Creating LED signs

After a recent MERG presentation on using Arduino Nano to create moving displays on station signs, I started thinking about building and outdoor display signs. Having looked at these online they can be expensive but they do provide a different dimension to layouts.

I started to explore possibilities with the LEDs that I had purchased from Railwayscenics and used for concert/disco lighting. The RGB LED's and random flash RGB LED's. Both these LED's change from red to green to blue and the latter adds in a random flash. The RGB LED's are available from Railwayscenics at a fraction of the price (50 pence for LED and about 6 pence for a resistor) and I think they are every bit as effective for disco or stage lighting.

> https://www.railwayscenics.com/3mm-led-lights-c-20_25_60.html?page=2&sort=5a

The colour changing LED proved to be effective although the size of the LED at 3mm means that proportion of scale cannot be achieved but I think the effect from something that costs less than £1.00 makes up for this.

Creating the case and display panels

Whilst it may be possible to use 3D printing to create the case and display panel, I used very simple technology. I painted a piece of acetate with a few coats of Humbrol black paint to provide a piece of acetate with no light transmission. I then used a sharp item,

taking care, a scalpel or pair of pointed scissors was used to scrape letters and if desired a shape. Two pieces were required, one for each side of the sign. I made the frame from balsa wood then glued once piece of acetate in place. I then drilled x2 holes for the LED, then soldered wires and covered with heat shrink. Putting the LED inside a piece of glue stick helped to diffuse the light.
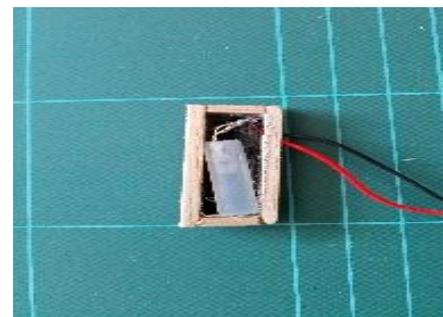
A spot of glue could be used to hold LED in the desired position. Try the LED with a power source to check if positioned correctly for desired affect; more crucial if using the colour changing random flash LED. Once satisfied with LED position, fix LED, then glue on the other acetate panel. If use super glue it is then possible to paint almost immediately. It may require a few coats to ensure that there is no stray light.
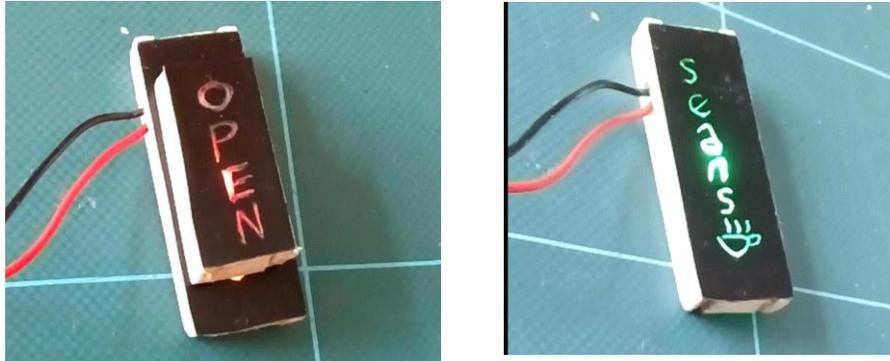
Fixing to buildings

To attach to a building drill a hole to feed wires from sign then glue sign in place.

Click on images to view video

Power

I used a resister in series with the LED which enable the sign to be operated with a supply up to 12volts although it will operate at lower voltage. Railwayscenics provide information on the value of resistor required for operation at different voltages.

Fireworks sign

Using a similar construction method to the shop signs I used x2 colour changing random flashing LEDs to create an effective fireworks display sign that looks like a firework display. Recently I saw a firework sign to simulate a fire work display at a cost of over £20.00. The cost of creating the one shown was just over £1.00. I am sure that with a little imagination larger scale could be created and if set against a dark background with very low lighting I am sure this would look like an evening fireworks display. For such a project 2mm or 3mm acrylic sheet is likely to be more suitable.

Fred Cullum

WoSAG/FC/Creating LED Signs

WoSAG/FC/Creating LED Signs