

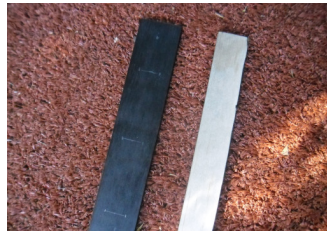
How to build your LED Stick & Light Tower

Pat McMahon—25/11/2014



1- Design Brief

Design and build your own Infrared LED Stick & Wooden Light Tower.



2- Decide on the width & length of your plywood stick and spray matt black. (ie 30 or 40 mm wide)



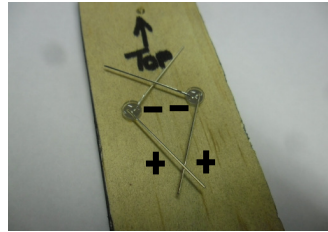
3- Decide on your LED Pattern and the gaps between your LED 's. ie 20mm wide, 30mm high.



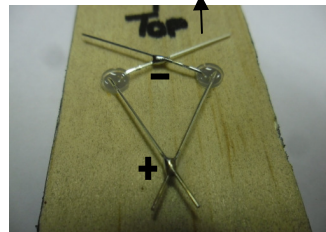
4- Once marked out , drill holes for the LED's using a 3/16 inch or 4.8 mm drill.



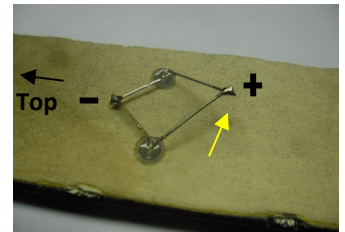
5- Continue drilling the 10 LED sets for the length of your LED Stick.



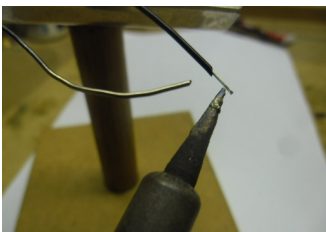
6- Decide on the colour of your LED's. Insert LED's with an interference fit, with the short legs or negatives facing inwards.



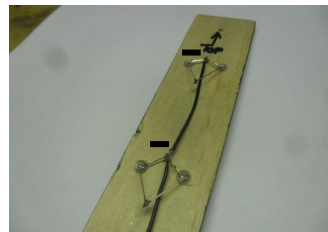
7- Bend the outside long positive legs down and the short inside negative legs up. Then solder.



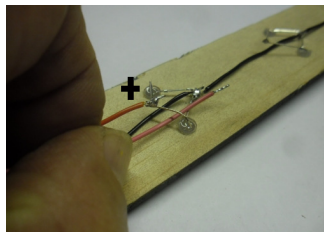
8- Cut off the excess legs lifting the positive legs up ready for the insertion of the wires to follow.



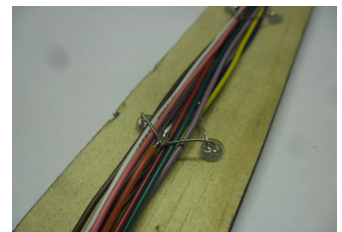
9- Cut the length of the required black negative wires to connect each of the 10 LED sets, strip , twist & tin.



10- Solder from the top (-) down feeding the black wires under the lifted positive legs, this contains the wires. Make the last black wire longer for the connection later.



11- After stripping ,twisting & tinning, starting from the bottom & working up this time, connect each positive leg with the set coloured wires.



12- Continue up until all legs are connected and the wires are all neatly contained, this will help later.



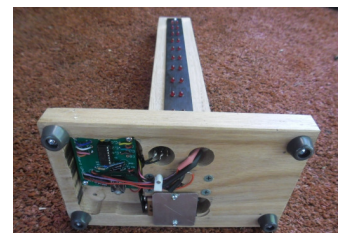
13- Decide on the design for your Tower, routing out a groove to accept the back of your LED Stick. ie ~10mm deep, 25 mm wide.



14 -Drill a hole from underneath the base to the routed groove for the wires to pass through.



15- Rout out a hole for Pat's IR Microcontroller & battery. Use a Forester drill for the switch & indicator light, then drill 3 holes 1.5 mm for IR, 6 mm for switch & 4 mm for LED.



16- Build up Pat's 14 M2 IR Microcontroller and attach in the routed out cavity, to wires through hole in base, using 6mm small self tappers.

Program, Test and Enjoy!