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What is this project about?

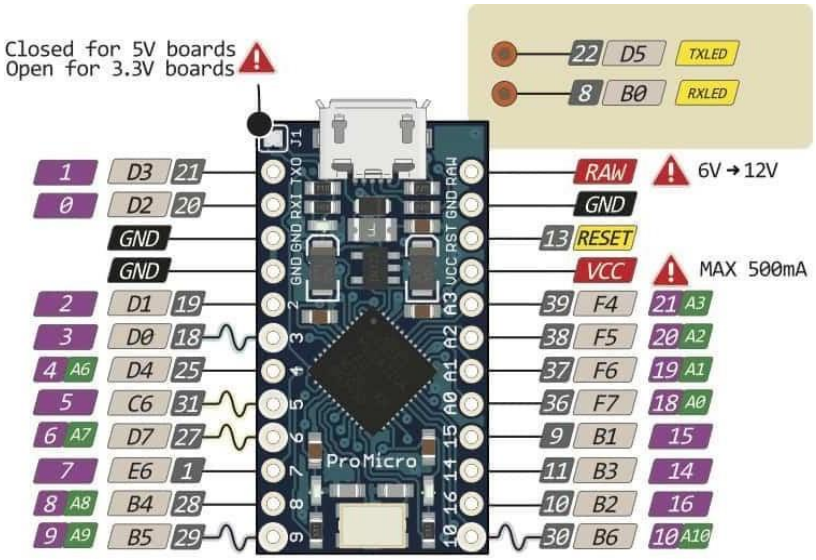
Have you ever wished you could skip the procedures necessary to manage the media on your personal computer? While saving time and effort, keyboard shortcuts frequently need more than one key, and finding the appropriate combination of keys can be challenging. The MediaPad can be used in this situation. With buttons and rotary encoders, as well as a connection to an Arduino board on the other end, it can be programmed and modified to fulfill the needs of the user. At this time, the requirements are quite straightforward: Controls for PC sound volume, music playback, and certain common keyboard shortcuts.

Nowadays, it is well accepted that comfort and ergonomics increase productivity. It might be very helpful to have a desk lamp to illuminate a certain area so you can see and type or read more easily. A desk lamp with an ON/OFF switch can complete this purpose. The lack of a dimmer to control the amount of light the lamp emits made using it unpleasant. As a result, our dimming mechanism is located on the same case to resolve this issue.

Arduino Pro Micro

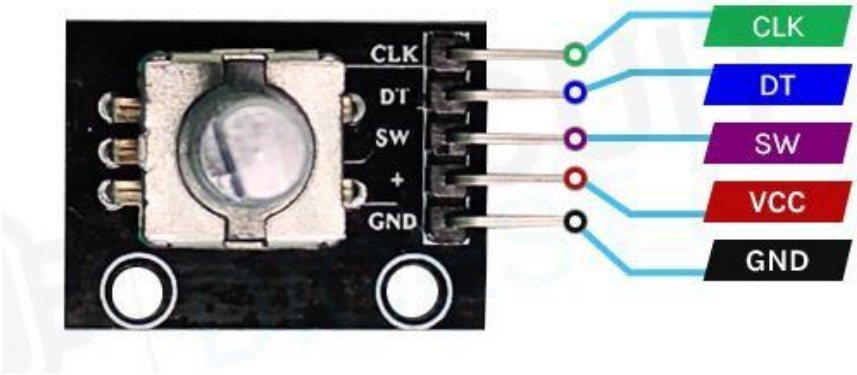
Arduino is an open source computer hardware and software company, project,and user community that designs and manufactures single-board microcontrollers and microcontroller kits for building digital devices and interactive objects that can sense and control objects in the physical and digital world.

For our case , we used a clone of the original Arduino board , called LeonardoPro Micro. This board houses the ATmega32u4 microcontroller capable of emulating a USB HID device such as a keyboard or mouse.



Rotary Encoder Module Sensor (KY040)

Rotary encoder is a rotary input device that provides an indication of howmuch the knob has been rotated and what direction it is rotating in.



Momentary pushbutton switches

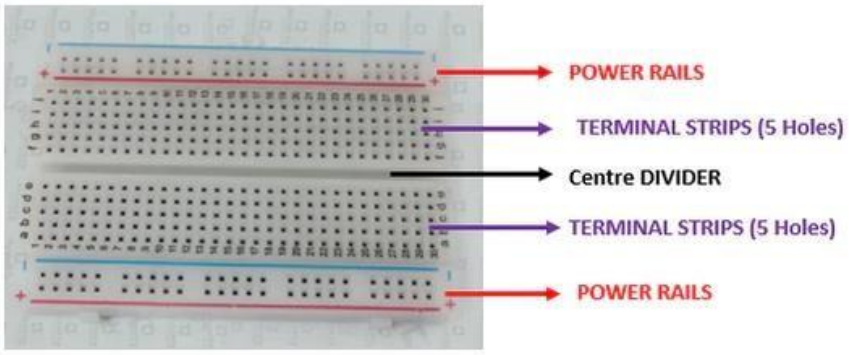
This is a standard 12mm square momentary button, a great button for userinput.

Connecting wires

Insulated 1 pin connecting wires with length 150 mm and different colors.

Breadboard

This is a breadboard that is used to connect components without the use of solder. It simplifies the process of prototyping circuits. This breadboard has two power rails on both sides as well as 400 contact points. These contact points are holes on the **breadboard** into which wires and components can beinserted.

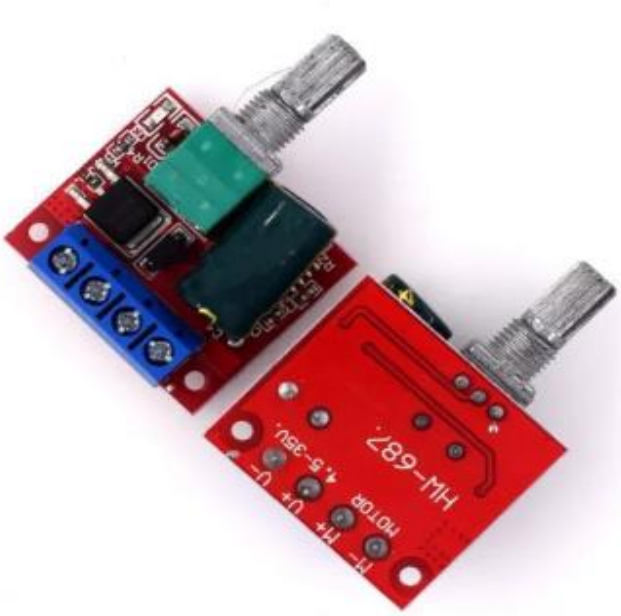


Cable connectors with screw

They are commonly used as an alternative to soldering of cablestogether, since they are quicker to install and unlike soldered connections allow easy removal for future modifications.

Voltage Regulator DC 4.5V – 28V Module

This is a module that gets direct current from the power supply and provides a knob for adjusting the voltage output and our project, the amount of light emitted from our desk lamp.



Case

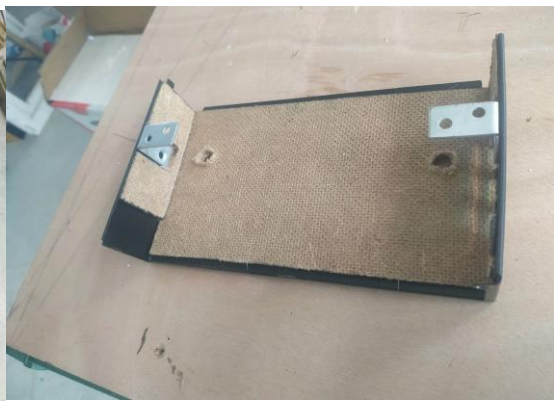
The case was repurposed from an old Digital Receiver for tv.

Preparing the case

Next I glued the case's connecting support and I cut the wood pieces for the cladding of the case. Furthermore, I drilled the bottom part of the case in order to get access to the screws at the top part.

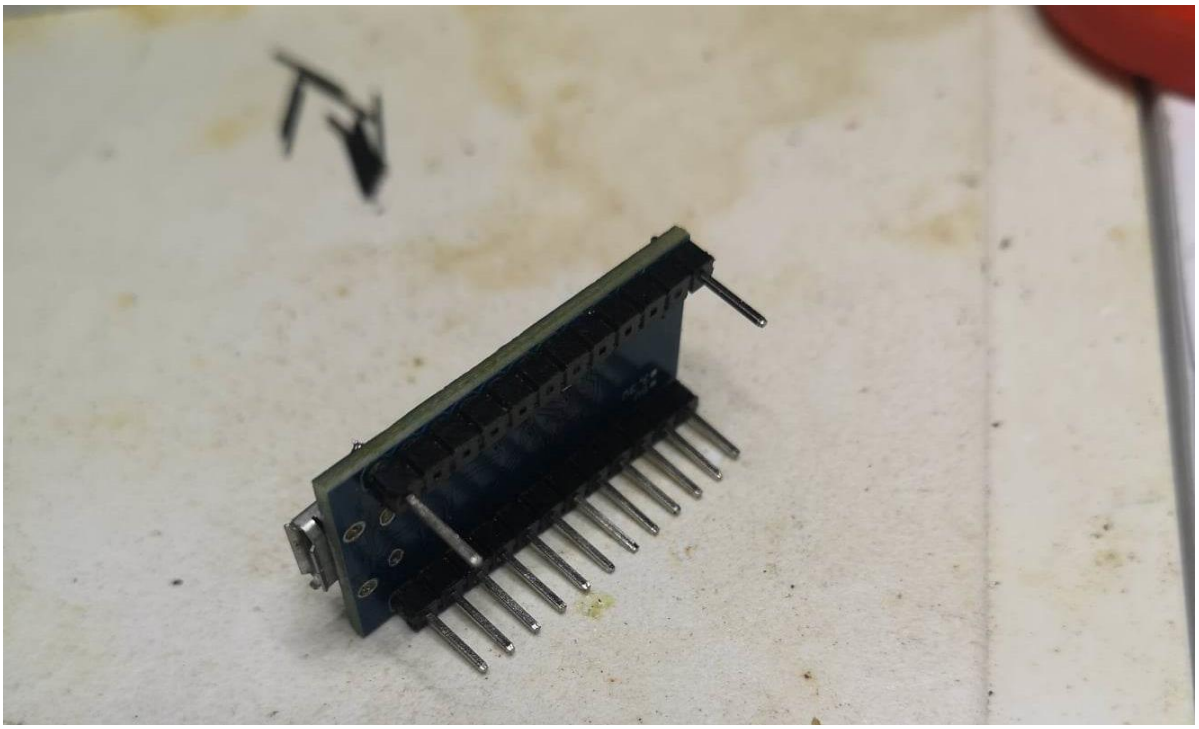


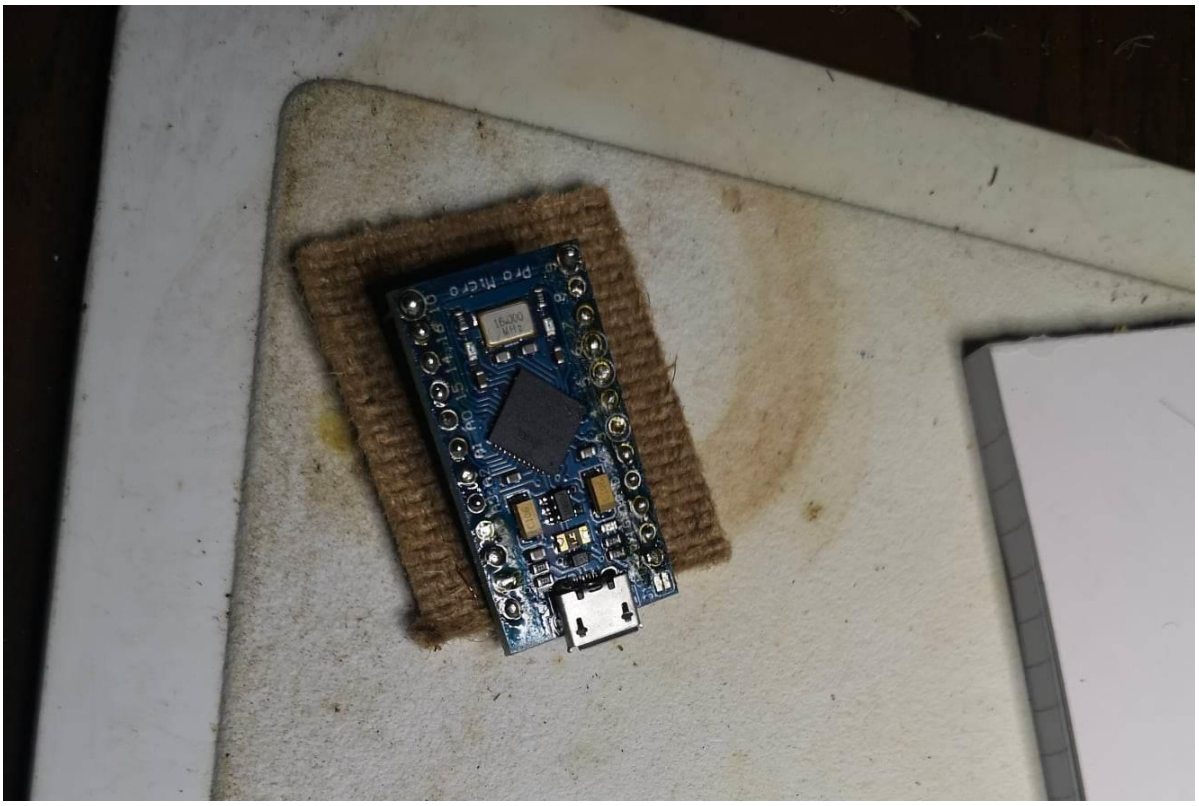


Arduino pins soldering

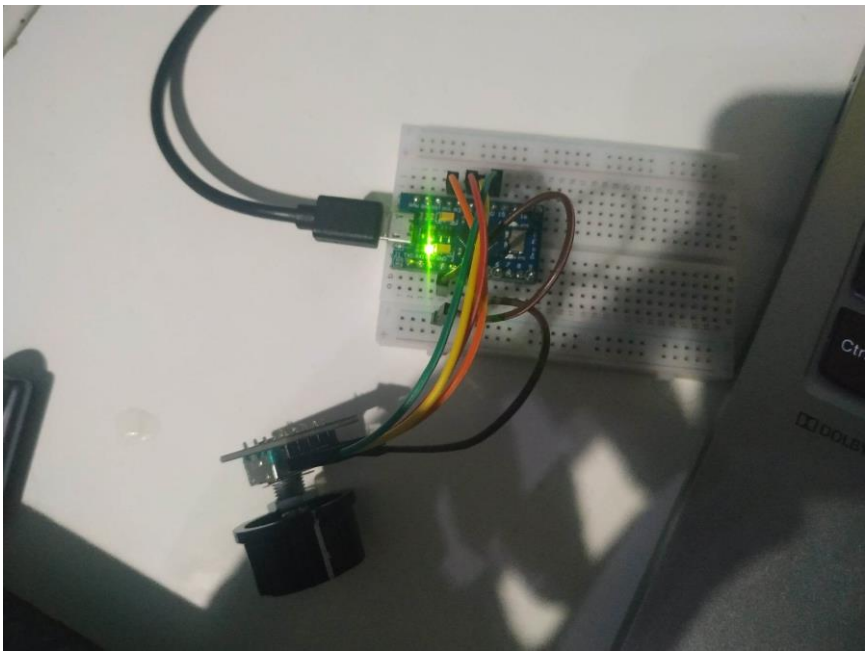
This is the stage that I carefully soldered each pin separately, making sure that they were not in contact with one another.

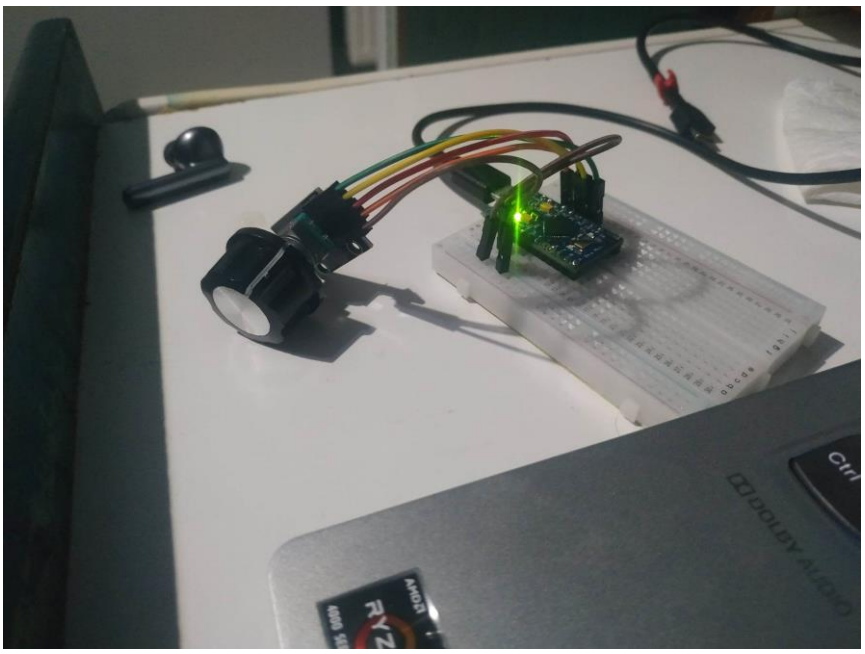




Arduino Circuit Initial creation

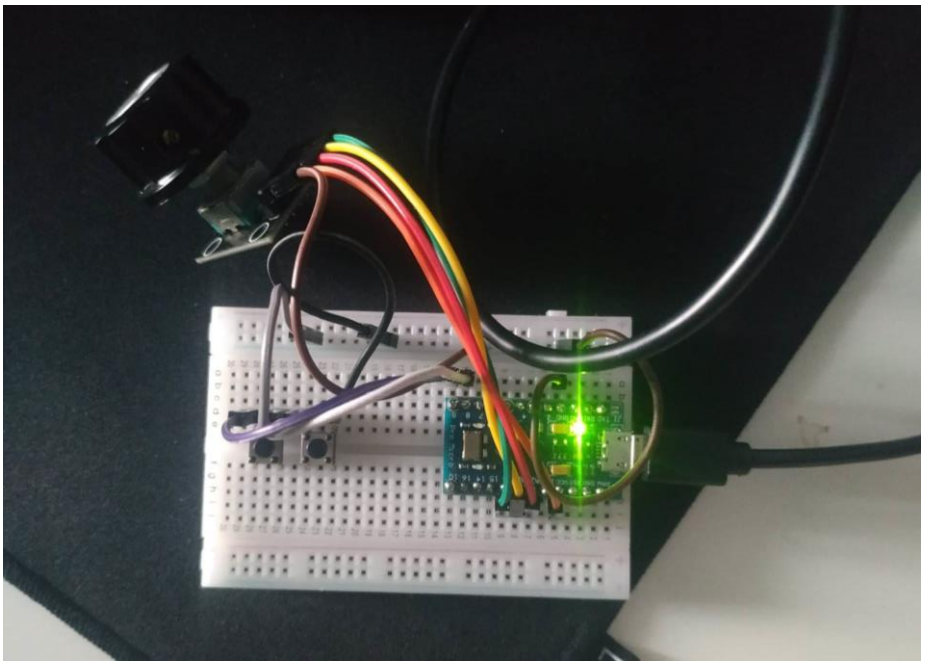
This part involved the assembly of the Arduino Pro Micro and one rotary encoder, as well as the beginning of the coding.



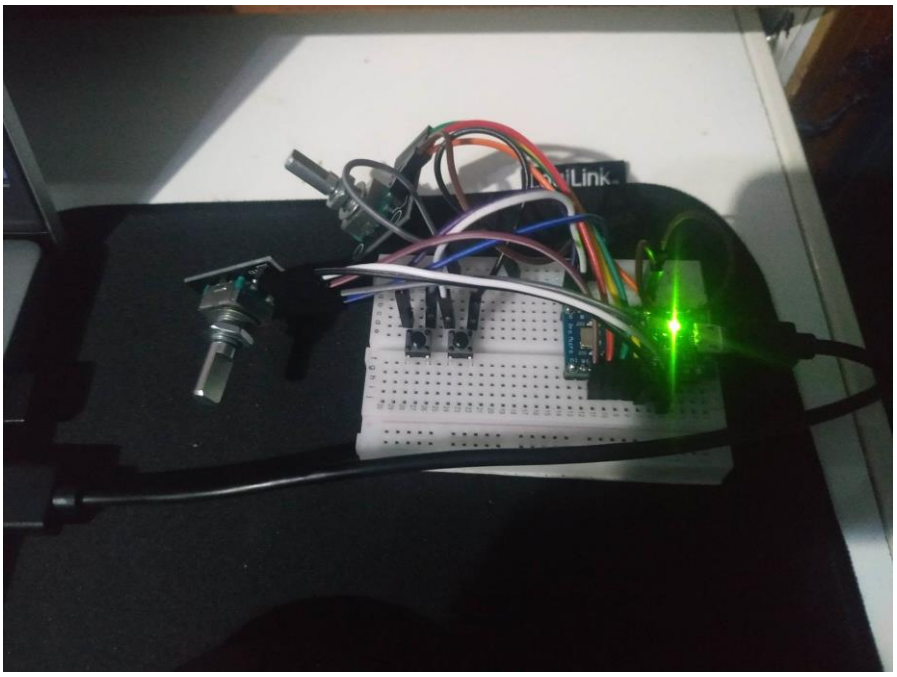


Arduino Circuit additions

I then went ahead and added two buttons and their corresponding code.

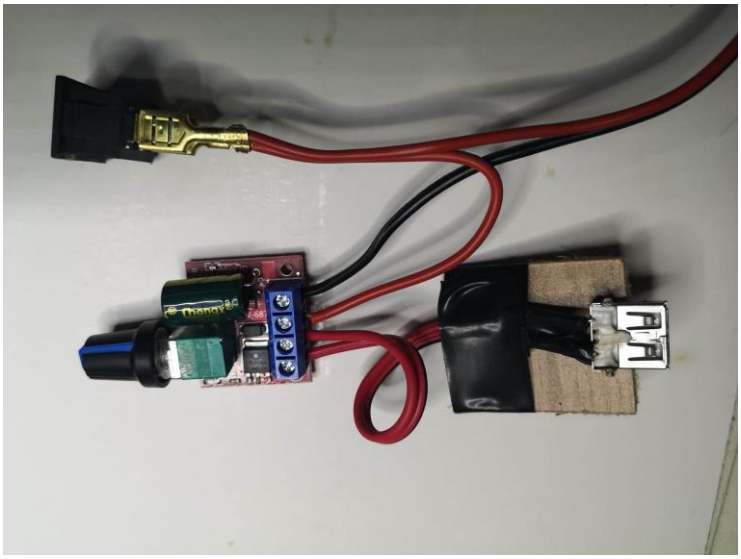


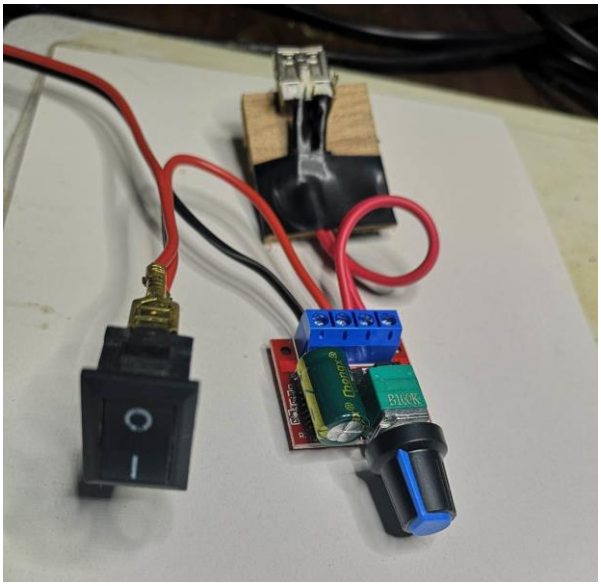
As well as the second rotary encoder.



Light Dimmer circuit creation

It was time to put together the light dimmer.





I also connected a usb cable to get power from the power supply.

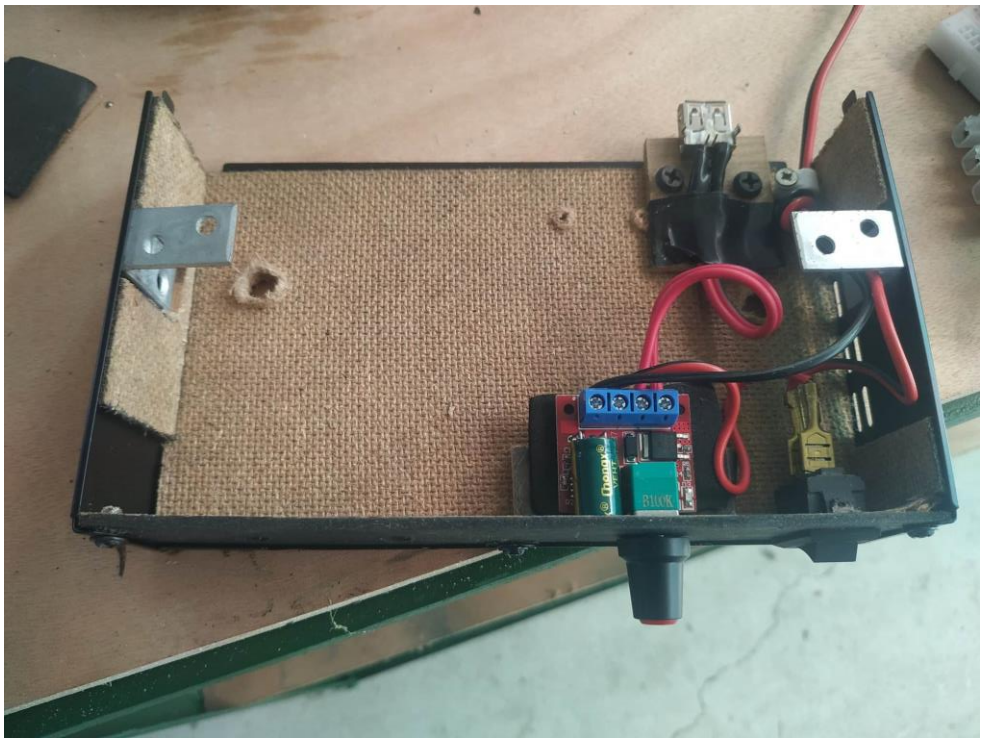
Painting of the case and button soldering

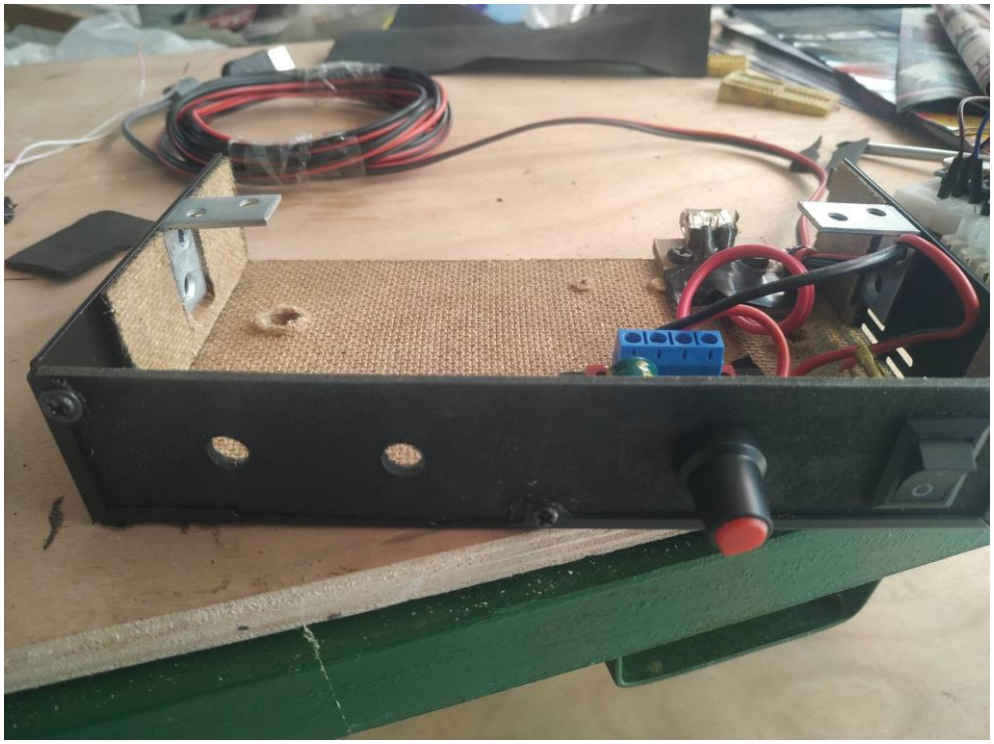
In the meantime, I painted the exterior wood part of the frame in a matte black color.

Soldering the buttons with cables

Let’s put this together!

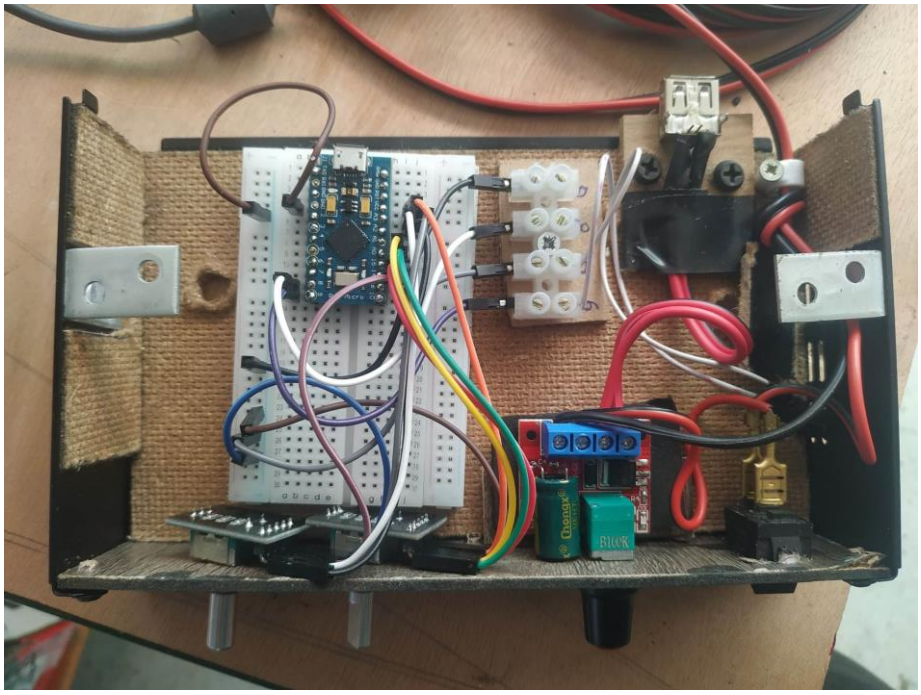
Time to put the light dimmer circuit into the case.





Let’s put this together part two!

Finally we are ready to put Arduino and all the needed components into the case.



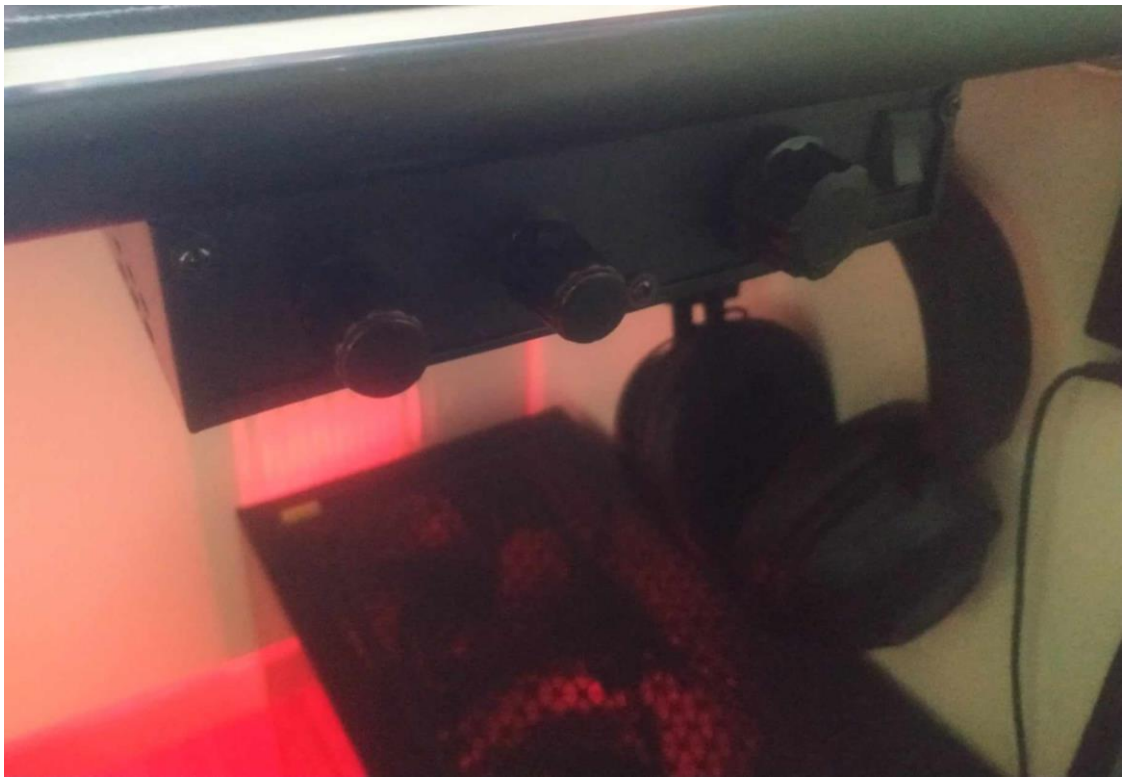
Ports

There is a usb which needs to be connected to a power supply and then, we can add to the female usb the light source.

Furthermore, the Arduino's female micro usb needs to be connected to the computer.

Final Product!

After some C++ coding, debugging, testing, and experimenting with new features, the MediaPad is ready! It has a stealthy blacked-out simple design and is perfectly fitted and screwed under my desk, as seen in the image below.



Thank you for your time!