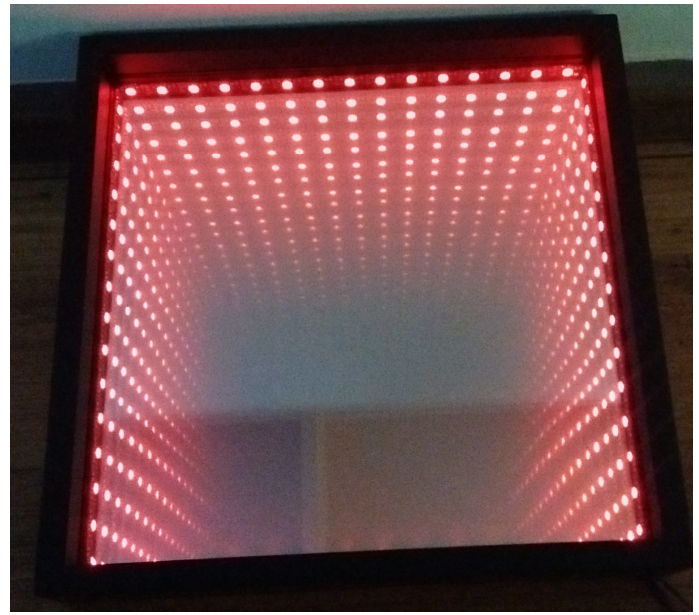
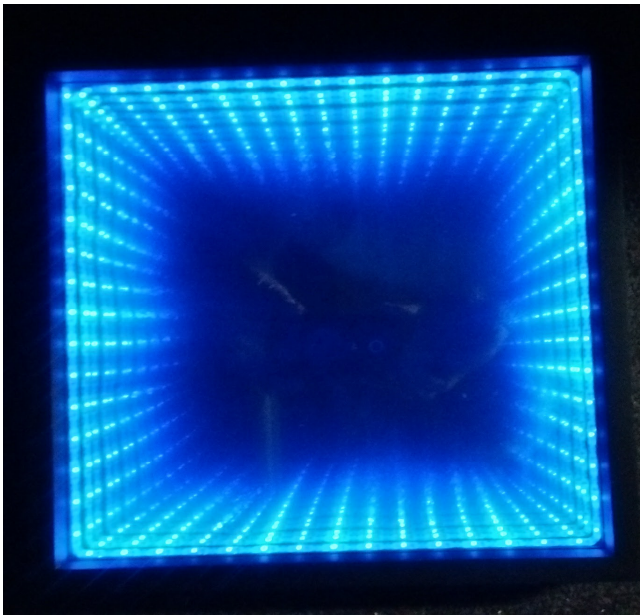


How to Build your own Infrared Controlled Musical INFINITY MIRROR

Pat McMahon– V1– 15/12/2017

Note – The photos taken in this “How to Build” are using Pat’s method of construction, but you may choose to use your own design method.

Design Brief– Design & Build your own Infrared Controlled Musical Infinity Mirror and code it to run from your 14M2 Picaxe Microcontroller.



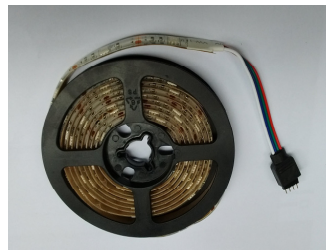
You will need the following, depending on your construction method.



Floating Photo Frame



Back Mirror & 2Way Film



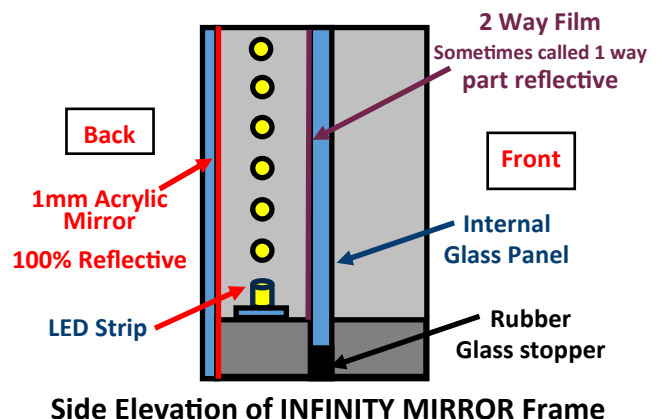
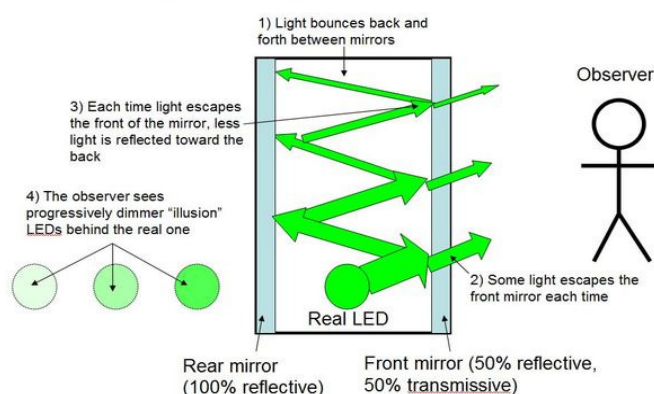
LED Strip



or make your own LED Frame

In my design, so students didn’t have to cut glass and mirrors, I purchased a pre made 2 glass centre panel, Floating Photo Frame from Target at \$8. On Ebay I brought the 1mm thick Acrylic 280x280mm Mirror Set \$15 for 6, the Reflective 2 Way /1 Way Film 2m x 60cm for \$6 (does ~ 12) and the RGB LED strip for \$11.80 for 2 metres (only need 1m per mirror frame).

How an infinity mirror works



Make your own Frame, Routing out the centre & base, cutting a centre glass panel.

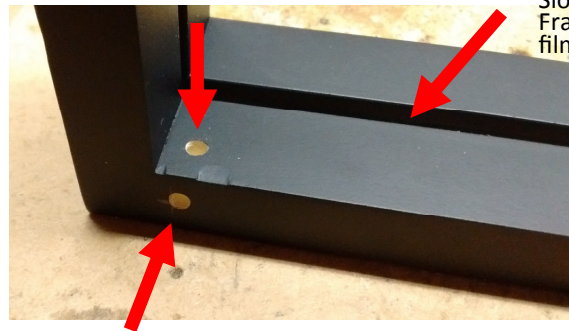
Or purchase the 2 glass panelled, Floating Photo Frame (~275mm x 275mm outside dimensions) from Target for \$8.



You only use 1 of the 2 internal glass floating panels. It has an easy removal able rubber stopper on the base. They come in Black or Pine coloured frames.



Drill a 5mm Hole down & across in the Frame base, to enable easy feeding of the possible 4 strands of wire to the microcontroller.



Slot underneath in Frame base, for 2Way film Glass insertion.

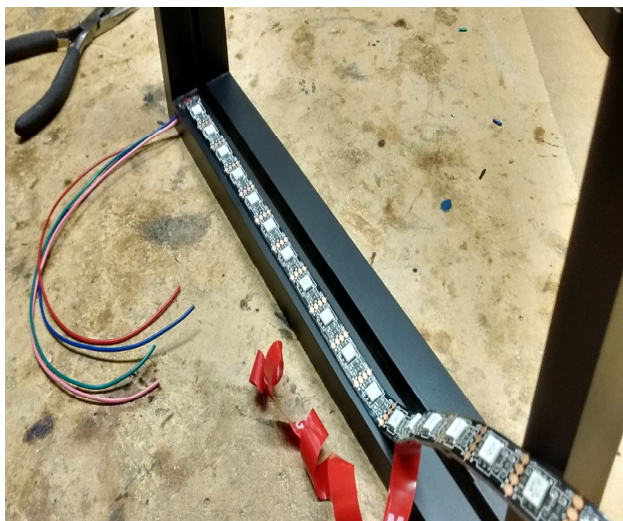
If using LED Strip, it has a removal able backing paper tape to expose the sticky backing for fixing.



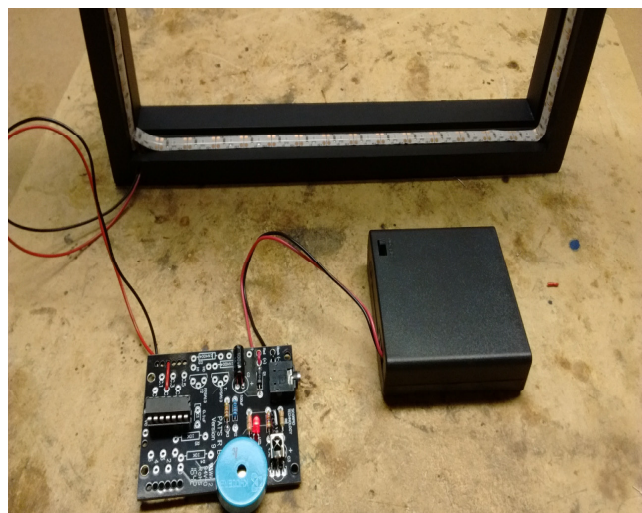
From the back side (drilled wire side) pass the wires through the drilled holes in the bottom of the frame.



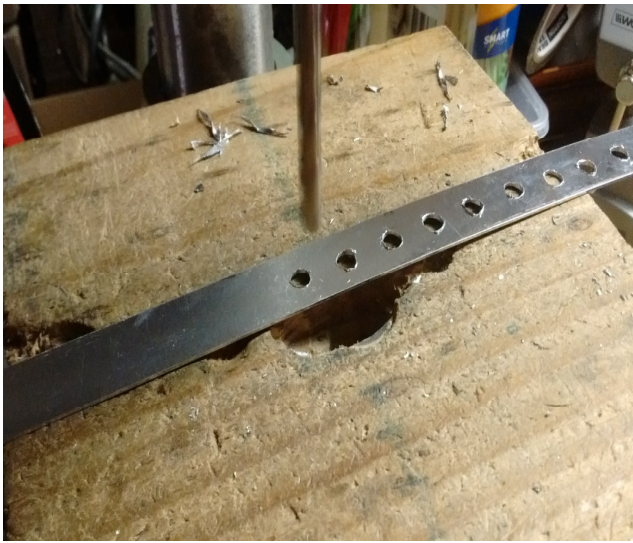
Remove the backing tape as you carefully attach the LED Strip inside the frame, bending it up at the corners. Carefully cut the excess at the point marked with a pair of scissors, at the cut line.



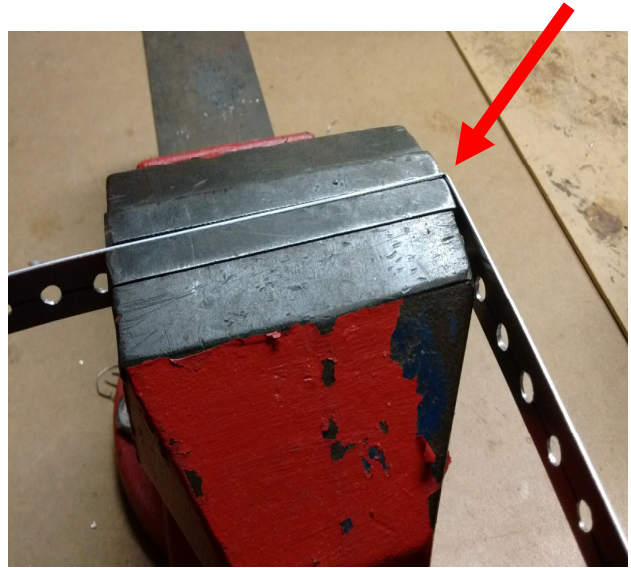
Attach to your 14M2 Microcontroller and test to ensure the connections & operation of the LED Strip.



- If making your own strip (~0.8 mm thick aluminium) using single LED's, solder all the negatives together but ensure you wire all the positives of each of the same Coloured LED's, DON'T mix colours. Space LED's dependent on whether using short 17mm or long 27mm LED legs.



- Bend the aluminium strip to fit into the frame allowing enough space for all the wires and bent over legs.



- Using the 2 Way Film, cut a piece to the size of the internal floating glass.



- For ease, use temporary pieces of masking tape on either side of the film to start to separate the protective film from the actual 2 Way Film.



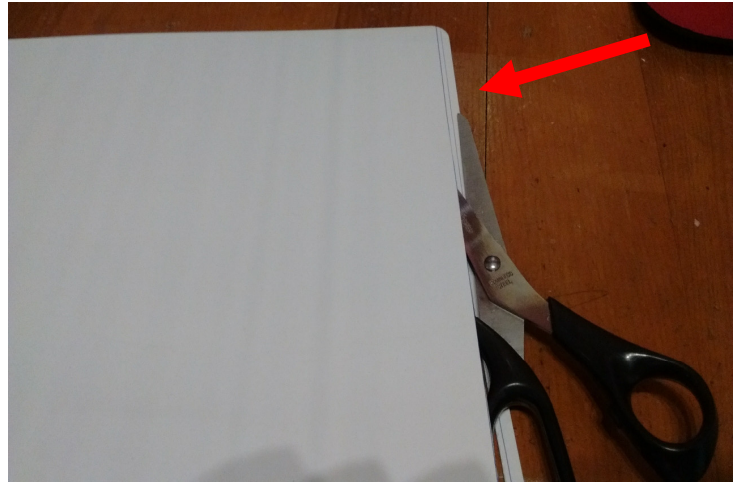
- Thoroughly clean the internal glass panel using glass cleaner. Apply a fine spray of soapy water to the clean side of the glass.



- Carefully & exactly (you might not be able to reposition it), lay the 2 Way Film on the soapy Glass panel, sticky side down on glass. Using an old credit card, carefully remove all the air bubbles working from the inside out. Trim off any excess edges, let it dry for 24 hours before use.



- **Using the 1mm acrylic mirror (~280x280 mm outside dimensions), place it over the frame, mark it and cut it to size, slowly with a sharp pair of scissors.**



- **Drill holes for small self tappers to fix the flexible acrylic mirror to the back of the Frame, around the perimeter.**



Notch out a small gap for the exit wires.



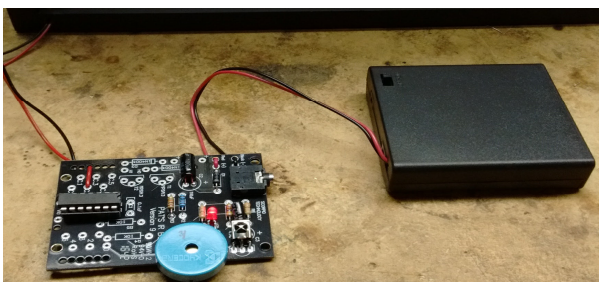
- **Remove the mirror front protective film only, not the white backing paper to expose the sticky backing, clean if necessary any finger marks and fix with self tappers (mirror surface facing front).**



- **Tip the Frame upside down to expose the removable rubber stopper. Carefully remove it and insert the dry Inner 2Way Panel, ensuring the film side of the glass panel is facing the mirror, to get the multiple reflections (an illusion of ~16 deep)**



- **Attach and program Pat's Infrared 14M2 Microcontroller, using his INFINITY MIRROR Code for the type of LED's used. ie RGB or single colour strip, or normal coloured LED's.**



- **Congratulations on Building and Programming your own INFINITY MIRROR, Well Done!**

