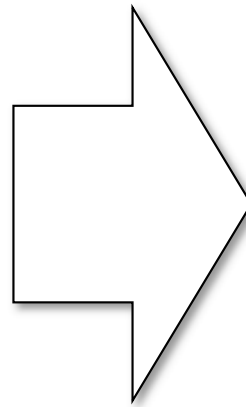
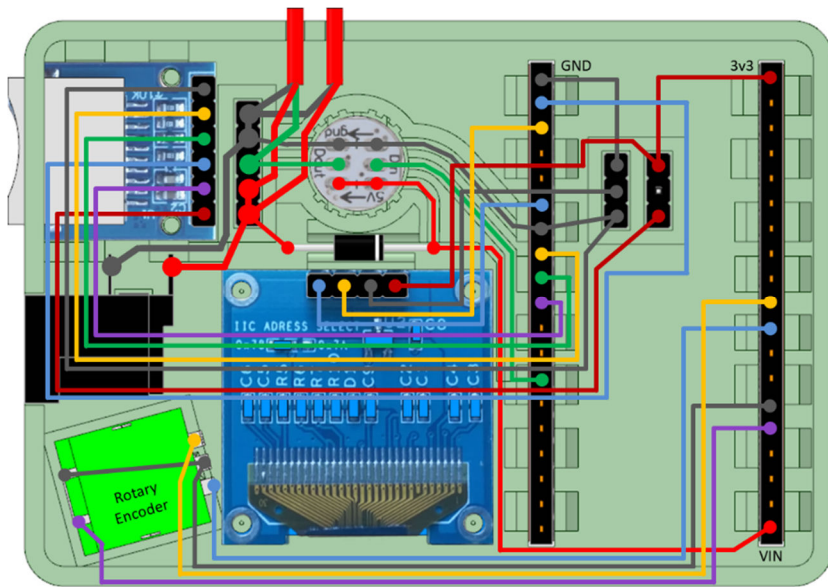


# Matrix Controller

## Circuits & Wiring



# Hand Tools:

## Recommended:

- Fine Nosed Pliers
- Side Cutters
- 1.5 mm Drill
- 2.0 mm Drill
- 3.0 mm Drill
- Needle Files
- Screwdrivers
- Craft Knife



Note: Not all items are shown here.

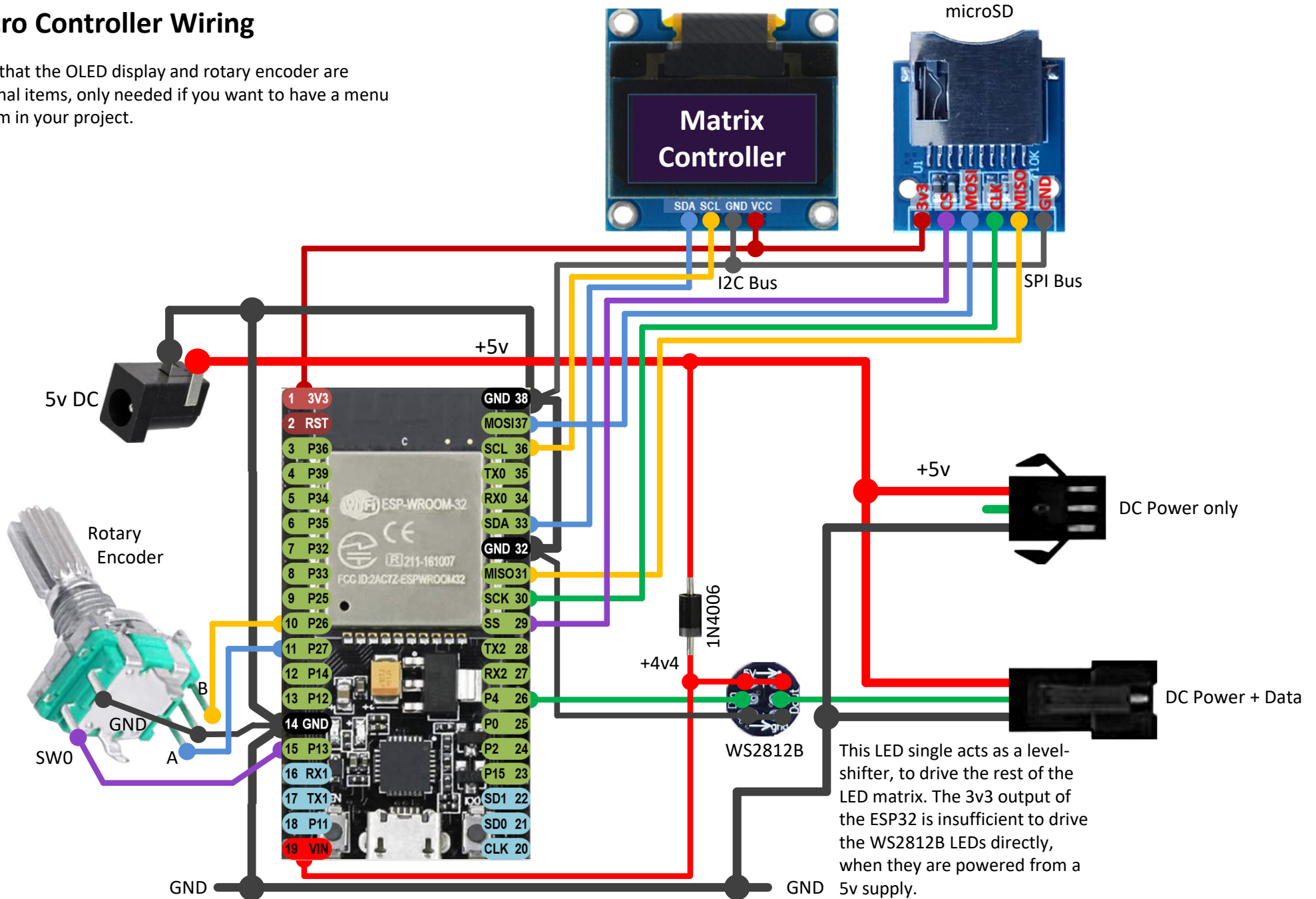
# Tools & Materials:

- Temperature controlled iron
- Solder flux
- Resin cored solder
- 2-part epoxy resin glue
- Screw drivers
- Wire wrapping tool
- Wire wrapping wire 30 AWG
- 24 AWG stranded wire (red & black)

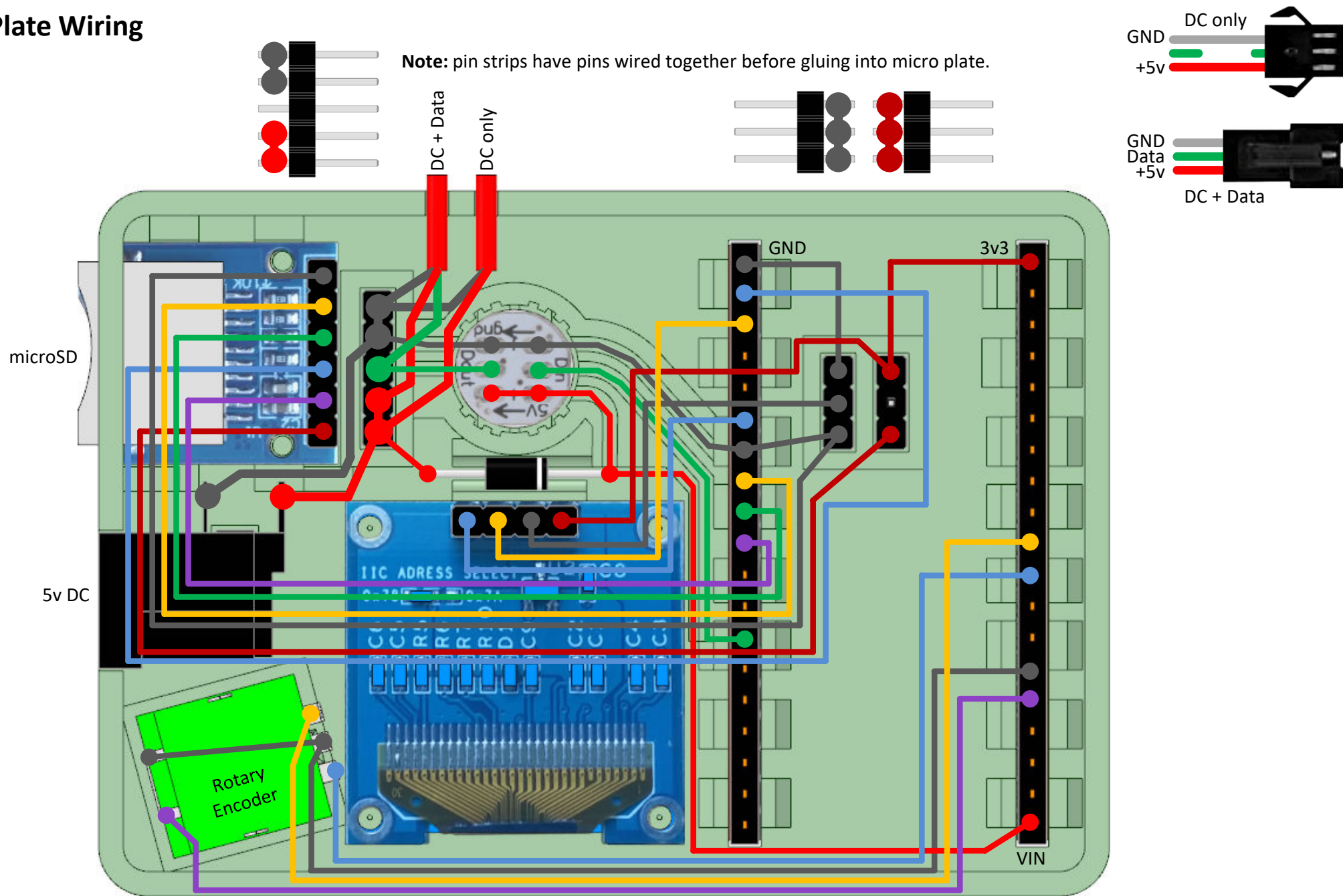


# Micro Controller Wiring

Note that the OLED display and rotary encoder are optional items, only needed if you want to have a menu system in your project.

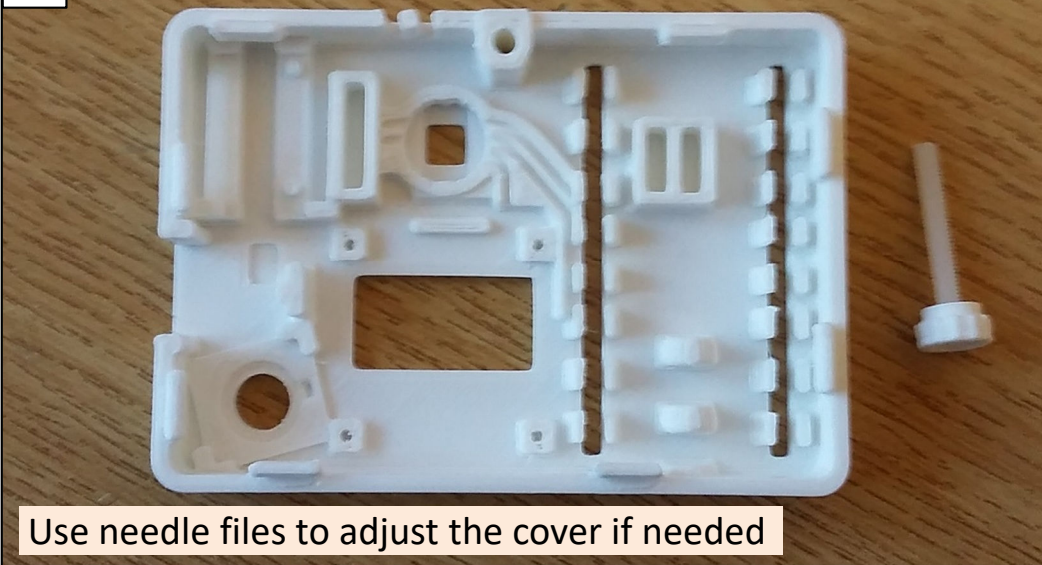


# Micro Plate Wiring

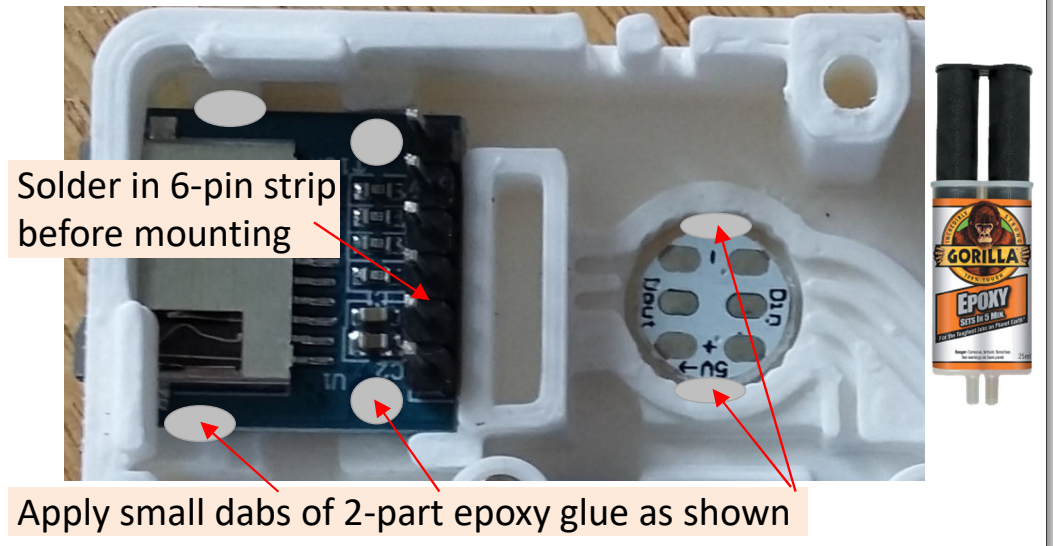


# Micro Controller Wiring Sequence

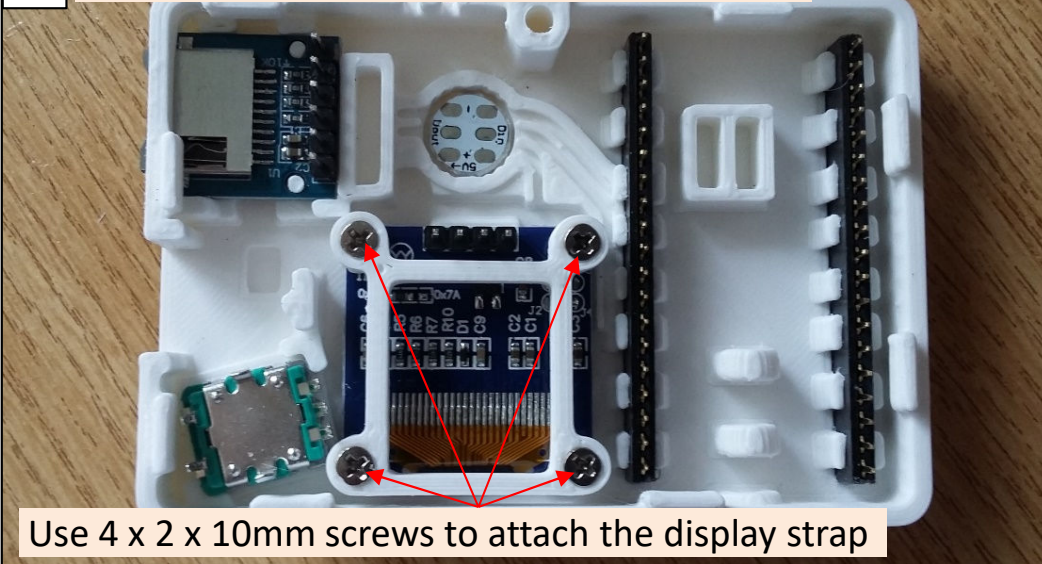
01 Trial fit components into the 3D printed cover



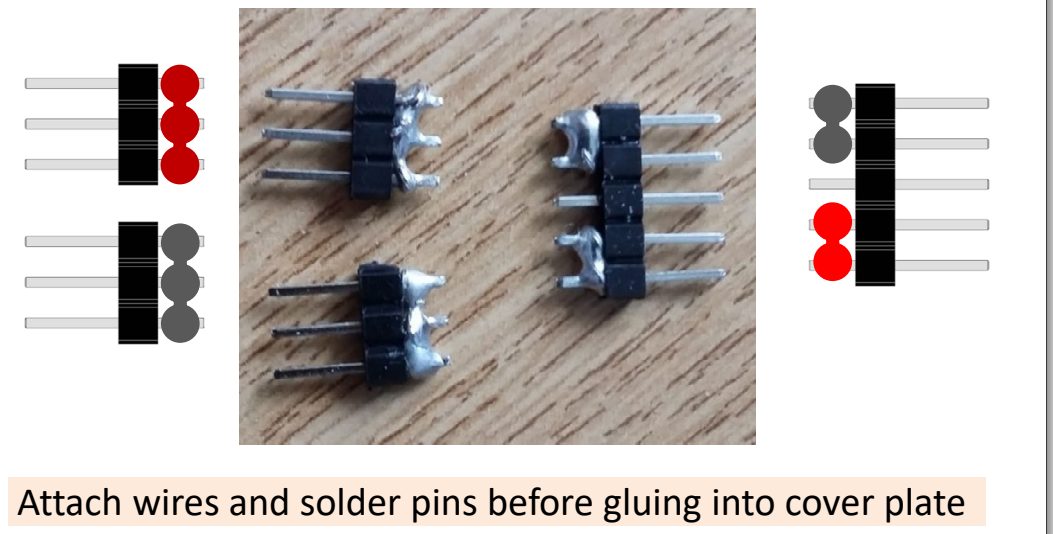
Insert the microSD adapter and WS2812B LED



03 Insert the rest of the components as shown

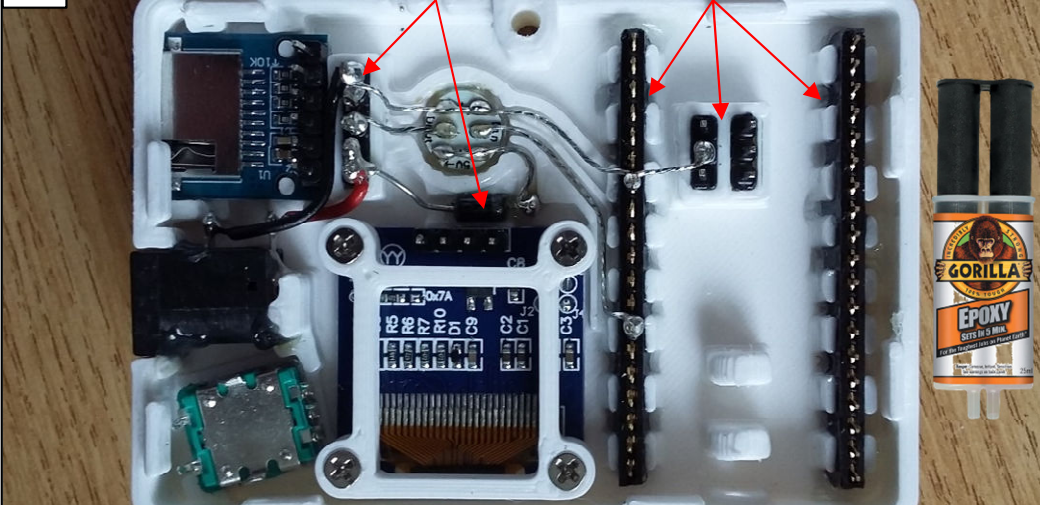


Divide up the pin strips as shown, 3, 3, 5



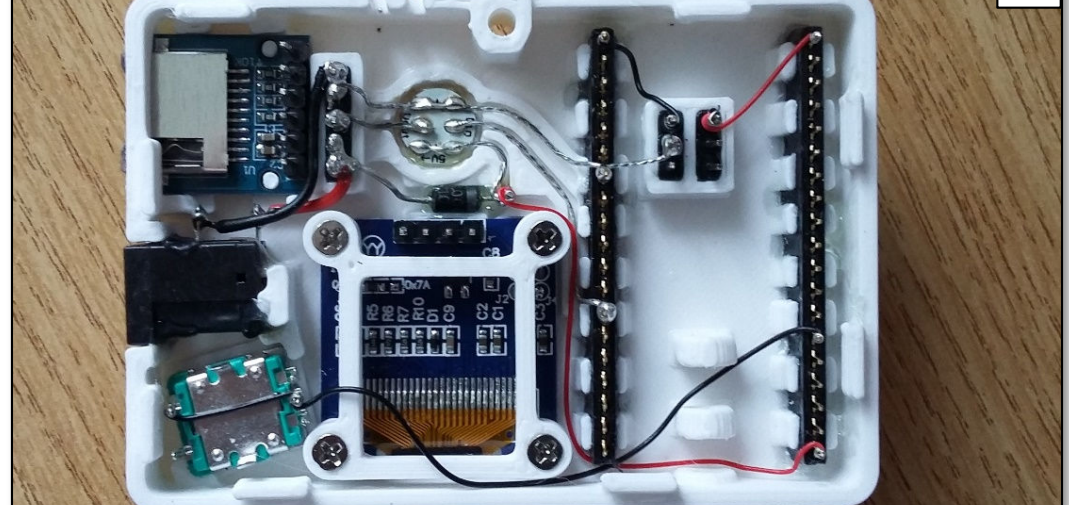
# Micro Controller Wiring Sequence

05 Apply dabs of glue to the pin strips, diode and sockets



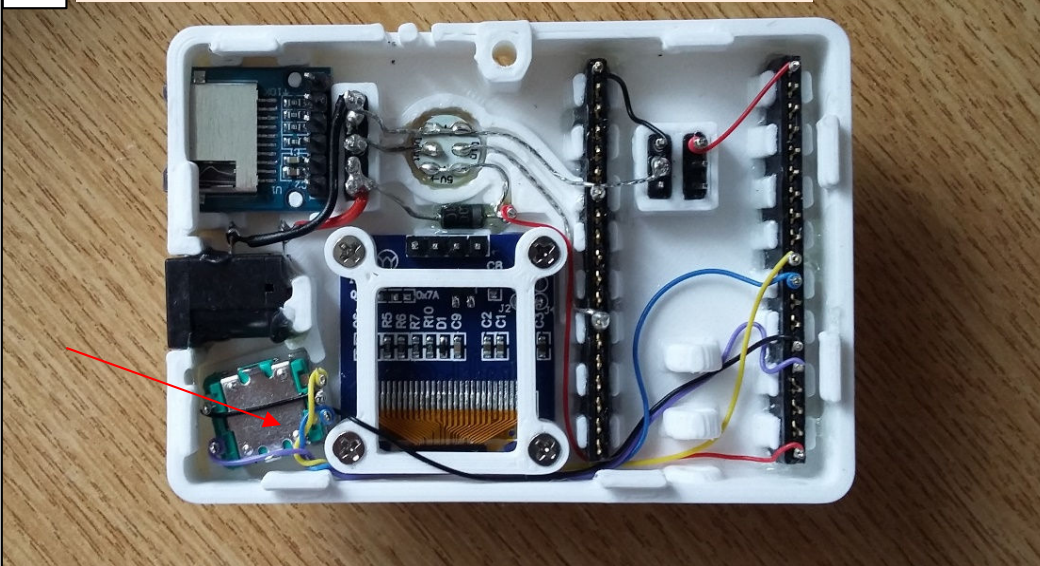
Glue in the power sockets and make connections shown

06 Attach wires to the GND, 3v3 and  $V_{in}$  connections

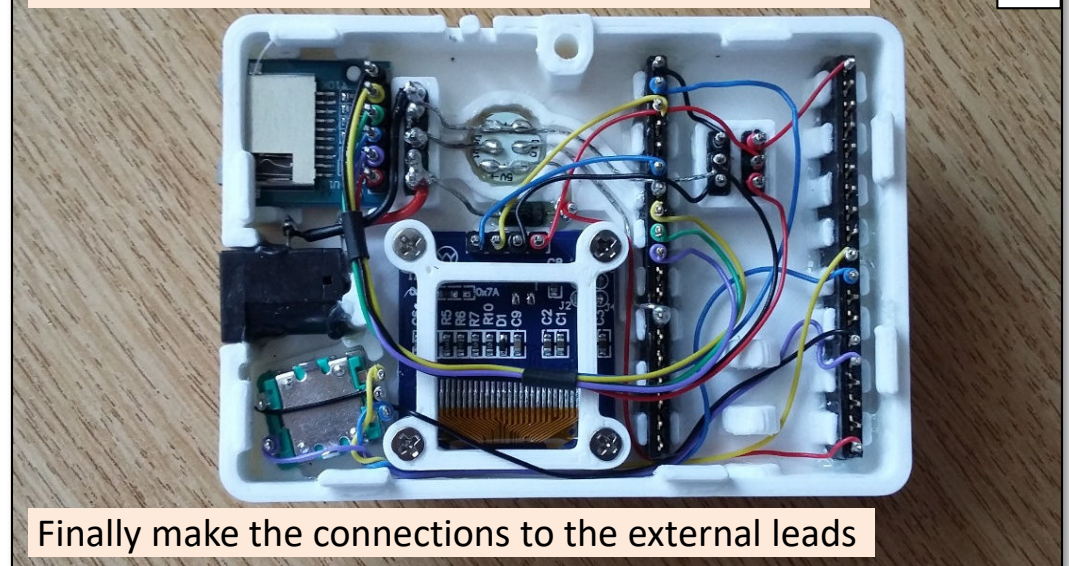


These are all low current, so wire wrap wire is sufficient

07 No make connections to the rotary encoder

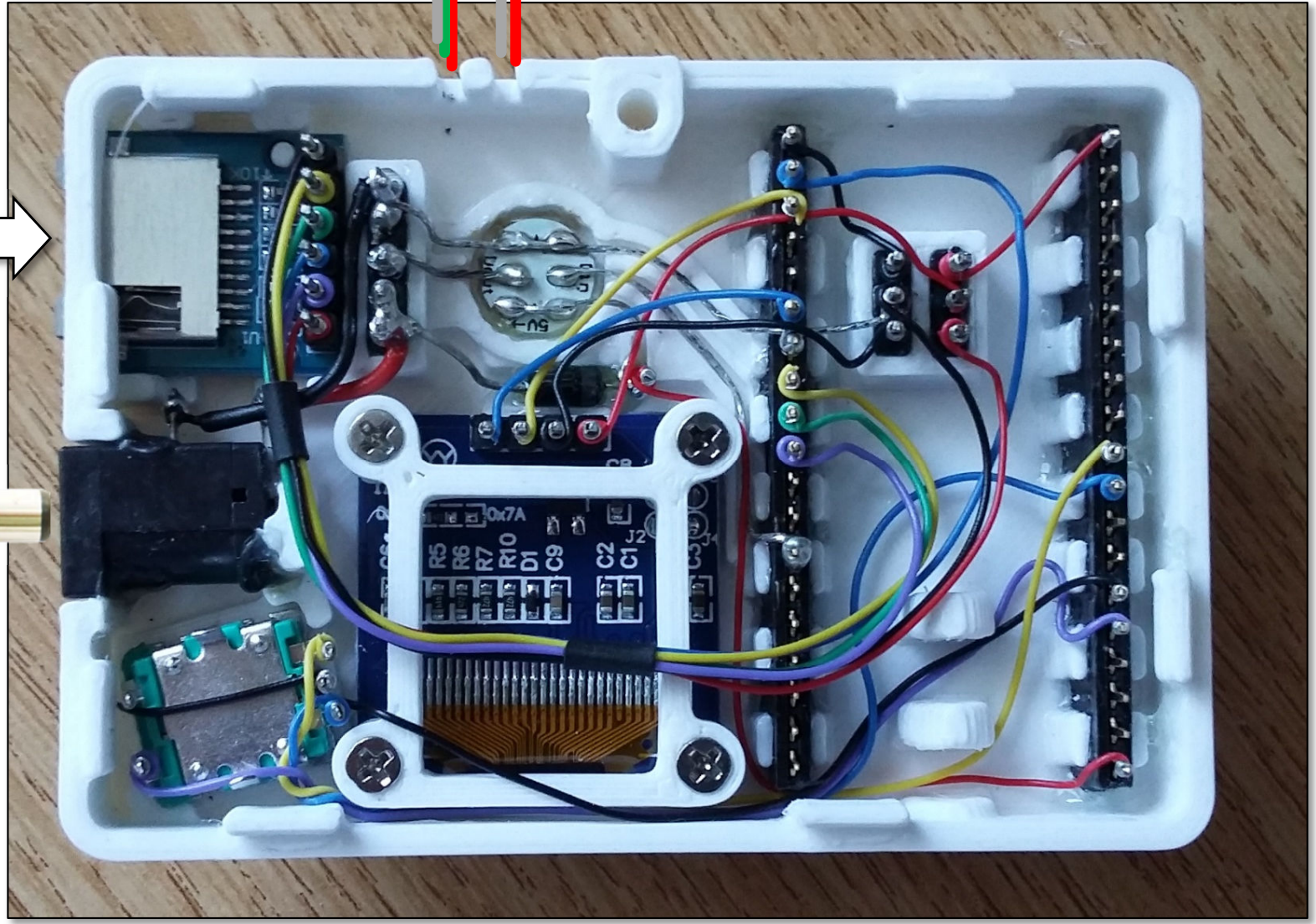
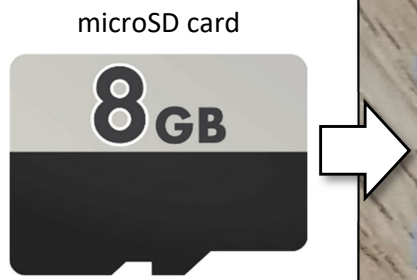
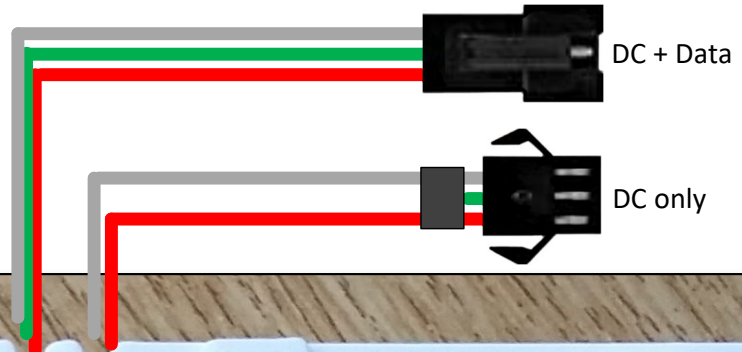


08 The make connections to the microSD card reader



Finally make the connections to the external leads

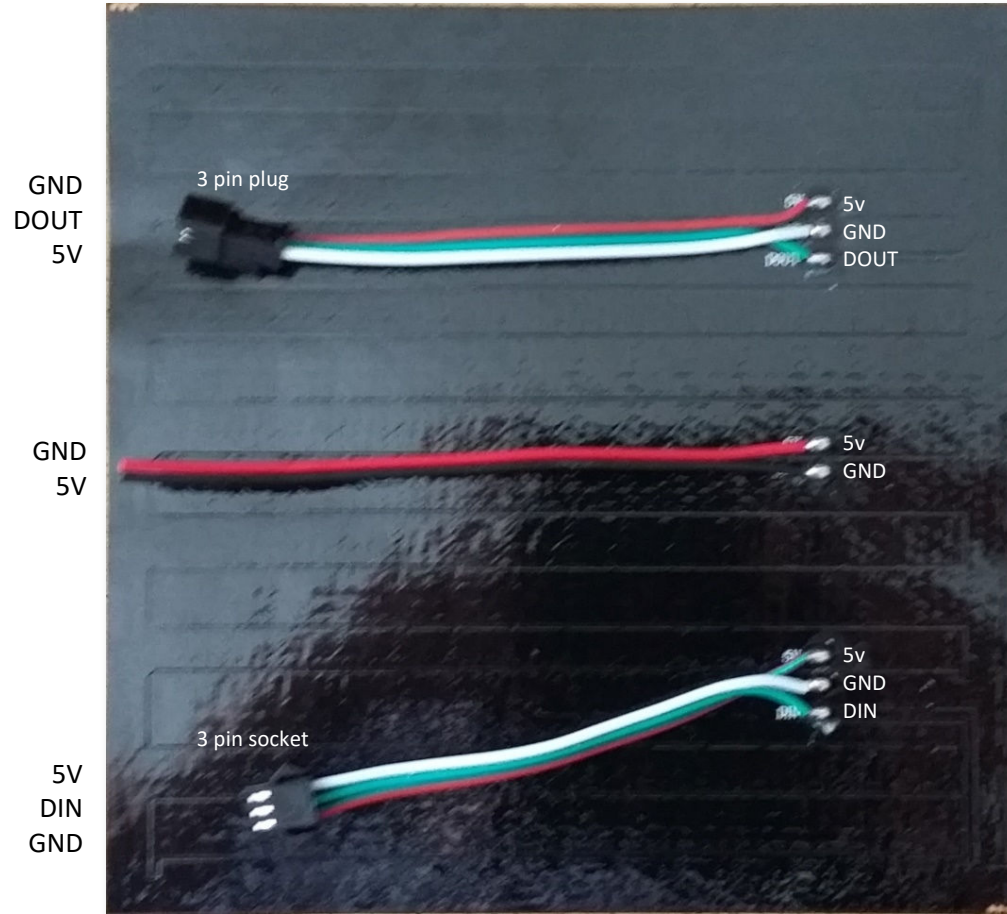
# Controller Wiring



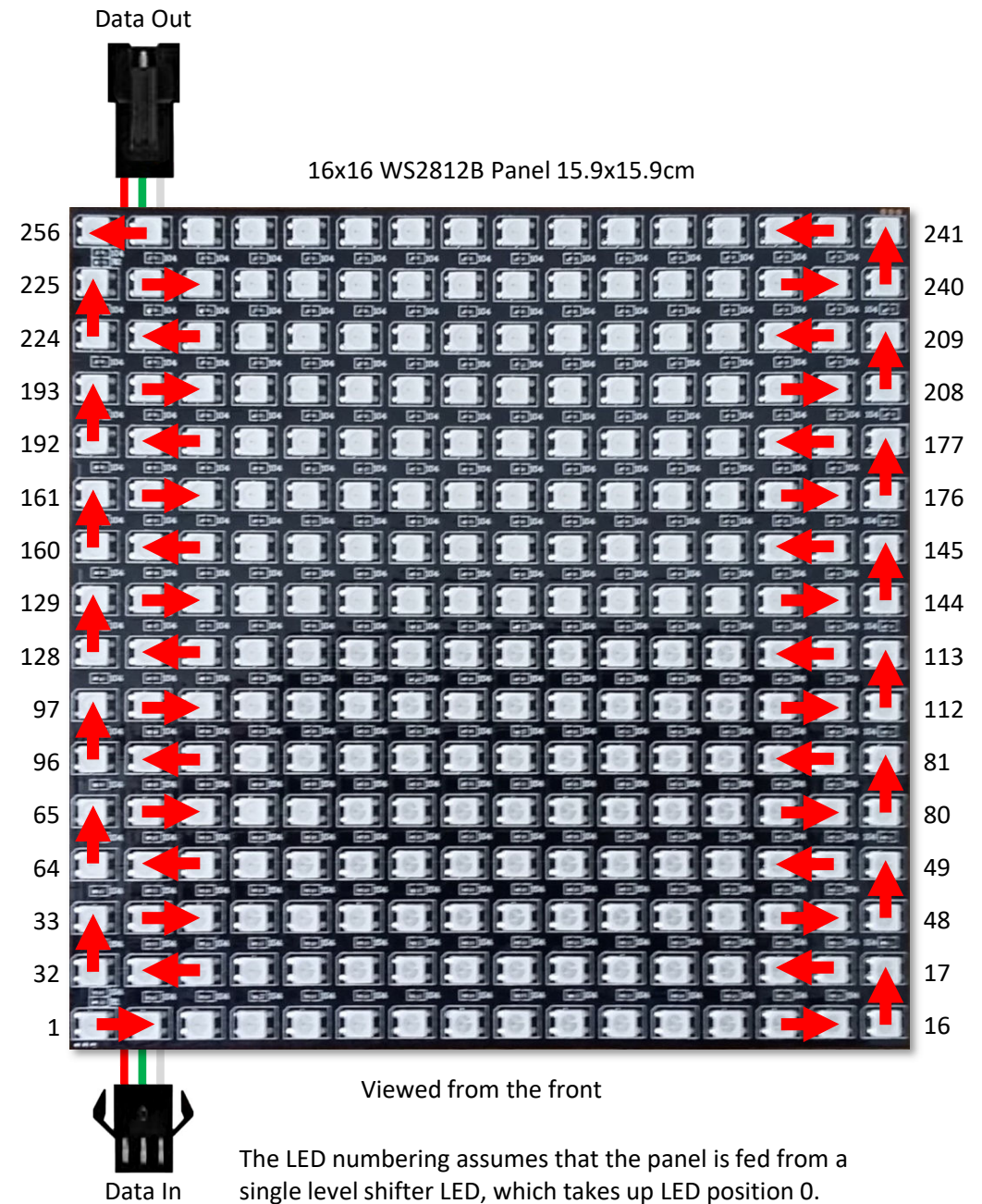


# 16 x 16 Panel Wiring & Mapping

Note that the pcb in the panel effectively snakes the chain of LEDs from one side to the other.



Viewed from the rear



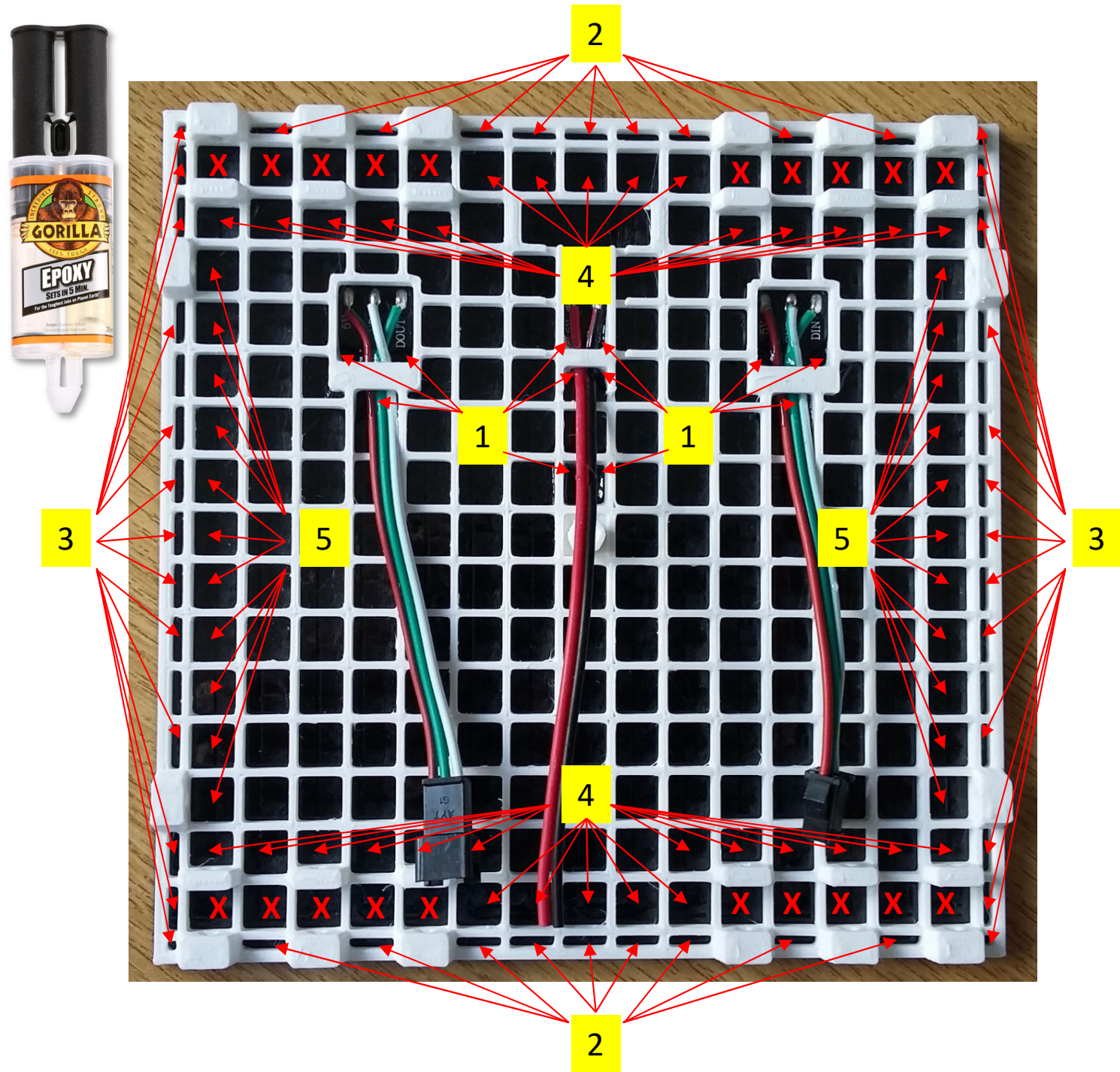
Viewed from the front

The LED numbering assumes that the panel is fed from a single level shifter LED, which takes up LED position 0.

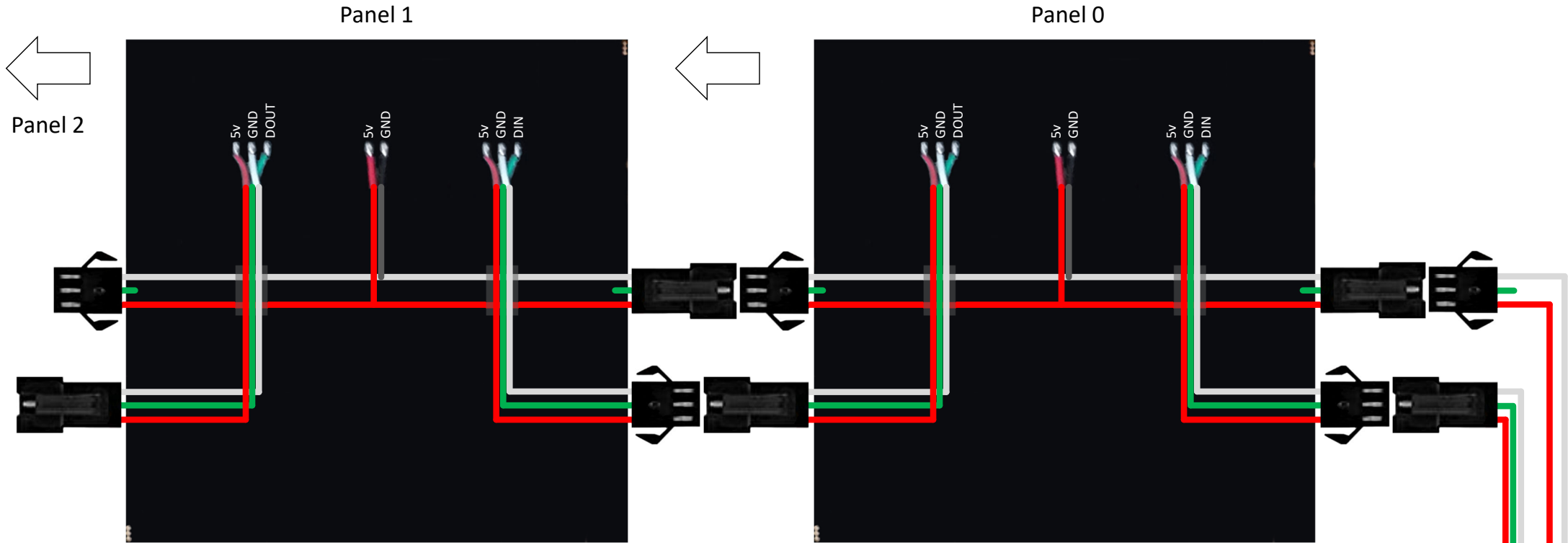
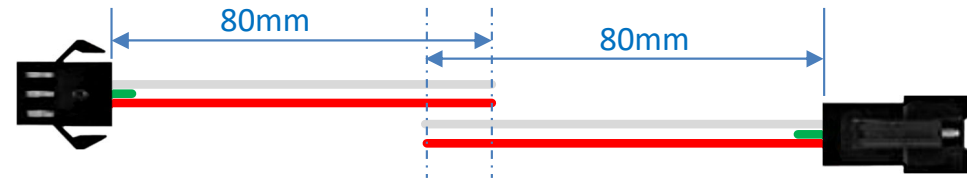
## Gluing Sequence

**Note:** DO NOT apply glue to the areas marked with an **X**, as this will impede the fitting of the mounting brackets.

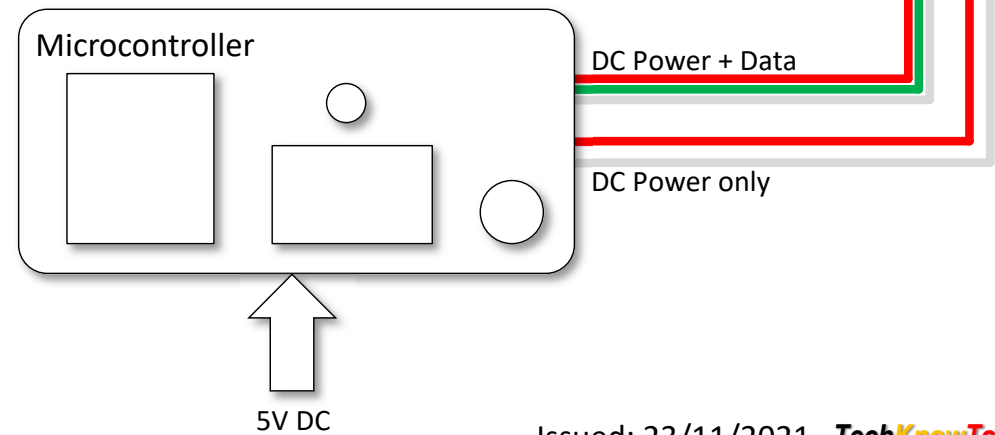
1. Apply quick set 2-part epoxy glue to the areas indicated by the arrows [1], ensuring that the LED matrix is accurately aligned with the frame.
2. Apply pressure to the frame whilst the glue stiffens for at least 10 minutes, then leave for a further 20 minutes to firm up.
3. Using the four bracket plates and clamps, along the top and bottom edges, then apply the glue to the areas indicated by the arrows [2].
4. Allow at least 30 minutes for the glue to firm up.
5. Release the clamps and apply them to the left and right hand edges, and apply glue to the areas indicated by the arrows [3].
6. As the clamps are applied we can also apply glue to the areas indicated by the arrows [4].
7. Allow at least 30 minutes for the glue to firm up.
8. Release the clamps and finally apply glue to the areas indicated by the arrows [5].
9. Allow at least 30 minutes for the glue to firm up, 24 hrs to set.



# 16 x 16 LED Inter-panel Wiring

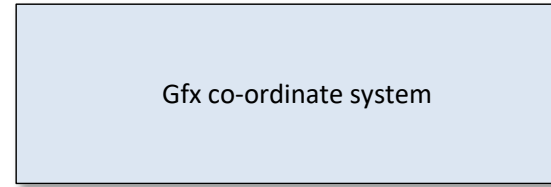


Cut the power leads to the lengths show, measure from the end of the wires to the base of the connectors.



# LED Mapping For 3 Panels

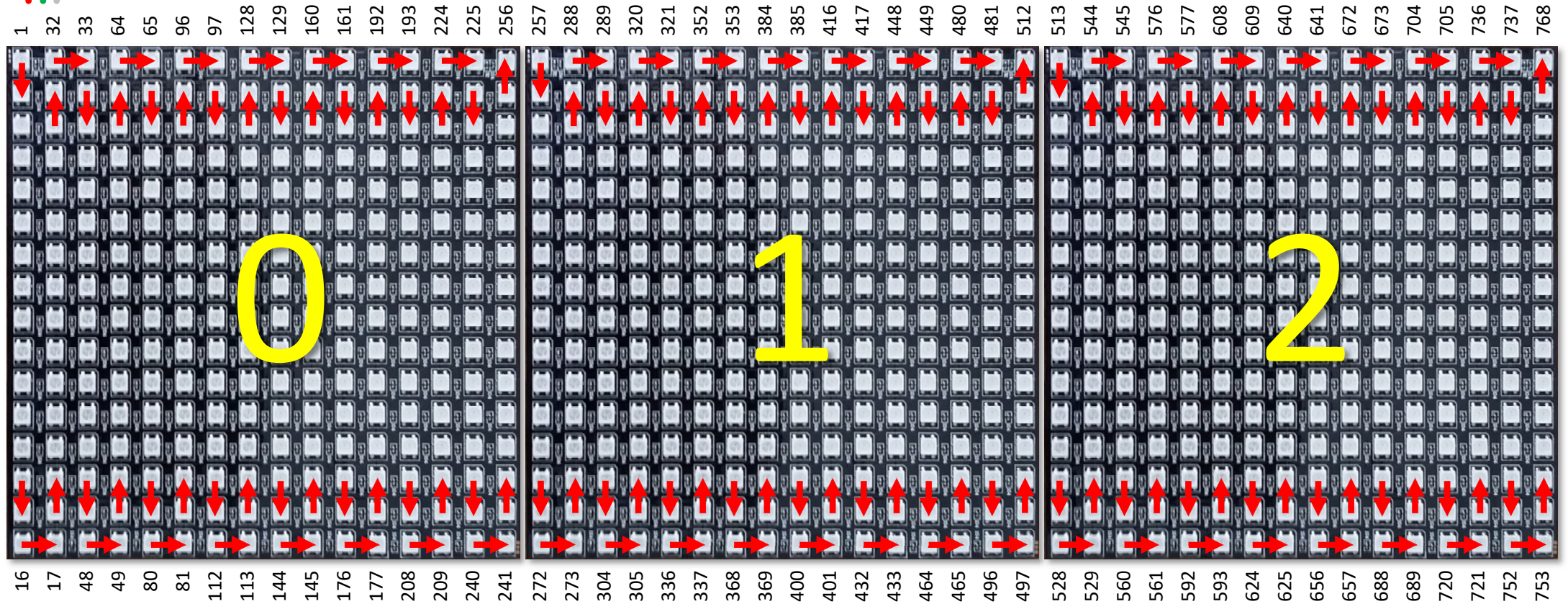
X,Y = 0,0



47,15



16x16 WS2812B Panels 15.9x15.9cm



The LED numbering assumes that the panel is fed from the left via a single level shifter LED, which takes up LED position 0.

X,Y co-ordinate system assumes Panel 0, top left, is 0,0 (X,Y)