DJC-DIY
ASSEMBLY GUIDE

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Contents

1 Introduction

This guide will walk you through building your own DIY DJ controller step by step whether you're experienced or total beginner.

The goal is to make this process clear, simple and enjoyable. No need for special tools or knowledge. If you can hold a soldering iron and follow instructions, you're good to go.

Guide will cover all required tools, parts, software and files you'll need to have. Full assembling process from 3D printing parts, soldering components to assembling printed parts, and software setup that includes uploading firmware and installing mapping files.

By the end, you will have fully functional DJ controller.

2   Required

In this section, we will go through everything you should have ready before starting the project.

2.1   Tools

- Safety goggles
- PC / Laptop
- 3D Printer
- Soldering Iron
- Solder Wire
- Soldering Flux/Paste
- Wire Stripper
- Wire Cutters
- Fine Tipped Pliers
- Tweezers
- Philips Screwdriver
- USB-C Cable
- Glue (Super Glue / Hot Glue Gun / Universal Glue)

2.2 Parts

2.2.1 3D printed parts

- 1x Case

- 1x Front Panel

- 4x Screw

- 2x Jog Wheel

- 2x Play/Pause Button Cap

- 2x Cue Button Cap

- 4x Performance Pad Cap

- 4x Rotary Potentiometer Cap

- 3x Slide Potentiometer Cap

2.2.2 Electronic Components

- 1x Pro Micro - ATmega32U4 5V

- 8x Push Button - B3F-4055 - 12x12x7.3mm

- 4x Rotary Potentiometer - B103 - 10kΩ - RV09 - D Shaft - 23mm - Recommended with center click (RV0902N)

- 3x Slide Potentiometer - B103 - 10kΩ - 60mm - Recommended with center click

- 2x Rotary Encoder - EC11 - D Shaft - 15mm - Recommended without push button

- 24AWG Wire - Recommended in different colors (Red, Black, Blue, Green, Yellow) - About 1m of each

- 1x 1/4W 10kΩ Resistor

- 1x 1/4W 1kΩ Resistor

- 1x 1/4W 330Ω Resistor

2.3 Software

2.3.1 Slicing Software - UltiMaker Cura

You will need a slicer to prepare 3D models for printing. You can use any slicer you prefer, but this guide and the YouTube tutorial uses UltiMaker Cura, a free and open-source slicing software.
Download UltiMaker Cura

2.3.2 Development Environment - Arduino IDE

To upload firmware to micro controller, you will need Arduino IDE. It is free and open source too so you can download it for free.
Download Arduino IDE

2.3.3 DJ Software - Mixxx

To test and use controller you'll need DJ software. Currently controller supports only Mixxx. You guessed it, Mixxx is an open-source too so you can download it for free.
Download Mixxx

2.4 Files

Download all project files such as 3D models, firmware and mapping files on GitHub.
Download Project Files

3   Building Process

Preparing is over, now let's get to work.

3.1   3D Printing

Let's start with 3D printing.

We'll go through settings for each 3D print. "Fast speed" will be the fastest stable speed for your 3D printer. If you don't know it, go with default speed. "Slow speed" will be used for printing small and precise parts like screws. If you don't know which speed to use, try with half of your default speed.

For infill, there will be minimum value, you can go perfectly with it but if you want you can go up to 100%. Lower values aren't tested.

3.1.1   Case

- Fast speed
- 20% Infill
- Tree support, Touching build plate
- Brim 10mm

If you know that your edges wouldn't warp, you can go without brim. But keep in mind that case is 175x120mm. We'll recommend you to not risk 6h of printing and 80g of plastic for few grams and minutes more.

3.1.2   Front Panel

- Fast speed
- 20% Infill

3.1.3   Jog Wheels

- Fast speed
- 20% Infill
- Tree support, Touching build plate

You'll need support for the hole where rotary encoder goes.

3.1.4 Button Caps

· Fast speed

· 20% Infill

· Tree support, Touching build plate

· Brim 10mm

Those are settings for printing button caps facing up, if you are printing them upside down, you won't need support and brim.

3.1.5 Rotary Potentiometer Caps

· Fast speed

· 20% Infill

· Tree support, Touching build plate

Support is here for the hole for potentiometer.

3.1.6 Slide Potentiometer Caps
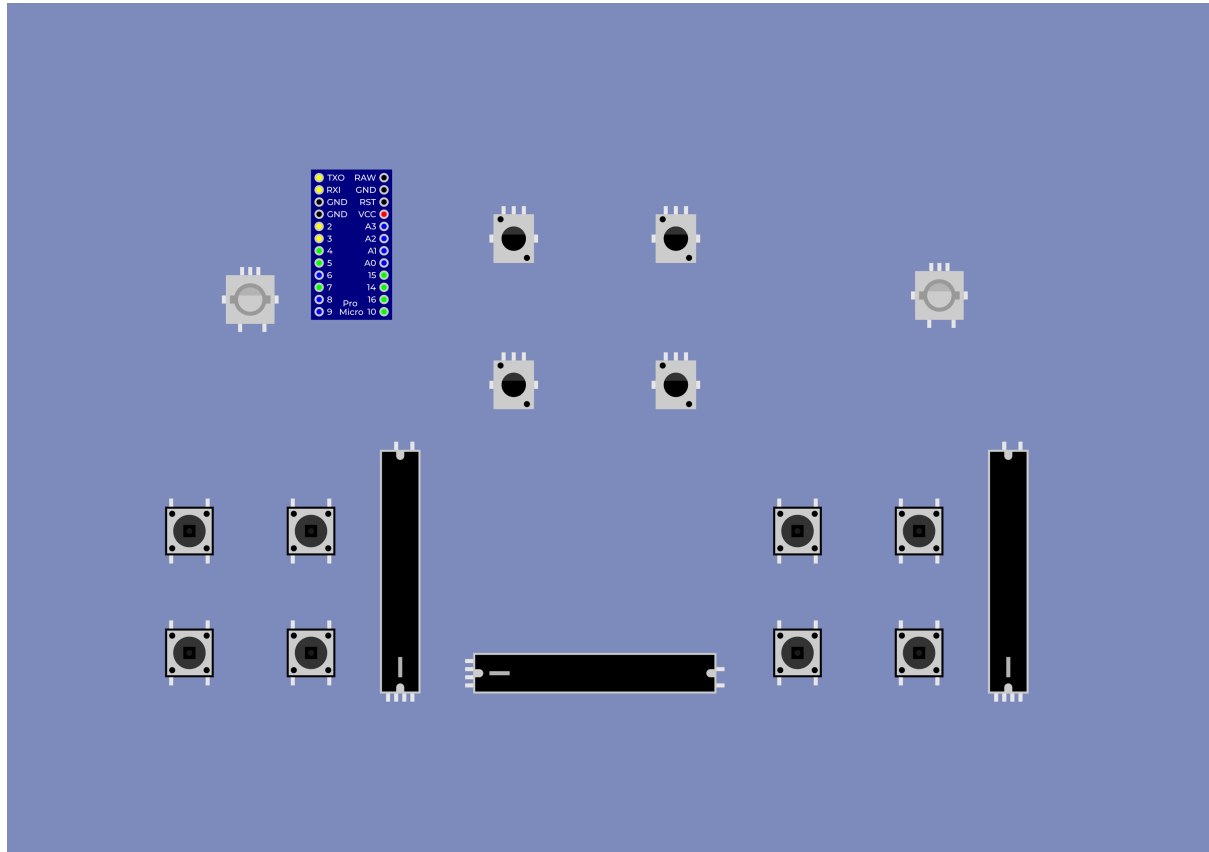
· Fast speed

· 20% Infill

3.1.7 Screws

· Fast speed

· 100% Infill

· Tree support, Touching build plate

· Brim

If you're printing them upside down, you won't need support and brim.

3.2 Soldering Components

This is layout of electronic components, each electronic component has it's own socket and it should click inside it. (picture 3.2)

picture 3.2

Do not put electronic components inside now, you will put one by one as you start soldering.

If you break a socket, do not worry, you can glue that electronic component but don't do that immediately, if that component does not work, you will need to break more. Glue it after testing. You can use superglue, hot glue gun, universal glue or double sided tape.

Before putting electronic component, watch for it pins, they should be aside the component, if they are bent inside, carefully bent them outside, not much just enough so that electronic component can fit.

Use different color wires for different purposes, best if you can use exact colors shown here.
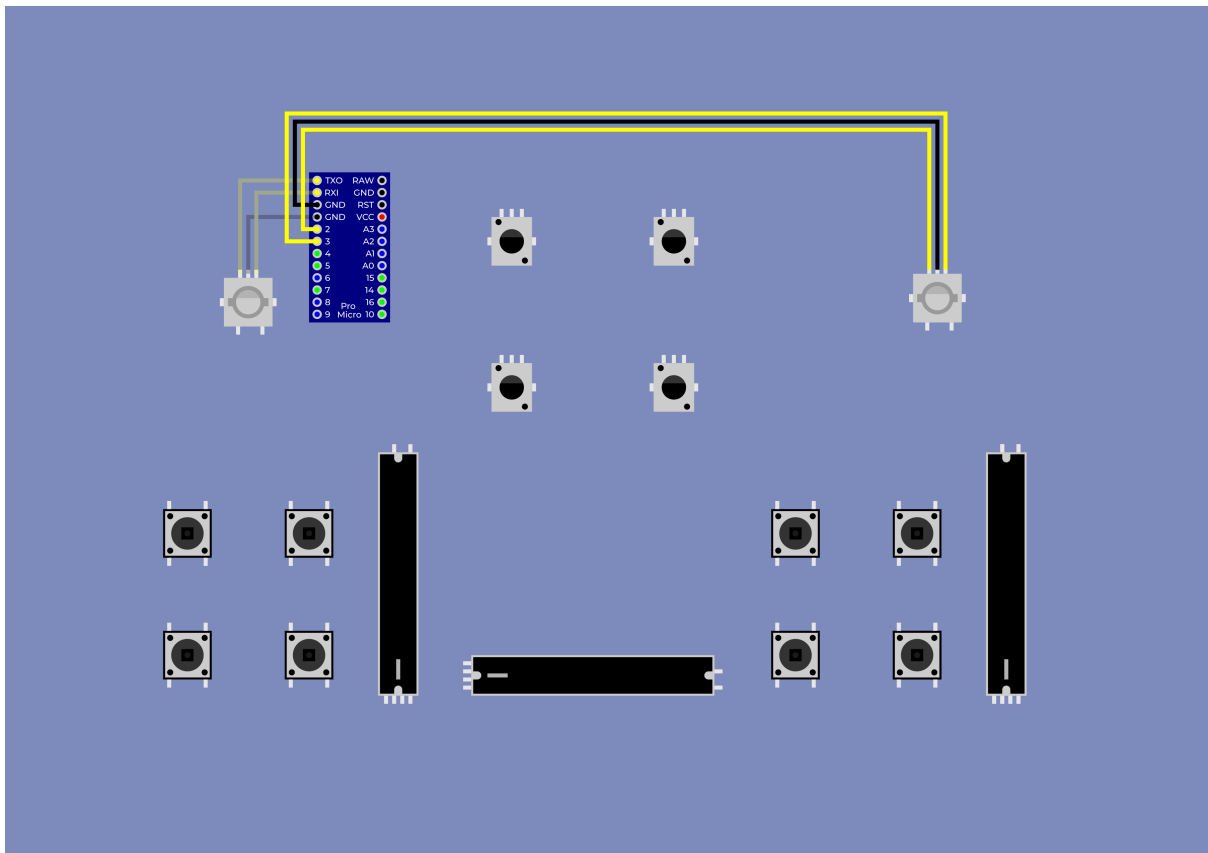
3.2.1 Step 1 - Rotary Encoder - Deck 1

First, solder rotary encoder for the Deck 1. (picture 3.2.1)
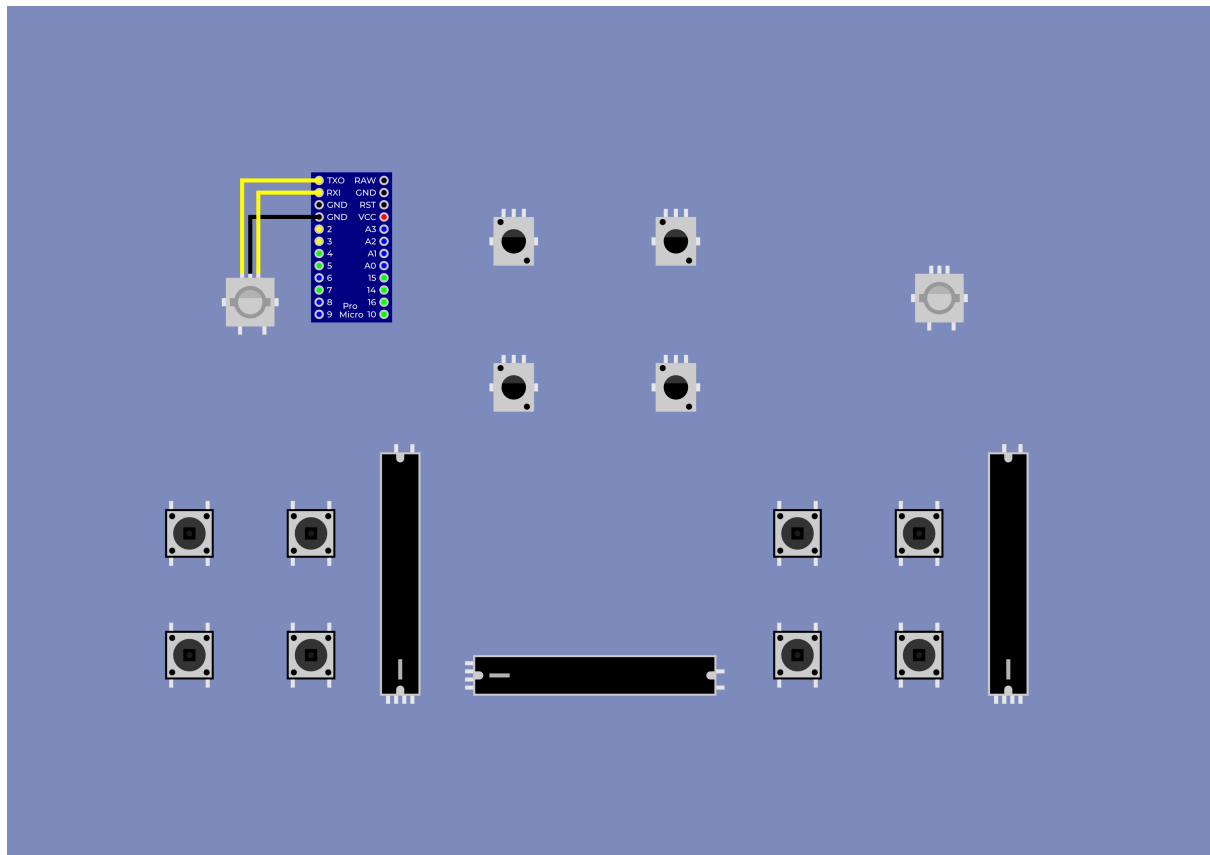
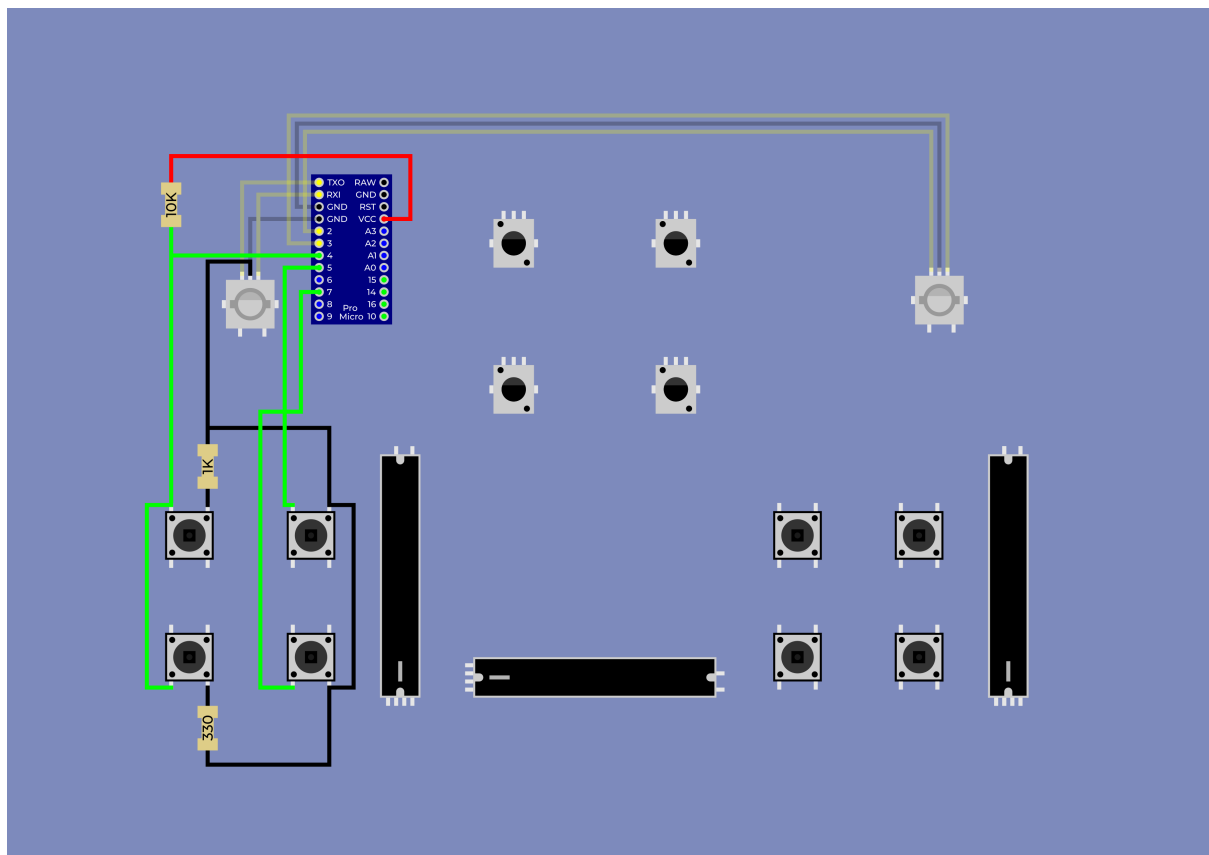picture 3.2.1

3.2.2 Step 2 - Rotary Encoder - Deck 2

Then rotary encoder for the Deck 2. (picture 3.2.2)

picture 3.2.2
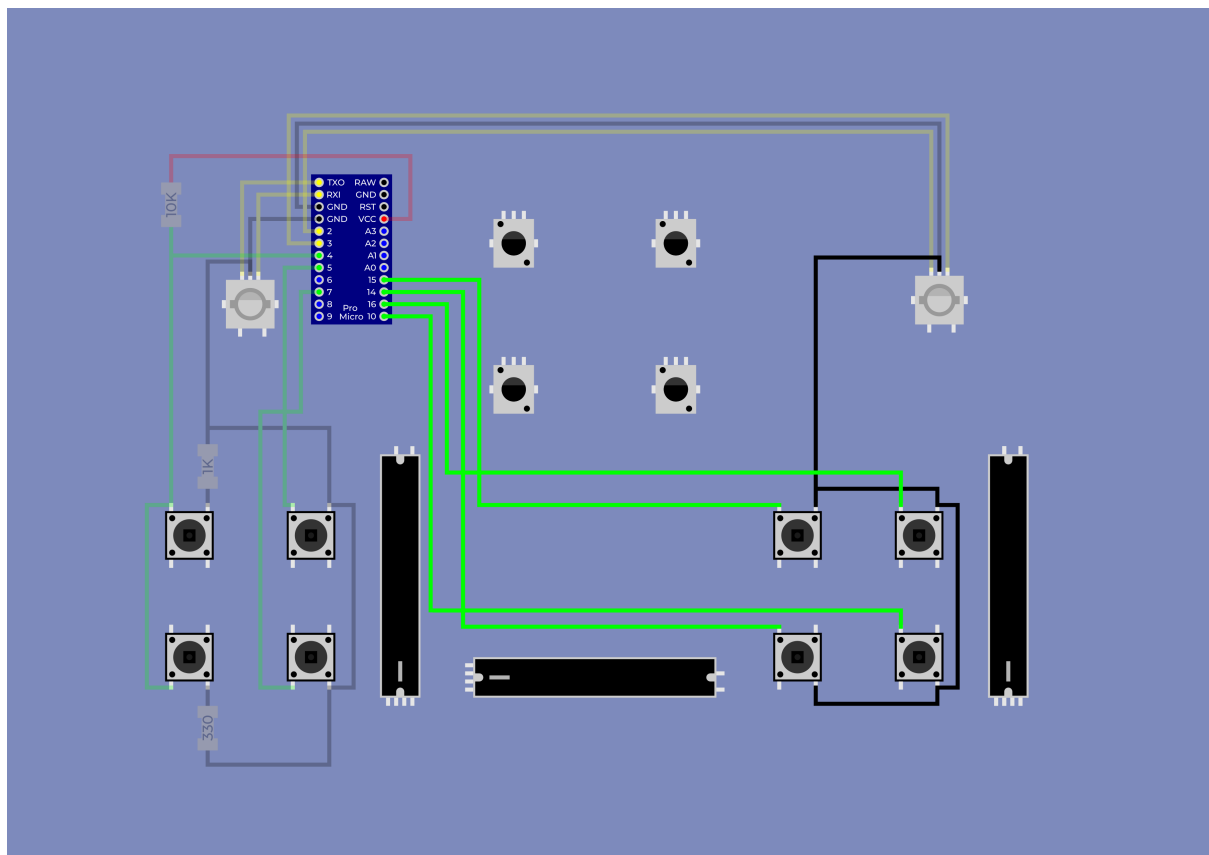
3.2.3 Step 3 - Buttons - Deck 1

Now buttons for the Deck 1. (picture 3.2.3)

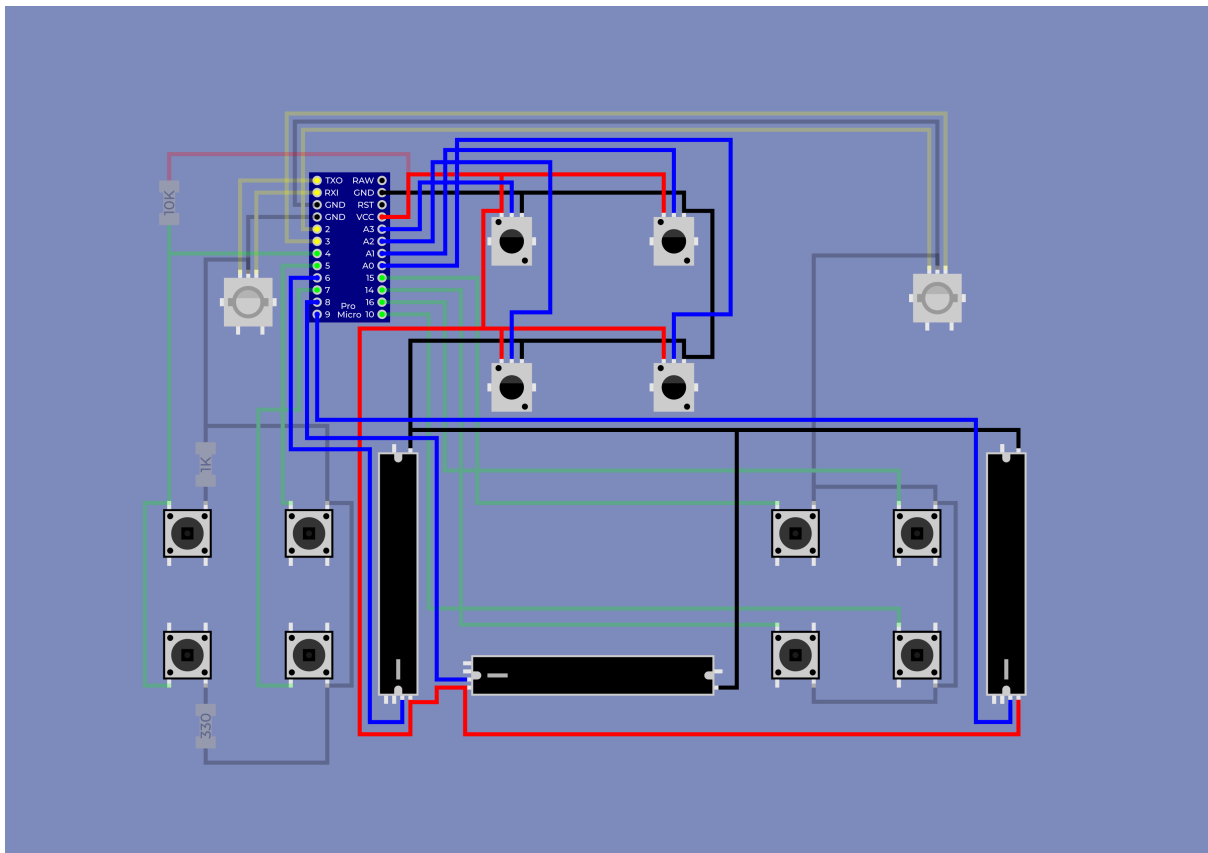picture 3.2.3

3.2.4   Step 4 - Buttons - Deck 2

Then buttons for the Deck 2. (picture 3.2.4)

picture 3.2.4

3.2.5   Step 5 - Potentiometers

And last, all potentiometers. (picture 3.2.5)

picture 3.2.5

3.3 Assembling Printed Parts

First upload firmware, install mapping files and test your device, then assemble the come back here.

Put front panel on case then put jog wheels, button and potentiometer caps before screwing front panel.

4 Software Setup

4.1 Uploading Firmware

Open "firmware.ino"

Select your port where is your device connected. You can find it by plugging and unplugging device and seeing which device disconnects and connects.

Click upload code.

4.2 Installing Mapping files

Copy "DJC-DIY.xml" and "DJC-DIY-scripts.js" to "C:\Users\username\AppData\Local\Mixxx\controllers".

Now you can try your controller before assembling the rest. Just in case you haven't wired something right.