I would really be grateful if you start to build the Developing Timer, that you go to the Photrio thread and say hi. Also please post photos of your completed tester.

Please refer to Photrio for further build help & to let us know you are building the timer.
Build a B&W film developing timer & twiddler - Cheap, Easy & it Works | Photrio.com Photography Forums

GitHub repository where all documentation & code can be found. billbill100 (github.com)

ESP32 Developing Timer Wiring Guide V1.1 25/02/2024

Wiring of the modules is easily acclompished using Dupont wires. They come in a variety of lengths with terminals being male-male, female-female or male-female. Using a screw-terminal breakout board, male-female are most suitable, with a mix of 10 and 20cm lengths.

There are limited 3.3V and 0V (or GND) screw terminals available. One solution is to gather the 3.3V wires together, cut off the connector and remove a small piece of the insulation. Terminate all of the wires into a choc-bloc and then just one wire from the choc-bloc will go to the screw-terminal on the breakout board. The same is then done with the 0V wires.

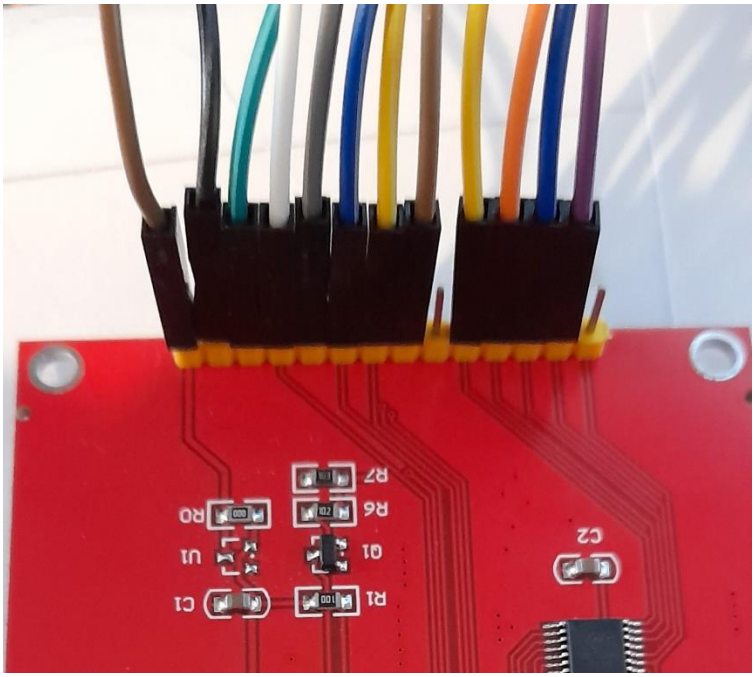
Do not use the GND terminal between pins 19 & 21 on the NodeMcu32 board (it is an error on the board printing and is CMD, not GND) or the GND on the lower left of the Lolin D32 board.

Please refer to the schematic for details of all connections and use them in conjunction with the photographs below.

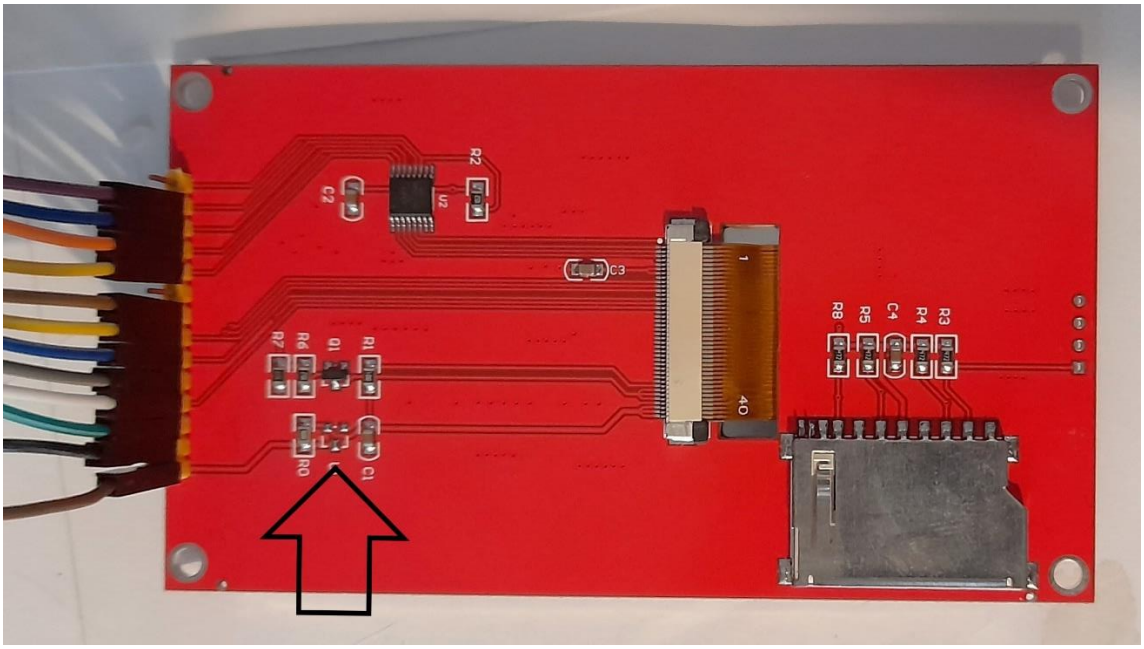
Please be aware that the photos below are of the 32 pin Lolin D32 board and it only uses 32 of the 38 screw connections (the rear 3 on either side are not used) and that the breakout board legends do not match that of the board.

The NodeMcu32 has more pins & uses all 38 screw terminals. Refer to the schematic for the correct connections. Note the outer two pins are not connected and there is also a non-conceted pin towards the cente of the tft screen.

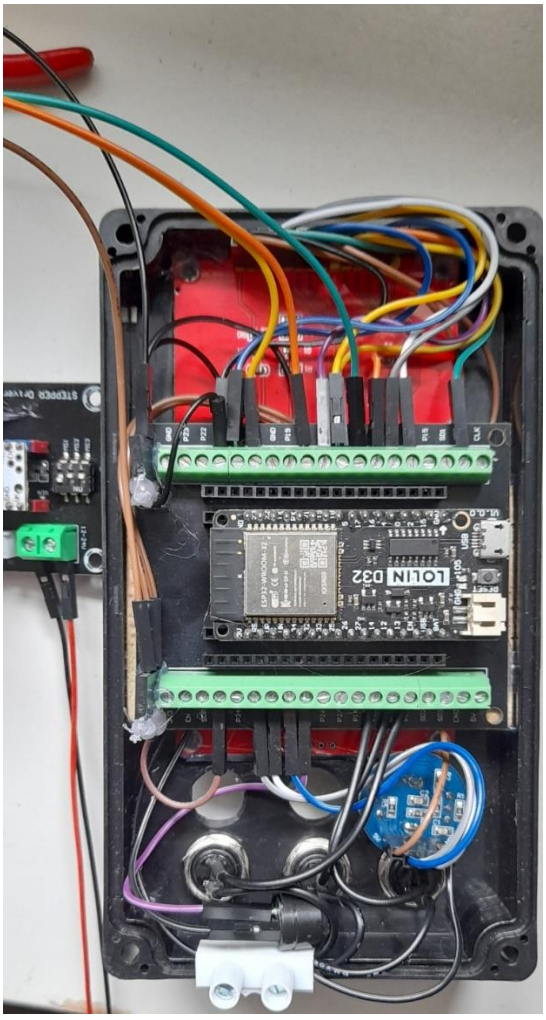
Tft connections.



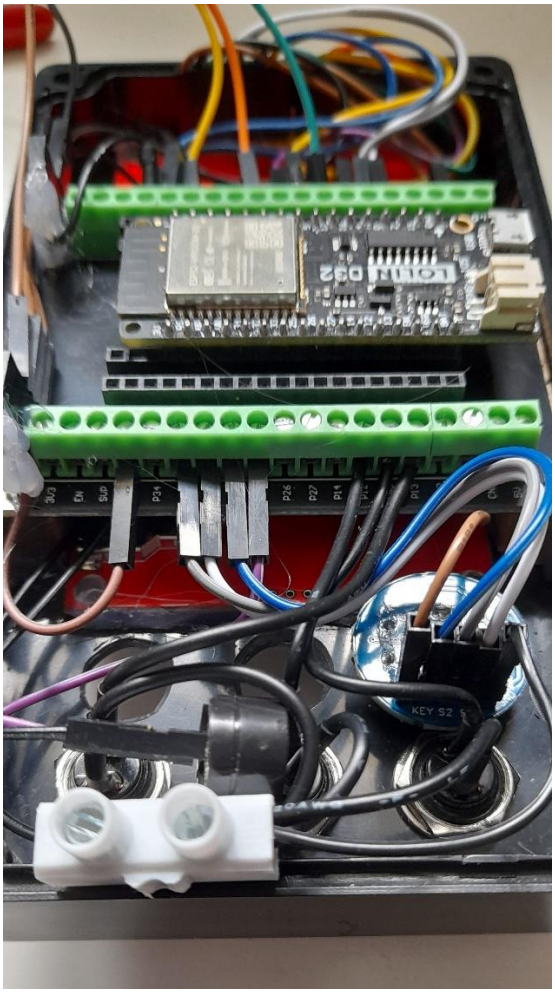
Rear of tft screen 320 x 480 ili9488 Touch. Note U1 is not populated on the board, as it is a 3.3V board. (Arrow).

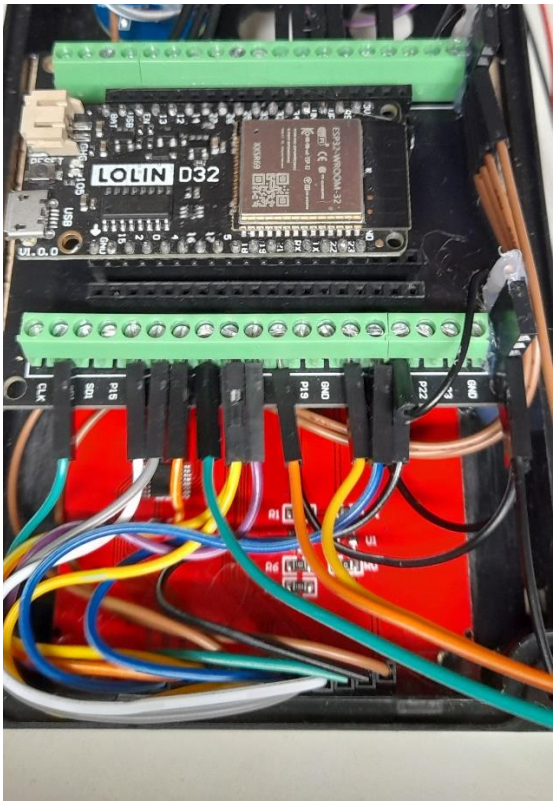


Completed wiring. Note 8-way female header pin used to create more 3V and 0V connection points.



Buttons & encoder wiring. Note the choc-bloc to combine the GND wires and the piezo sounder.





Tft screen & stepper wiring.

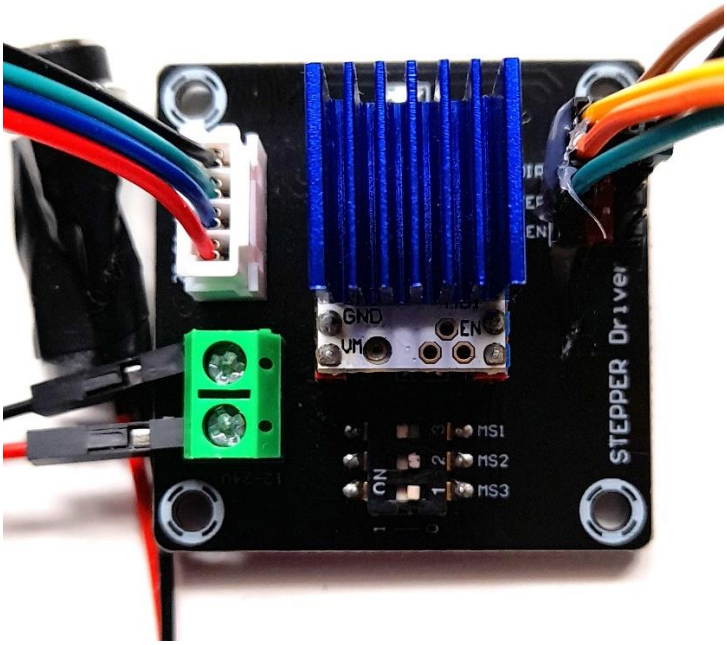
Stepper driver Board & plug-in stepper module.

The photo shows the older plug in module, which has the current adjusting potentiometer on the underside. The newer V2 has this mounted on the top & the board is black, rather than white, in colour.

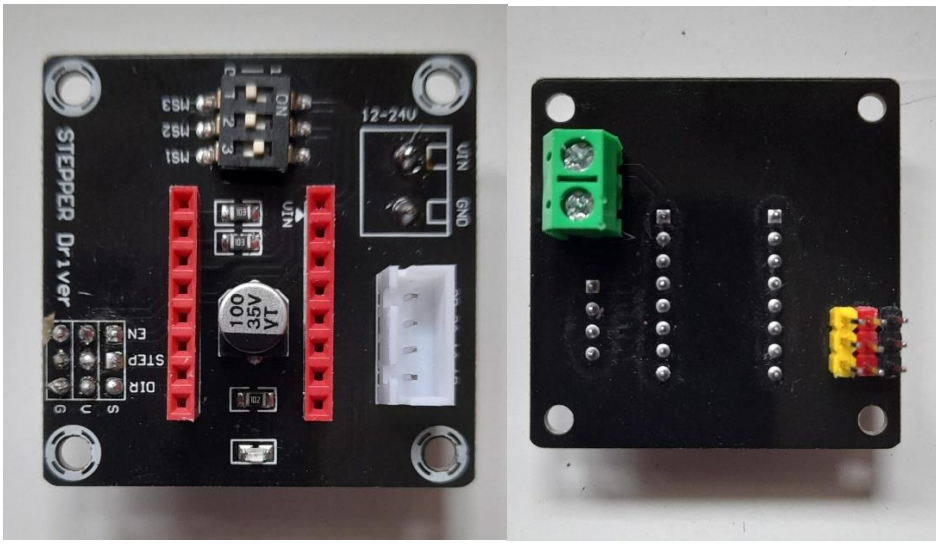
The blue heatsink is attached by self adesive tape, which should already be afixed to the heatsink. The heatsink must be placed so that it is flush with the rear of the board (so the potentiometer & test holes are not obstructed) and placed centrually bettween the two rows of pins. Have a few trial runs before removing the adesive.

Note DIP switches, 1 is set to ON, 2 & 3 are set to OFF.
Version 1 driver board is shown (white) but version 2 should be used, as the adjustment potentiometer has been moved from the unserside to the top, for easier adjustment.

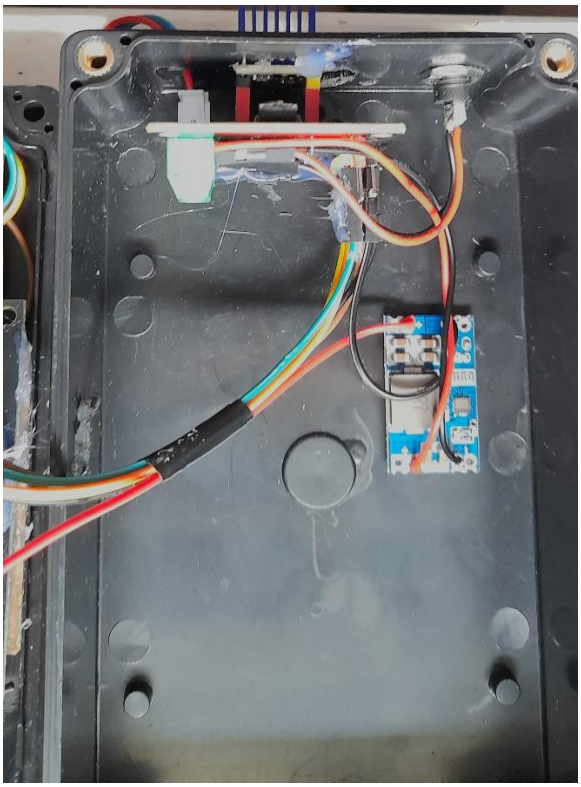
DO NOT CONNECT THE STEPPER DRIVER TO EITHER 12V POWER OR THE BREAKOUT BOARD WITHOUT SETTING THE CURRENT, AS DETAILED AT THE BOTTOM OF THIS DOCUMENT.



The heatsink is only held in place by adhesive tape, so care has to be taken that it is not knocked. The heatsink does not get too hot, so could be placed inside a suitable project box. For the prototype, it was mounted so the heatsink protrudes from the box, to facilitate this, both the power socket & header pins were desoldered from the board & re-soldered on the reverse.



Green power socket & header pins mounted on reverse.



Stepper driver board mounted so heatsink is external. Note there is very little space in this project box to mount the driver board. It is recommended to use a larger project box if using the optional stepper driver board.

12V to 5V converter mounted in project box. This powers the processor board, negating the need for a separate USB power supply.

Completed project.

Important details for setting up stepper driver.

The current output of the stepper driver board must be set BEFORE connecting it to the stepper motor.

Ensure the stepper motor is disconnected and connect the 12V supply to the stepper board.

Using a multimeter set on the V DC range, connect it between GND and the gold-coloured circle, bottom right the stepper module.

Using a small screwdriver, turn the adjusting potentiometer until 0.8V is shown on the multimeter.

Disconnect all power before plugging in, or disconnecting the stepper motor cable. Failing to do so will destroy the stepper module.

Note the potentiometer works backwards, turning anti-clockwise increases the voltage, turning clockwise decreases it.

An alternate method if you do not have a multimeter, is to turn the potentiometer all the way clockwise.

Connect everything, including the stepper motor.

Set the Developing timer Initial Agitate to 11 minutes and start the timer.

Press the yellow button to activate the stepper motor.

Carefully turn the potentiometer anti-clockwise until the stepper motor runs smoothly.

Press the Yellow button to turn off the stepper motor. Press again to re-start. The motor should start smoothy, if not, turn the potentiometer a little more.

Monitor both the stepper motor body and stepper driver module for temperature. Whilst they will get warm, they should not get hot. If they are too hot, adjust the potentiometer clockwise, to reduce the current. Setting at 0.8 volts is a good starting point. If the motor struggles to twiddle, check nothing is binding & the motor is concentric with the twiddler. The voltage can be increased in small steps, if more power from the motor is required.

Here is a good video describing how to set the TM32208 stepper driver module.

8.08 to 11.150

TMC2208 3 Ways - Part 1 (youtube.com)