Mobile Voltage Regulator - Instructions

1) Overview

This project came about to complement my Dewalt 18V-20V Battery Adapter Thing - 7177104.

The existing adapter can supply a fixed voltage at high current; I wanted a variable voltage power supply for another application which required a lower voltage.

I decided to build a regulator using readily available components.

General Observations

a) Clear Display – Simple Design

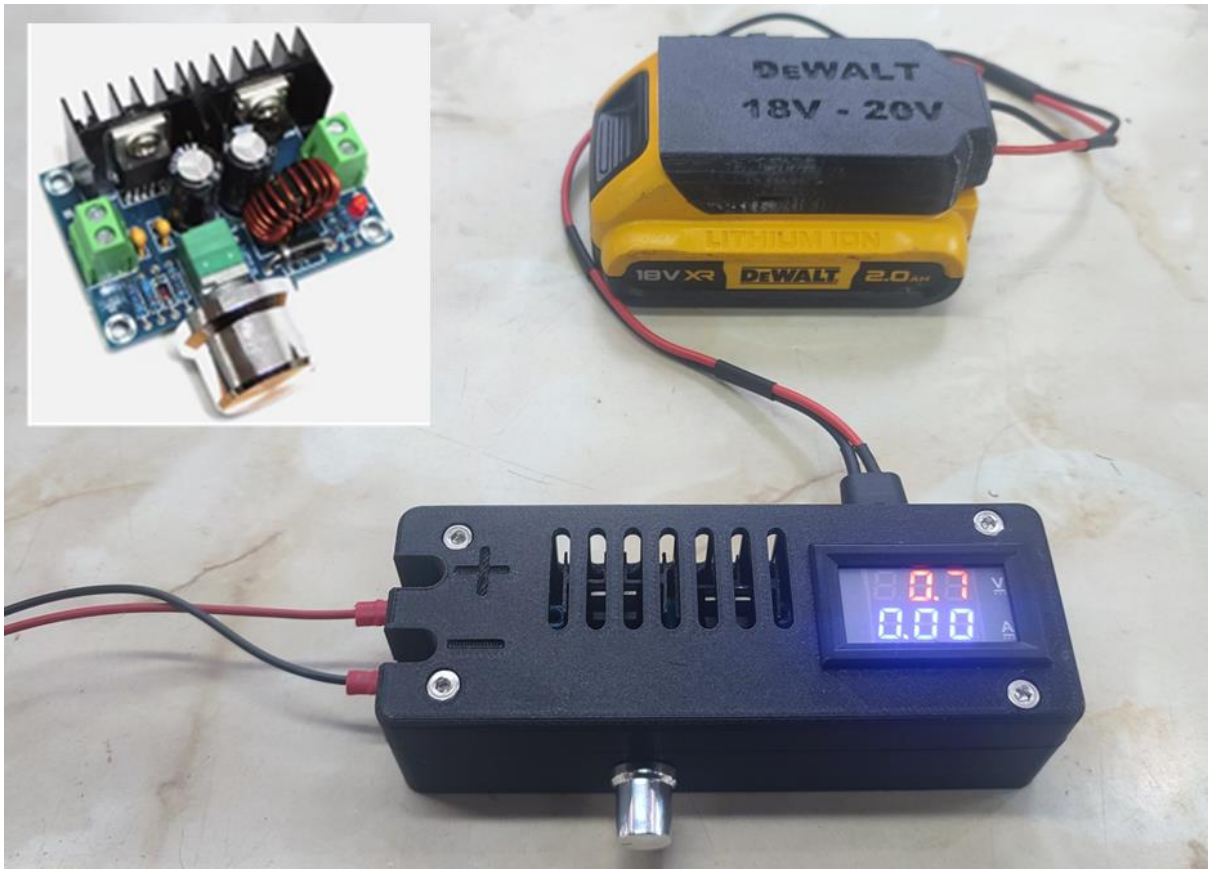
a) Readily available components

b) Strong Robust Terminals

c) Hi Powered XT60 DC Power Supply Connector

d) Heat Sink Cooling Vents

Note: - In practice current limiting cuts, in at about 6 Amps regardless of the voltage.



2) Components

Note Hyperlinks worked at the time of writing but will not be maintained.

1) 200W 8A Adjustable DC-DC Buck Converter Module

Link

2) Mini DC Digital Voltmeter Ammeter

Link

3) 15A Double Row Screw Terminals

Link

4) XT60 Socket

Link

5) 4 off Stainless Steel M4 x 35mm Cap Head Hex Set Screws complete with nuts

6) 2 off Stainless Steel 12mm M3 Countersunk Hex Socket Head Screws and nuts

7) Hookup Wire

3) Printing

Printing the components (I used the following)

Filament PETG any type of filament your printer can accurately print

Settings 15% infill

Layer Height 0.2mm

No rafts or supports are required

4) Preparing Installing

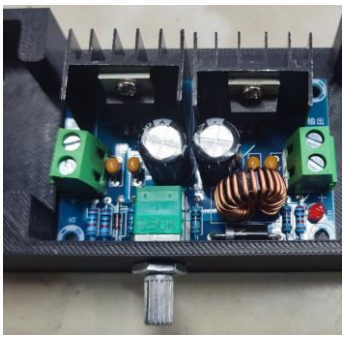
1) Print the base and top.

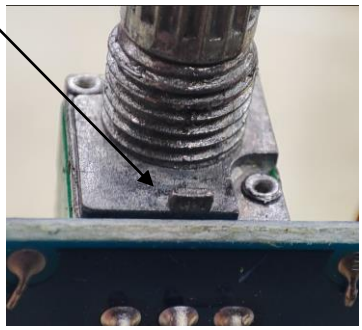
2) Check the base fits the top ease any interference with a fine file.

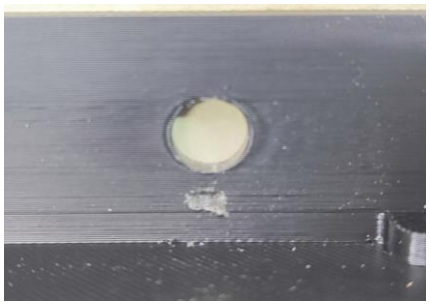
3) Run a drill through all of the holes and check the bolts slide in and out easily

4) Remove the centre link from the terminal block and trial fit

5) Trial fit the regulator module, pull it tight with the nut, it will leave a mark where the potentiometer location dog is, using a drill or Dremel make a hole for the location dog.





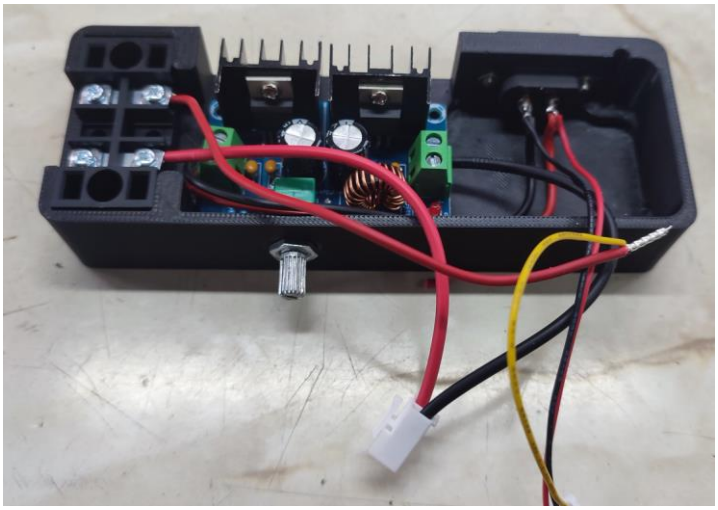


6) Pull the M4 Captive nuts into the base

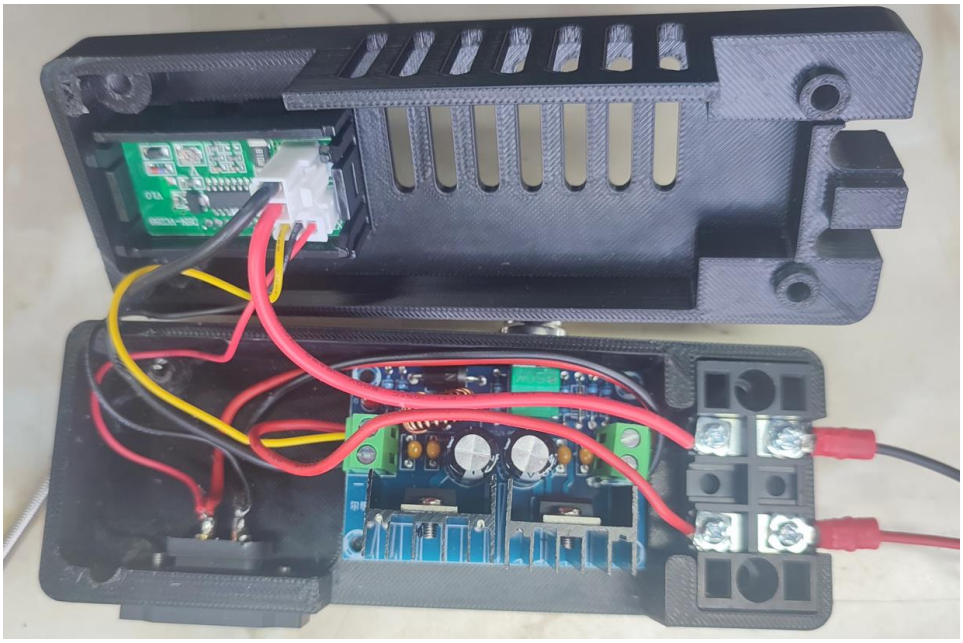
6) Install the XT60 Socket

7) Install the regulator module and connect the supply wires before installing the terminals

8) Install the terminal block and complete the wiring

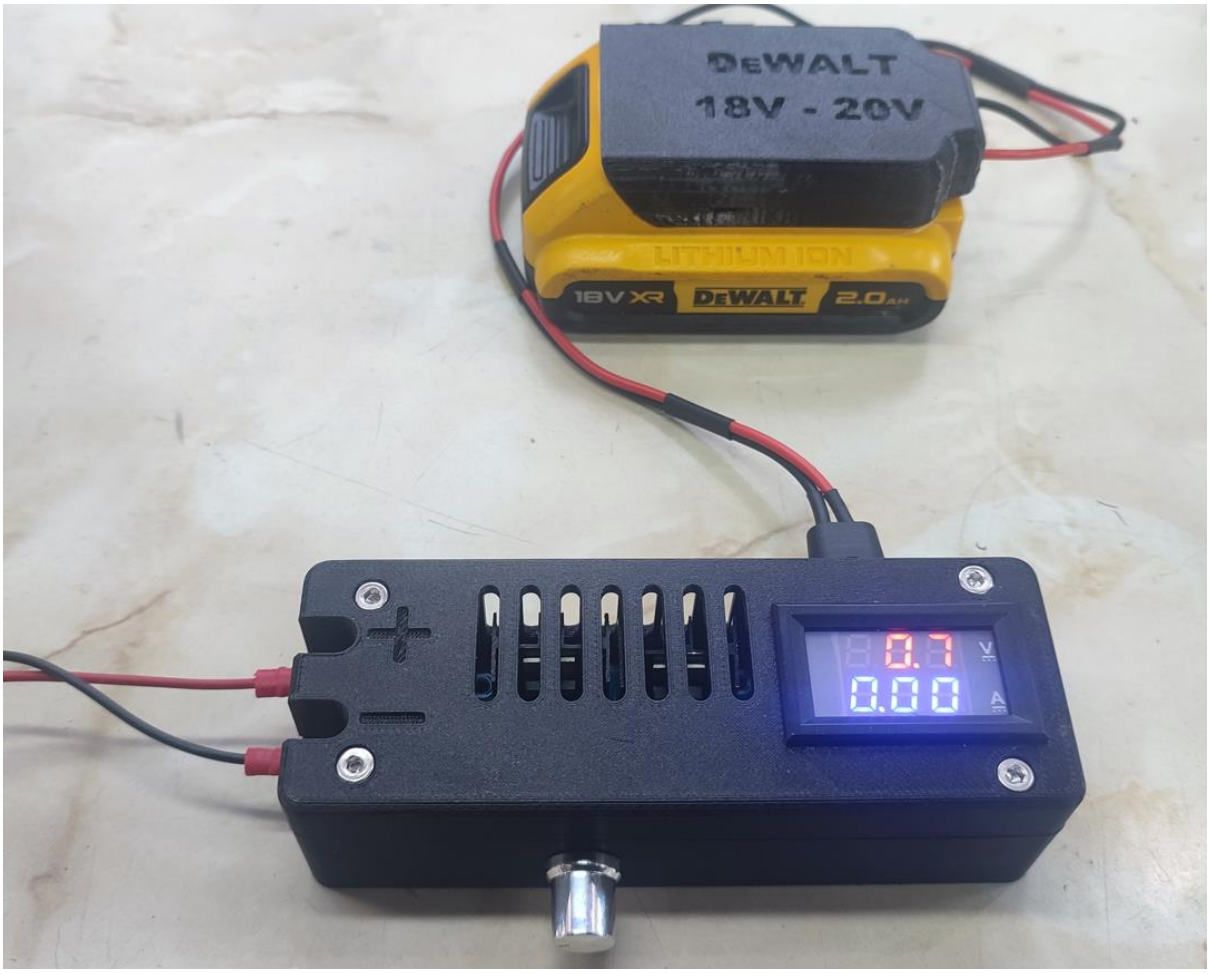


10) Mount the Volt – Amp Meter in the top and connect the plug in wires



11) Assemble the top and the bottom, making sure the wires are over the potentiometer and not in front of the heat sinks

12) Power up and test


DEWALT
18V - 20V
LITHIUM ION
18V XR
DEWALT
2.0Ah
0.7
0.00