

# How to Build a “Laser Engraved, Edge Lit Acrylic, Display Stand”.

Pat McMahon– V2– 4/4/2024

**Design Brief** – You will Build a “Laser Engraved, Edge Lit Acrylic, Display Stand”



I made my Laser Engraved, Edge Lit Base with a 4mm wide x 155 mm long slot for the Acrylic to stand in.

You can modify your material size to suit your desired needs. You can use a plain white LED Strip, a coloured RGB or a coloured Neopixel, depending on what is going to illuminate your LED Strip type.

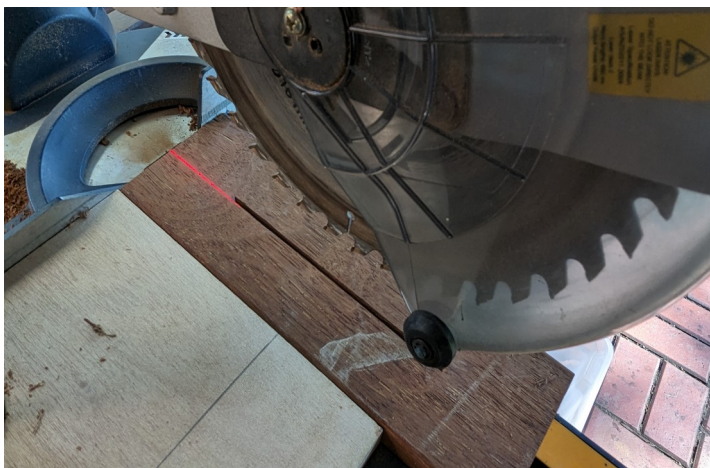
I made various stands. On the plain white LED Strip one I used a 6V battery only. On the RGB I used a Picaxe and an Arduino microcontroller. On the Neopixel Strip I used an Arduino and a Microbit to get the cool Rainbow effect.

If you don't have access to a Laser Engraver you can use a Dremel to engrave your design.

Have Fun with your design!

Below are some of the Production Steps, Tick off each box as you complete a task and Document it.

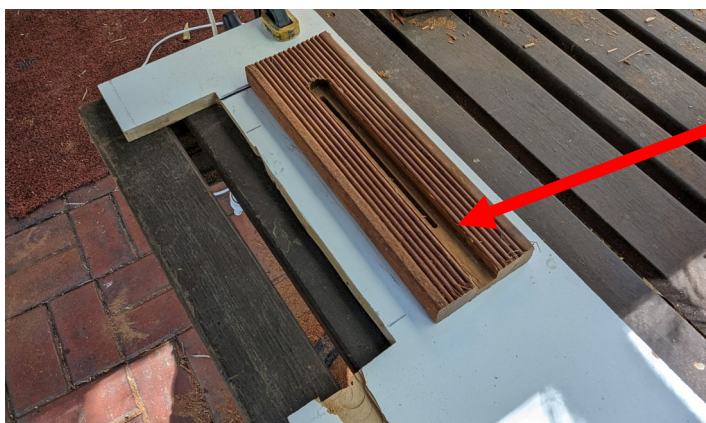
I used a piece of 90 mm wide x 265 mm long Merbau off cut. I used my drop saw with ~3mm wide blade to cut the initial 155mm long cut, in the centres.



To allow the 4mm thick Acrylic to fit into the slot, I drilled a 4mm hole with the drill press as a starting hole, and widened the slot with a 4mm diameter Router.



I made up a holding Jig to Rout and enlarge the slots made from the drop saw, from one end .



On the top side starting from the drilled hole, I routed to enlarge, a 4mm slot the length of the Drop Saw Slot . Turn the base over and rout a 20mm slot.



- On the underside if you weren't able to use a Router, you could use a 20mm diameter Forester Drill in a Drill Press, to a depth of ~7mm .



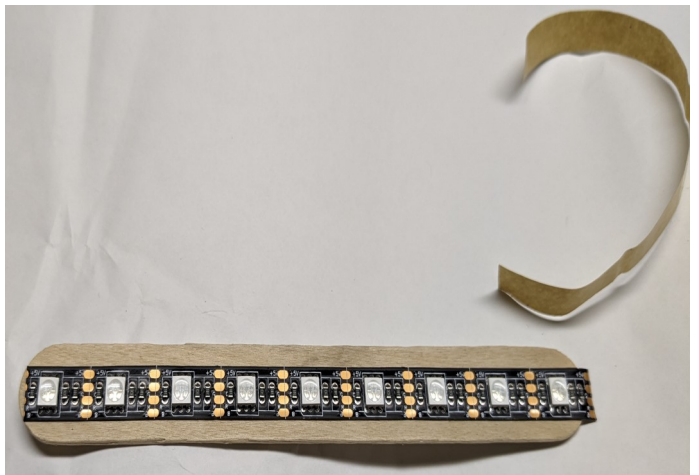
- Once Routed and sanded, I used a Water Based Satin Cabothane to seal the wood, ensuring not to drop any in the 4mm slot.



- Next I carefully cut an RGB LED Strip to ~150mm long, cutting at the gold oval connections, exactly in half.



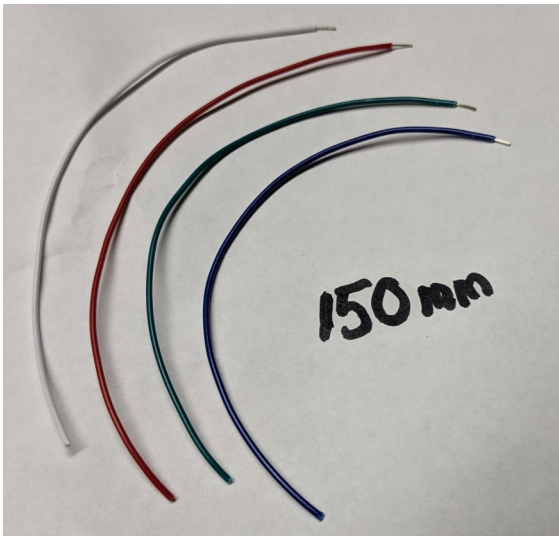
- Peel off the paper protective strip and stick the LED Strip to a 18mm wide x 150 mm long x 1 mm thick wooden Stirring Stick. ( from the \$2 Craft shop)



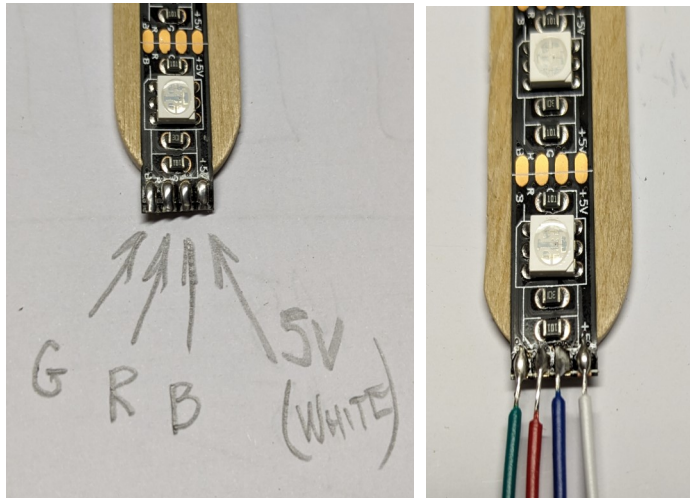
- Check the alignment of the Strip on the other side to the 4mm wide slot and mark it's final position.



- Cut, Strip and tin the ends of 4 wires ~150mm long RGB & +5V ( Red, Green, Blue & White +5V)



- Carefully Tin the gold half oval connections on the bottom of the LED Strip, soldering the 4 previously tinned coloured wires as below.



- Place the LED Strip & Stick in the 20mm slot underneath, checking the positioning of the LED Strip to ensure it is in the centre of the slot, for maximum brightness.



- Once checked for alignment, turn the base over and using a hot glue gun, secure the craft stick in position, with the LED Strip facing the slot.



- Attach your controlling device ( Arduino, Microbit or 3 mode 5V controller) to your RGB LED Strip and Test.

Well Done! Have Fun displaying your cool Engraved images.

