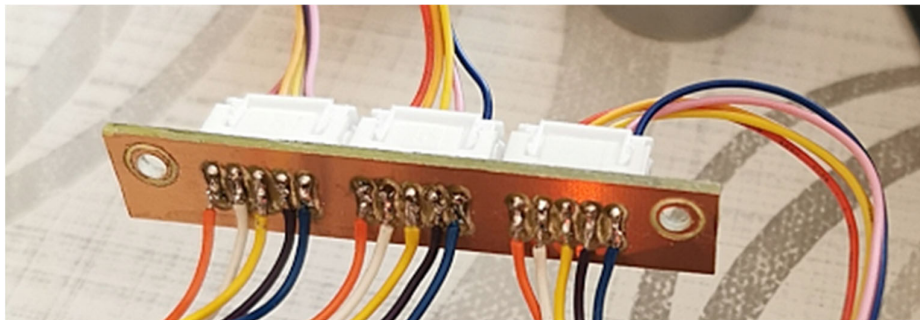# Electronic stage with 3 motors

PCB assembly

You will find in the sharing the typons of the printed circuit boards in pdf format for those who wish to order the circuits (see the possible resellers on the internet) or engrave them themselves by sunstroke. For those who have a PCB burner, these files are also provided in Gerber format.

Once in possession of the printed circuit boards, assembly can begin.

Take the plates supplied with the motors and remove the ULN2003 ICs, desolder the IC bracket and the white connector. However, I give a list of all the components to buy from Conrad. The ESP32 DEV Kit is available on Amazon.

Start by soldering the 8-pin and 16-pin IC brackets, then solder the ESP32's two support strips. Finish with the capacitors, pay attention to the direction of chemical capacities, on the photo the positive (+) is indicated. Weld the 3 clusters of 5 wires at the output of the ULN 2003.
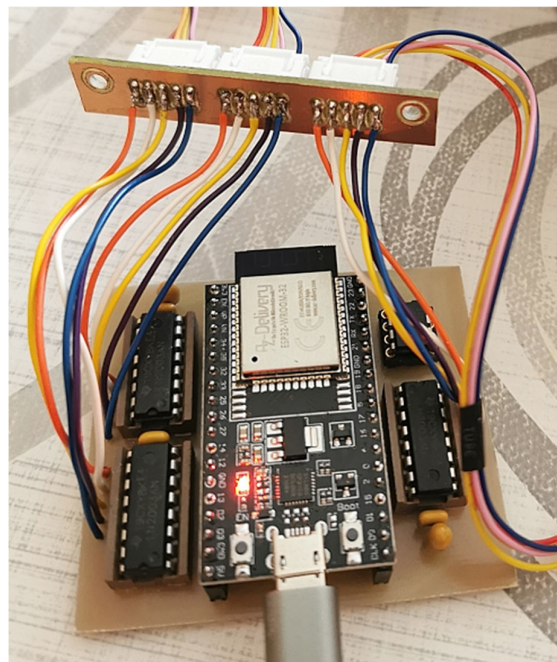

The connectors are to be welded in the alignment of the two screw holes, keying upwards. The wires are soldered directly onto the tracks of the mini circuit board.
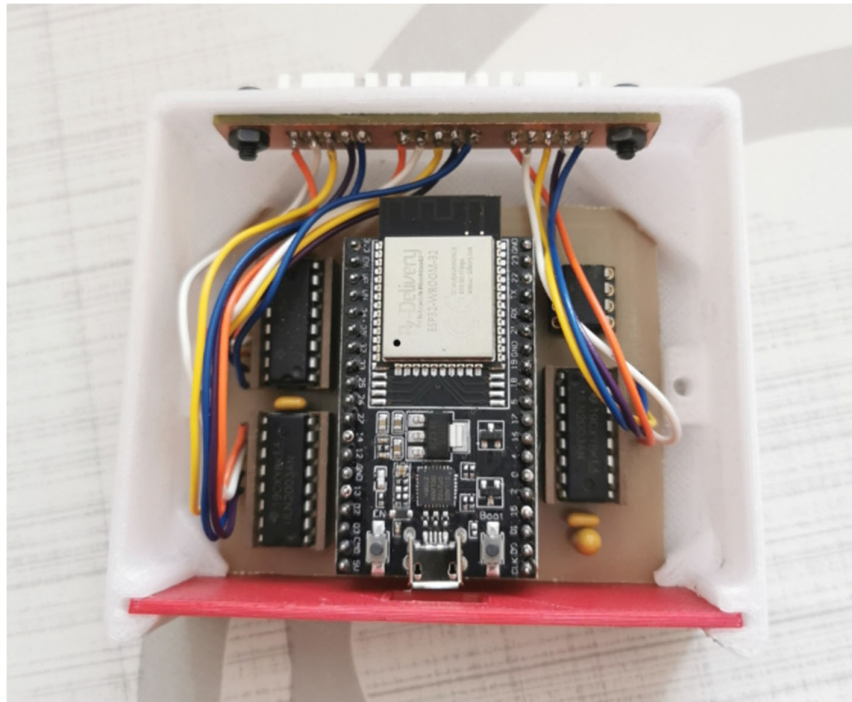
Take care to respect the order of the threads according to their color. Orange is the + noted on the typon.

Place ULN 2003 and 24LC01 on their supports, pin 1 is identified on the typon (see below). the

ESP32 is to place the USB connector directed outside of the printed circuit board.
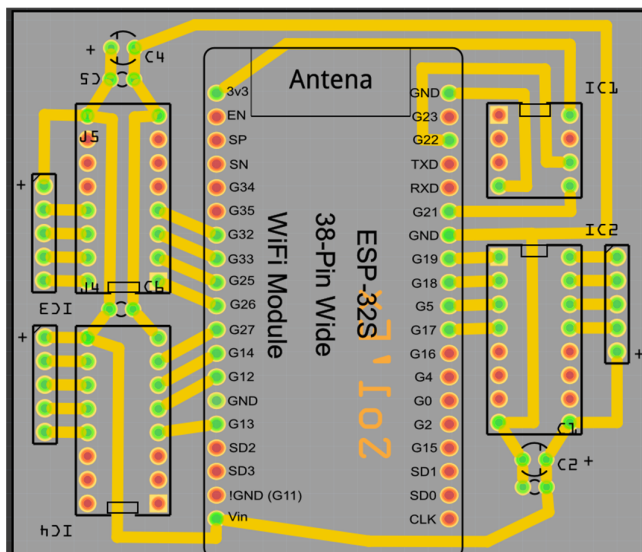
The finished circuit is here placed in its housing with the connectors on the back side.

To place the PCB in the case, present it from the top and first engage the bottom of the circuit in the notches by sliding it towards you. Then slide it forward to lock it in the notches at the rear connector.
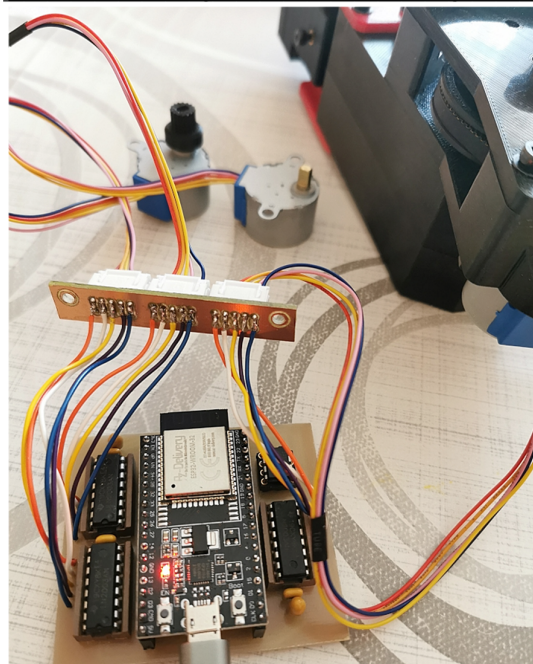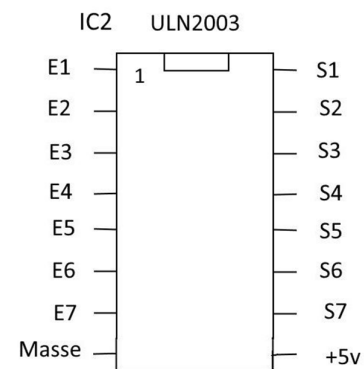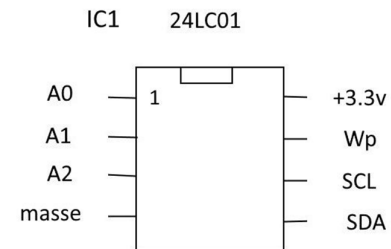

Star'Ex 3 moteurs

Capa chimique tantale
C2 2 * 4.7 uF (16v)

Capa céramique
C 3 * 100 nF

24LC01
3 * ULN2003
ESP32 Dev kit C V4

IC1   24LC01

A0	1	+3.3v
A1		Wp
A2		SCL
masse		SDA

IC2   ULN2003

E1	1	S1
E2		S2
E3		S3
E4		S4
E5		S5
E6		S6
E7		S7
Masse		+5v

List of components to buy from Conrad (or other dealers of your choice).

3 * 100 nF Kemet C320C104M5U5TA+ 100 nF 50 V 20 % Z5U 1 pc(s) - Conrad Electronic France

2 * 4.7 uF TANCAP CA42-475M035AB Tantalum Capacitor THT 2.5 mm 4.7 μF 35 V 20% (W x H) 5.5 mm x 14 mm 1 pc(s) - Conrad Electronic France

8-pin bracket Integrated circuit holder 7.62 mm, 2.54 mm Number of poles (num): 8 precision contacts 1 pc(s) - Conrad Electronic France

3 * 16-pin Support econ connect Integrated Circuit Support Number of poles (num): 16 precision contacts 1 pc(s) Tube - Conrad Electronic France

Strips for ESP32 (provide two) Connfly Female bar (standard) Number of rows: 1 Number of poles

per row: 20 DS1023-1*20S21 1 pc(s) - Conrad Electronic France

24LC01 Microchip Technology 24LC01B/P CI Memory DIP-8 EEPROM 1 ko 128 x 8 - Conrad Electronic France

3 * ULN2003 STMicroelectronics Transistor dipolar (BJT) - Matrix ULN2003A DIP-16 7 NPN - Darlington - Conrad Electronic France

3 * 5-pin Connector Male Case (Turntable) econ connect W33S5 Total Bbr Poles 5 Steps: 2.5 mm 1 pc(s) - Conrad Electronic France

ESP32-WROOM-32 Dev kit C4: https://www.amazon.fr/dp/B08BTS62L7

Good achievement to all,

<div align="right">

Jean Brunet
Pascal Berteau
Stéphane Ferier

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