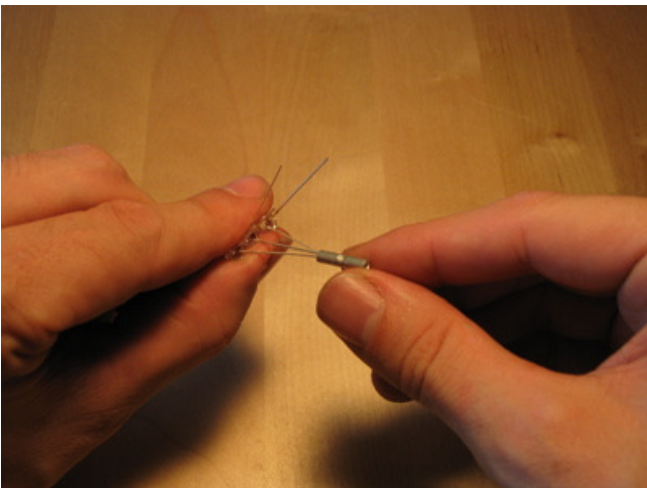
Your LED should look something like this:

Do the same for the remaining LEDs:

3. Crimp the LEDs

Hold your 3 LEDs side-by-side, so that the 3 positive leads are parallel. Place the butt splice over *all 3* positive leads:

With your pliers, squeeze the butt splice where it encloses the 3 LED leads, being careful not to crimp the opposite site of the splice. Apply enough pressure so that the 3 leads are held solidly in place:
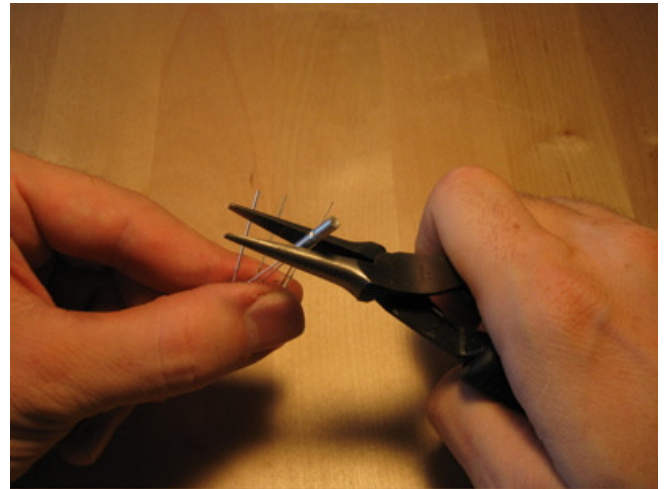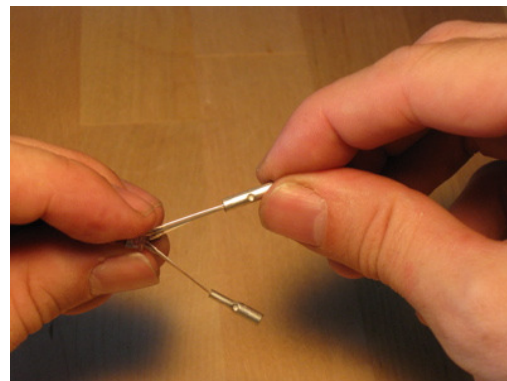

It should look something like this:
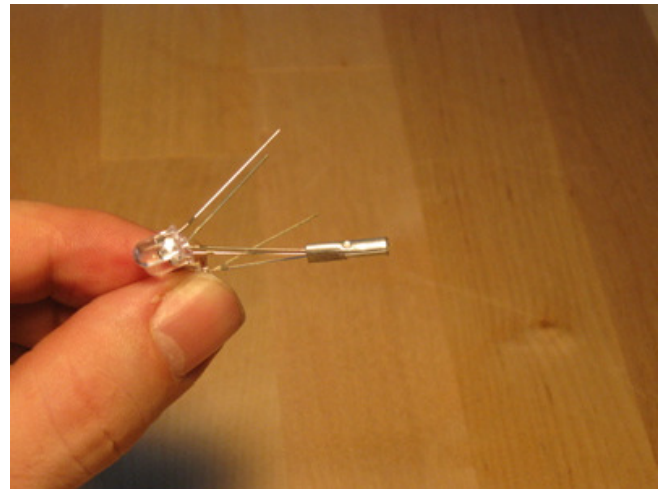
It's very important that you remember which are the positive LED leads; you may want to mark this splice with a small piece of tape. If you get confused, each LED lens has a little flat spot next to the negative lead.
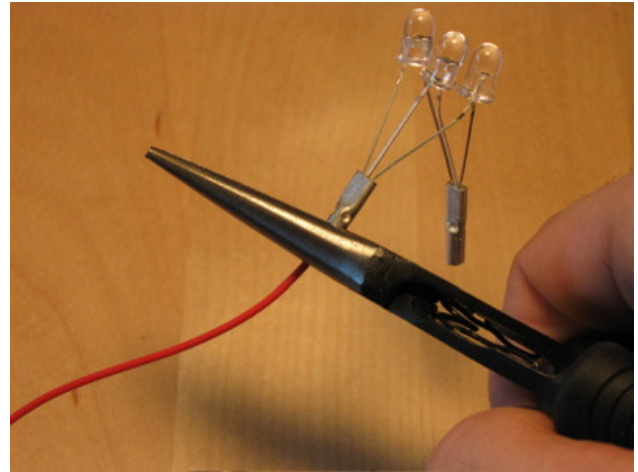
Now gather the negative leads, and place the other butt splice over all 3 leads:

Again, give it a good squeeze, being careful only to crimp the LED side of the splice:

Your LED assembly should now look like this:

4. Wire LEDS to the Battery Case

Take the end of the red wire lead from the case and insert it into the open end of the butt splice that is attached to your *positive* LED leads:

With your pliers, squeeze the splice firmly over the red wire:

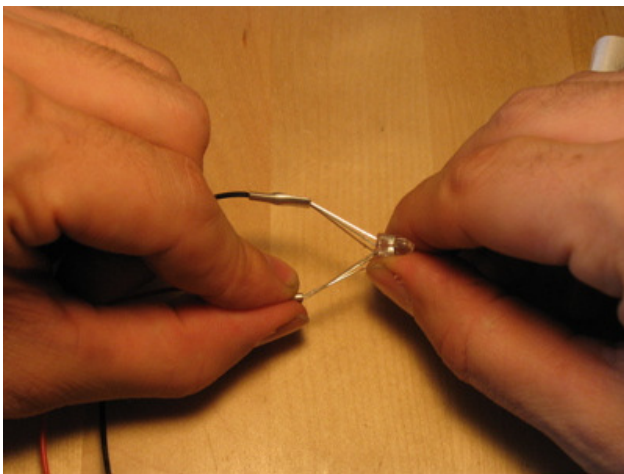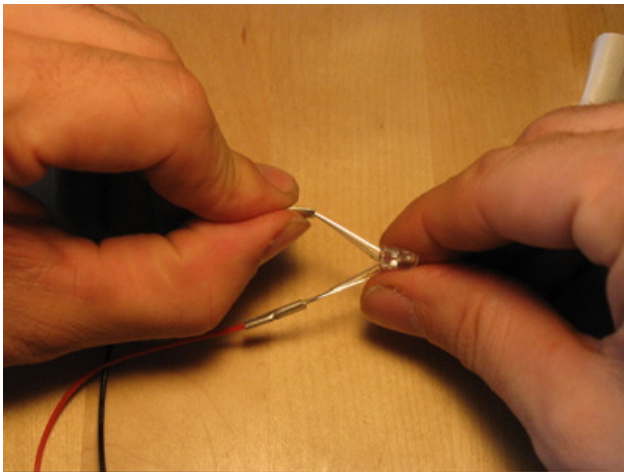Insert the black wire in the other splice, and squeeze:
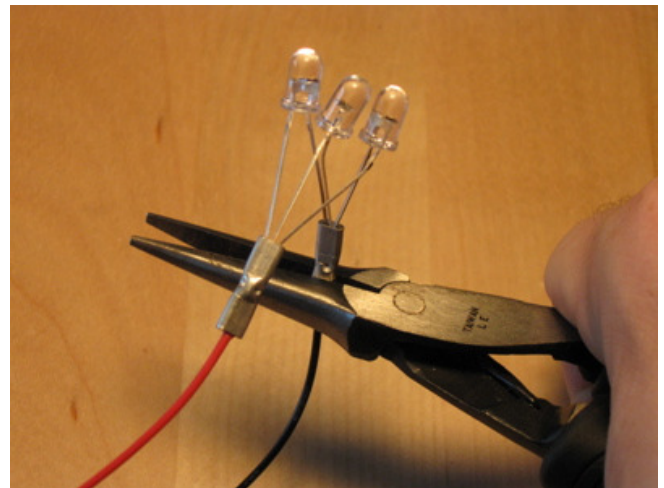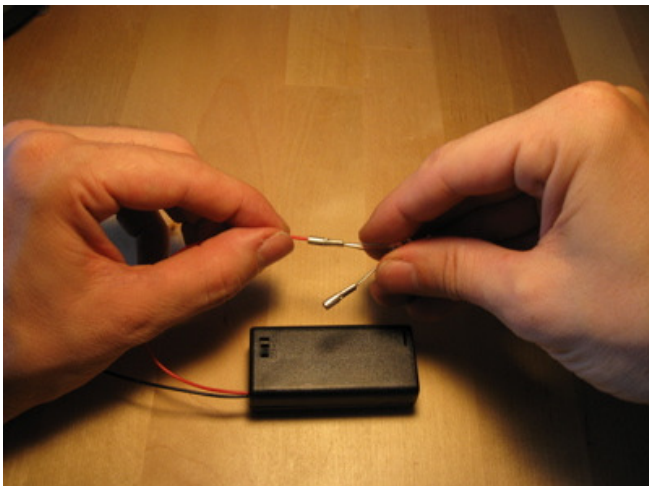
You should now have something like this:
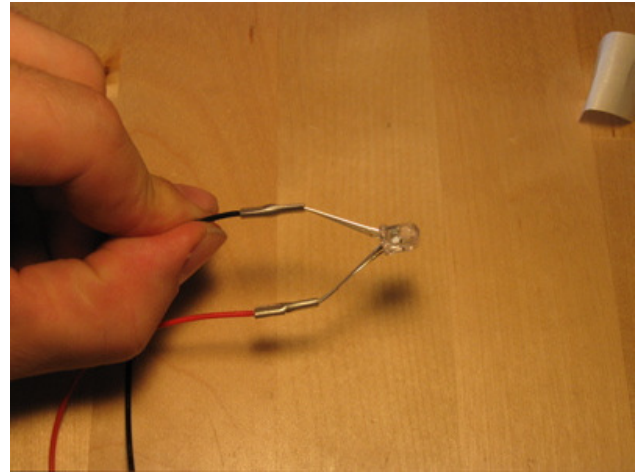

You do? Awesome.

Now gently bend the leads at each splice, like so:

It should look something like this:

It is very important that the two splices never touch, if they do, it will prevent your LED Art from lighting up, and quickly drain the battery.

5. Test the LEDs

Slide the battery case open, and insert a couple AA batteries:
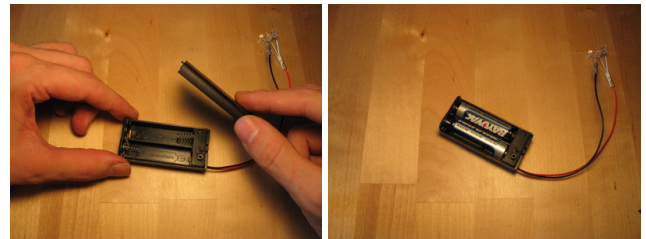
Close the case, and set the switch to "on":
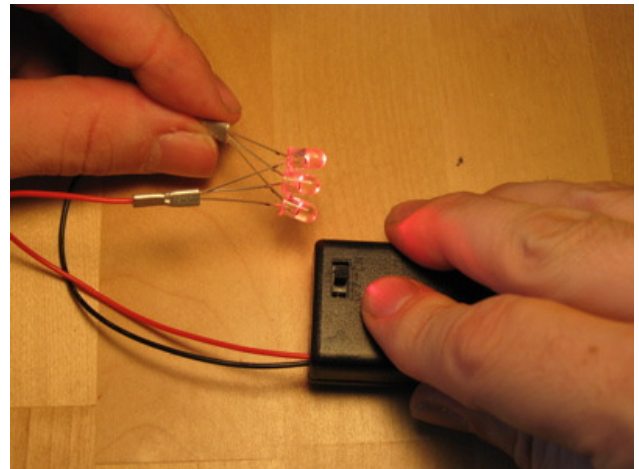
The three LEDs should immediately turn on, and begin to change color. If they don't, here are some troubleshooting tips:

- If some but not all of the LEDs turn on, you probably have one or more LEDs in "backwards;" that is, you didn't line up all of the positive LED leads. You may need to pull off

the crimp with a pair of pliers, or cut it off \with a wire cutter. There should be enough extra LED lead to re-crimp, but you'll probably need more butt splices, which can be found at Radio Shack.

- If none of the LEDs light up, you may have reversed *all* of the LEDs (i.e., attached the red wire where the black wire should be, and vice versa). Rather than pull or cut the splices apart, put the batteries into the holder in reverse.
- Still no luck? It could just be a bad connection. Try cutting off the crimps, re-stripping the wire, and re-crimping w/ new butt splices.

6. Attach LEDs to the Case

Gently peel the strip of glue dots open, being careful not to touch the blobs of glue, or get them stuck on anything (they're crazy sticky). Cut the backing so you have a single dot, and affix it to the case, near the switch:
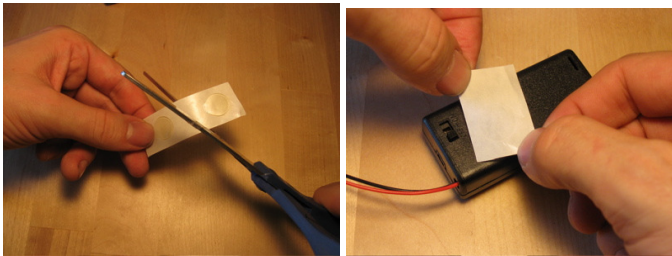
Press firmly, and peel off the backing (if needed, use your finger to help the glue dot stick to the case, but try not to touch the glue more than necessary):
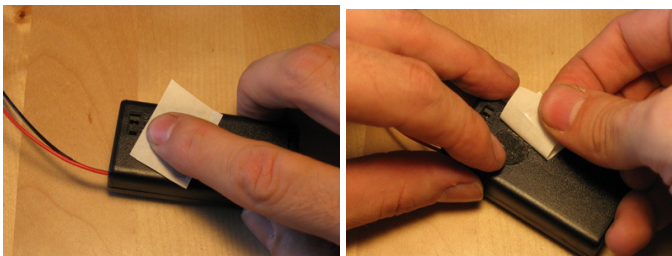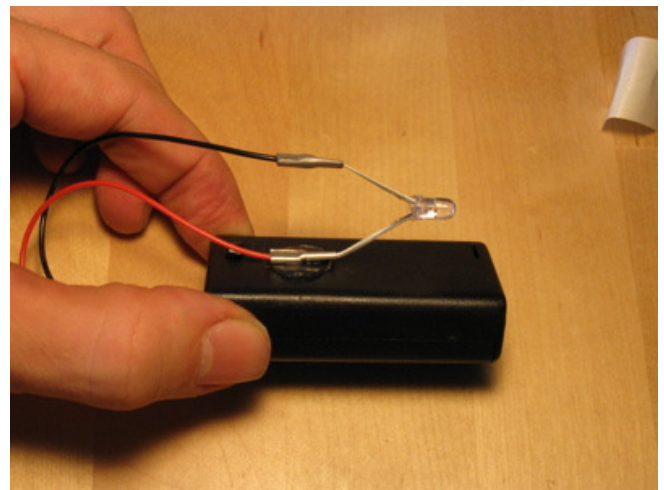

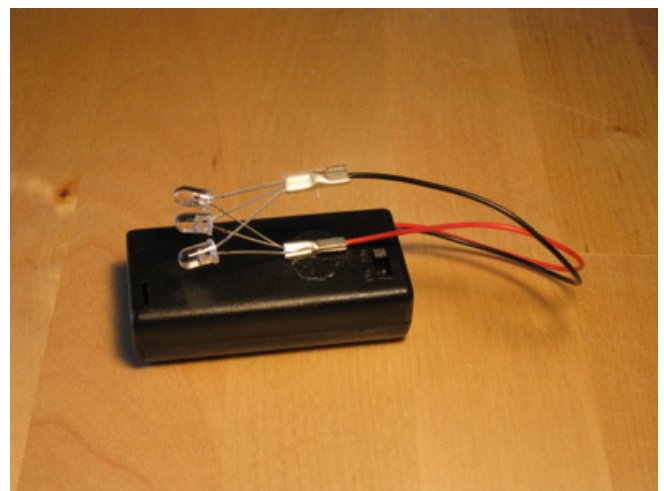The glue dot should be positioned like so:

Now firmly press one of the crimped splices (it doesn't matter which) against the glue dot:
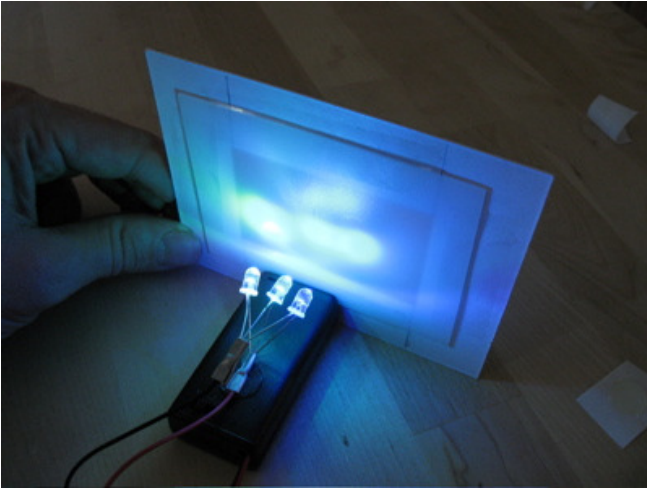

It should hold in place, like so:

Another view:

7. Test the "Display"

Now it's time to get a sense of how your LED Art will look, and make any adjustments or alterations. Dim the lights, put the switch on the case in the on position, and hold the frame up to the LED/case assembly, so that it projects onto the back of the frame, like so:

Take a look at the front of the piece, and see how the colors and patterns change over time:
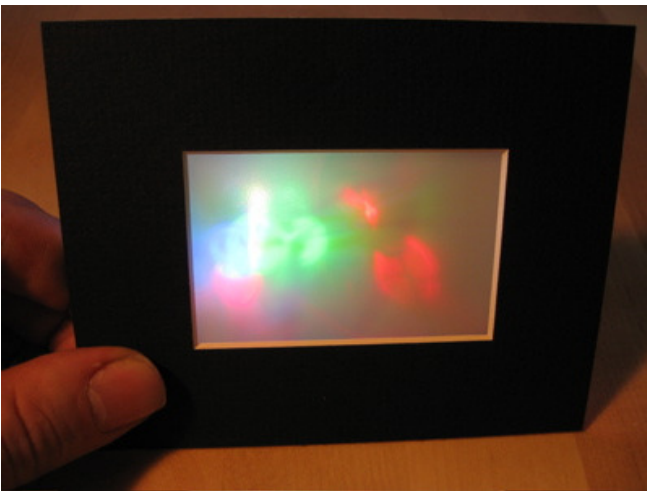
You can adjust how your piece looks by gently repositioning the LEDs:


## 8. Optional: Distort the LEDs with Hot Glue

Without any further changes, your LED Art piece will cycle through seemingly endless patterns of light and color. You can further modify the appearance of your piece by dribbling a small amount of hot glue on the LED lenses. Instead of seeing individual red, green, and blue spots on the screen, you can create more interesting and complex patterns.

Plug in your glue gun and give it a few minutes to heat up. If you're a kid, you definitely need to get some adult supervision for this part!

Carefully drizzle small amounts of glue on the LEDs:
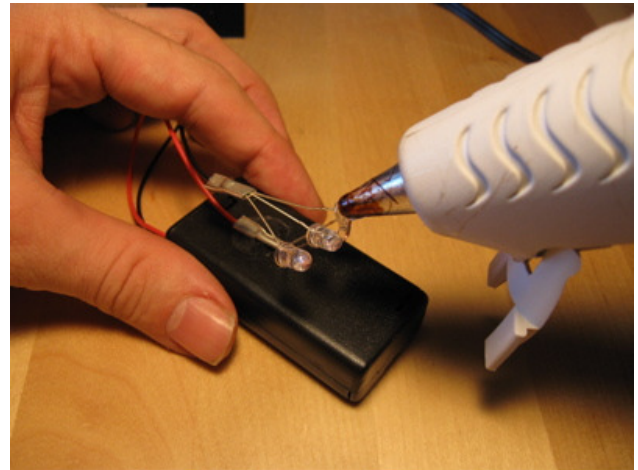
Here's a close-up:
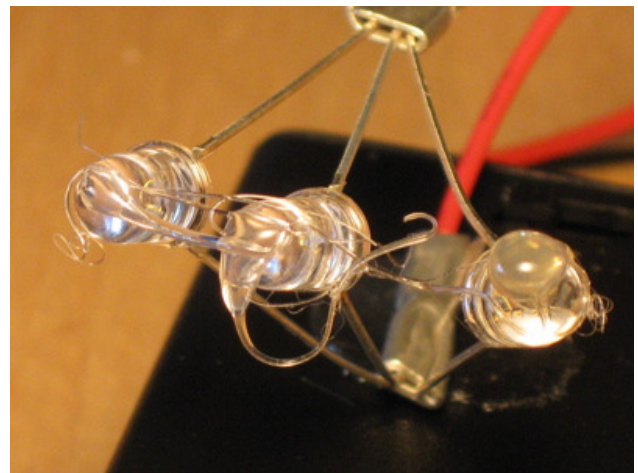
Let the glue cool, and see how it looks when projected against the screen. Give it a few minutes to let the LEDs cycle through their various colors. Feel free to experiment, as it's easy to peel the cooled glue off the lens and try something different!
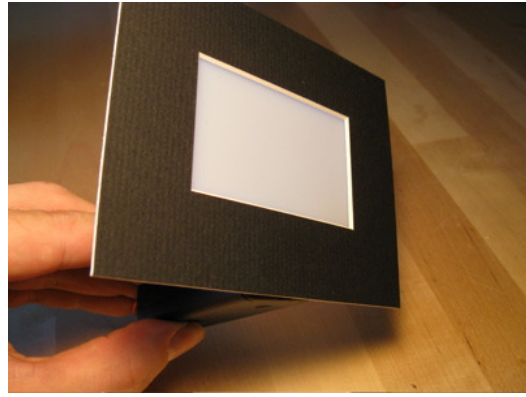
9. Attach the Case and Frame

Once you're happy with how it looks, use the remaining glue dot to attach the frame to the battery case (hot glue
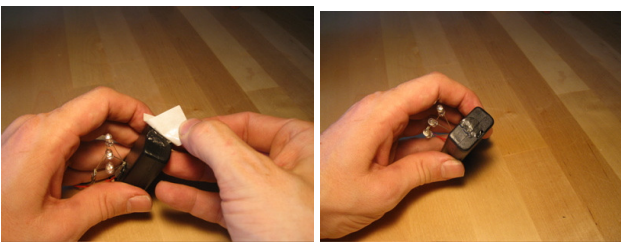
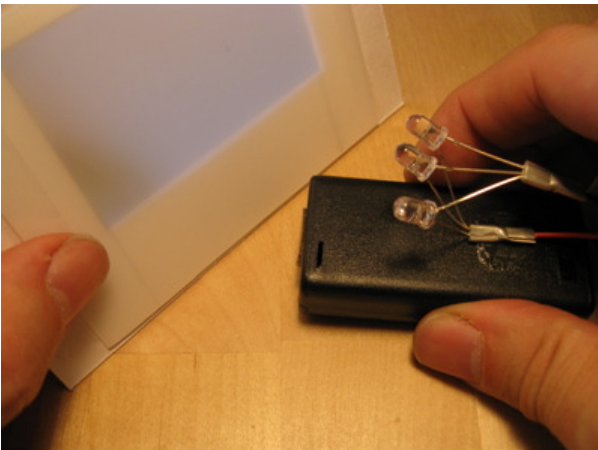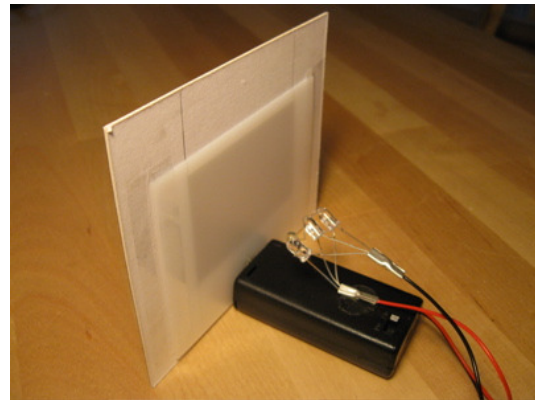works too). Apply the dot to the "front" of the case, like so:

And *voila*:
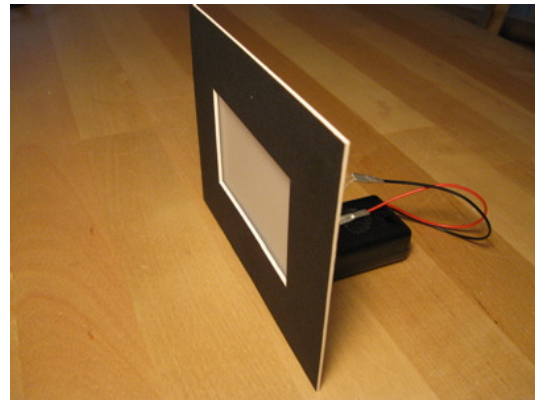

Peel off the backing:

Here's a rear view of the assembled piece:

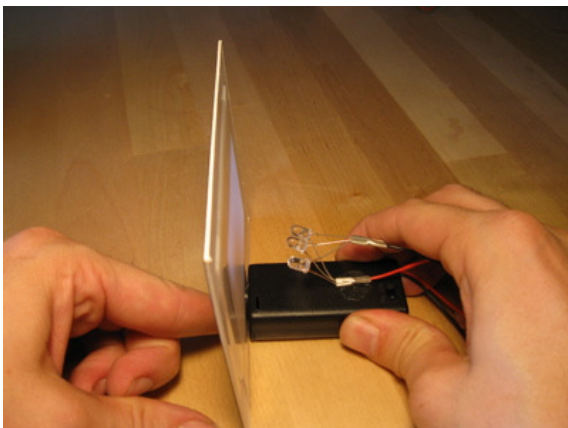And attach to the *lower* edge of the frame, where the plastic screen extends all the way to the edge of the mat:

A side view:

Apply some pressure:

And the front:

Enjoy!

You can display your LED Art almost anywhere, although the effects are most dramatic in lower light conditions. Experiment with other materials and techniques for making your own unique patterns and effects. I hope you enjoy it and please feel free to drop me a line with any questions, comments of suggestions!

I can be reached at: ken@blinkybug.com