



Gamecube Controller LED Mod



by FosterP

Have you ever had a game controller that you really loved, but wasn't personalized for you? Well that's how I felt with my Gamecube controller.

Gamecube controllers are my favorite types of controllers, but in North America, the three most common colours of them are Platinum, Black and Indigo colours. None of which are really unique to each person, so what are you to do?

Mod it. You mod it. Custom buttons, sticks, and LEDs, sure why not.

Luckily for us, the Gamecube controller is one of the most modded, and supported controllers out there,

look in any Super Smash Bros. tournament and there's bound to be people with their modded controllers. Not to mention too, it's really easy to get it working on PC.

I'll walk you through how I made this custom controller, and suggest some extra mods to do at the end. I highly suggest reading though it, and checking the images for extra info. I also suggest to try to make your controller different. While my controller may be cool, it's better if it suits what you like, which is why I have a list of other mods that I've seen, so you can customize your controller even further. You can decide how easy or hard your mod can be.





1. My modded Xbox One controller beside my Modded Gamecube controller



1. Another photo of my modded Xbox One controller beside my Modded Gamecube controller

Step 1: Sourcing the Parts

The parts we are going to need are:

- An Official Gamecube Controller
 - Make sure to get an official one, most third party controllers aren't that good. The regular colours of Gamecube controllers will all have the Nintendo Gamecube logo in the center of the controller, and will have the logos behind the C-Stick and D-Pad on the back of the controller too.
 - Best place to buy them would be on Ebay, or a local second hand store. All colours can be found [here](#) (or you can wait for deals when a new listing is made)
- Gamecube Buttons
 - Plenty are on Ebay in many different colours, plus they're actually decent quality (excluding the Z button, which is molded incorrectly)

- I bought something similar to [this](#) (I bought completely clear ones)
- RGB 5v LEDs Make sure that they are the 4 pin version, where there is a common 5v, and 3 Grounds for the RGB control
 - I think [this](#) should work
- Thin wire (and I mean thin)
 - I used a mix of 24 gauge stranded wire, and some even thinner solid core wire. The thinner wire measures about 0.85mm thick, and was given to me. I believe that it is one of 8 cores in networking wire.
- Rubbing alcohol of some kind (somewhat optional)
 - I used glasses cleaners, since I had those lying around

Tools:

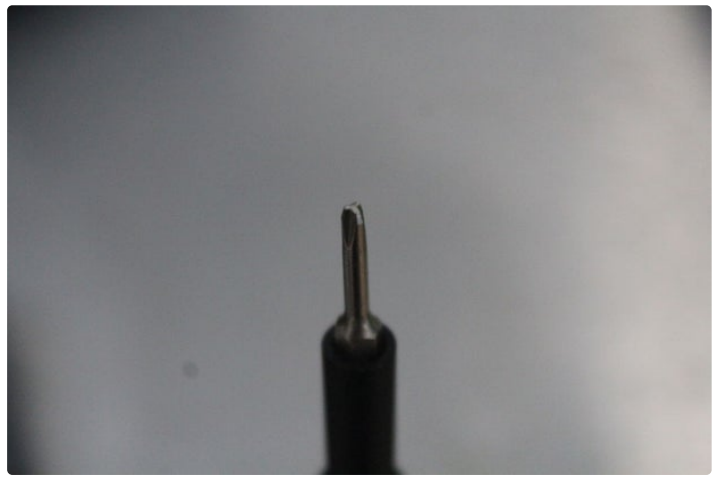
- Soldering Iron
- Side cutter pliers
- Phillips screwdriver
- A small set of files
- Multimeter (optional)
- Tri-wing screwdriver
 - Isn't very common, you might have to buy a new screwdriver or kit, I personally use the ifixit precision screwdriver set, that came in the pro tech toolkit, but other screwdriver sets will work too.



1. Official Nintendo Gamecube logo



1. Official Gamecube and Nintendo logo



Step 2: Taking Apart, Cleaning, and Repairing

First you want to take the 6 tri-wing screws off the back of the controller. Then all you have to do is pull up from the bottom half, and it should come right off. Then you can take out the PCB (make sure the rumble motor doesn't fall out).

Moving to the back side of the casing, you can take the four screws off, and then the two covers. Now compress the triggers, and pull them out.

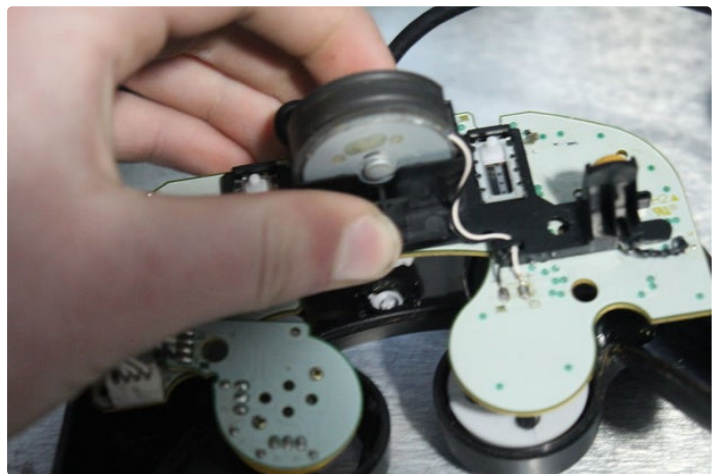
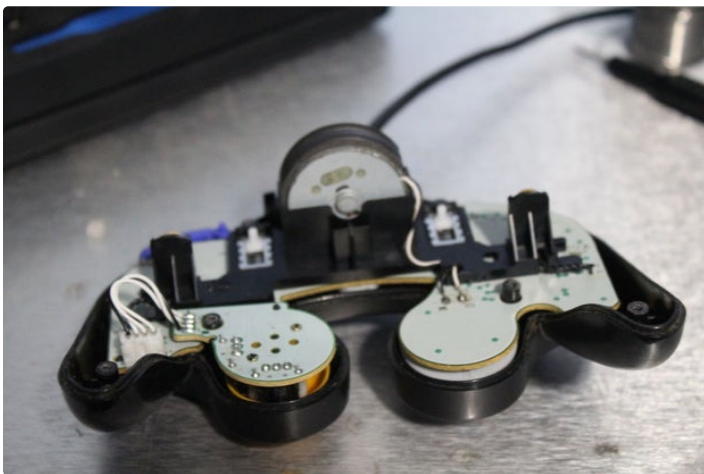
Now clean it all. Gamecube controllers aren't made often anymore, so they tend to get dirty quickly. This one that I got from my friend was very dirty, both internally and externally. I don't do huge washes, but I used a few glasses/screen cleaners to remove the dirt (these contain rubbing alcohol, so you can use

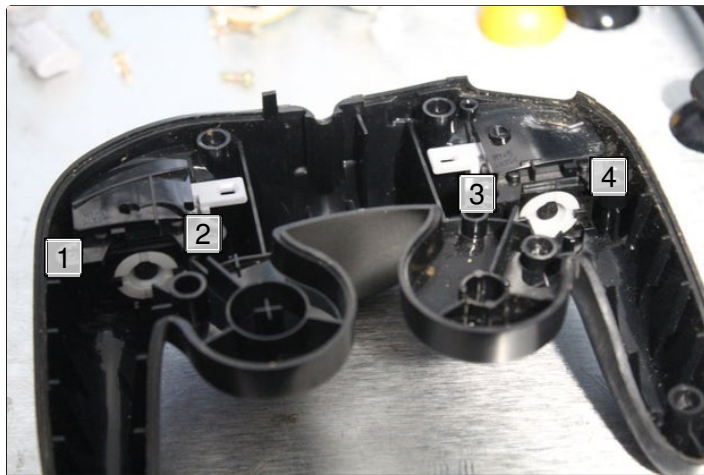
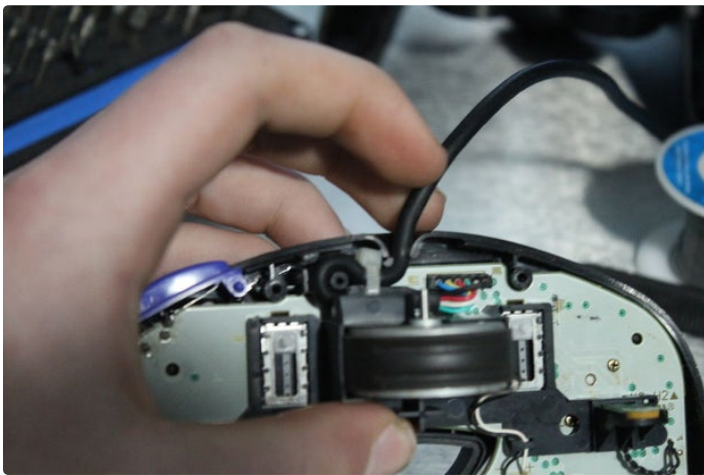
that instead). The sticks and buttons were completely replaced.

Now for repair. The main thing that you might have to repair is the stickboxes. If the analog stick feels excessively loose, then you might need to repair them. Luckily, the controller I had was good, but if not, you will need to de-solder the potentiometers, and if your stickbox is metal, de-solder that too (some are metal soldered in, some are plastic screwed in). Then you can either buy replacement stickboxes (which I've heard are bad) or source them from other Nintendo products from around that era (Gamecube, Wii etc.).

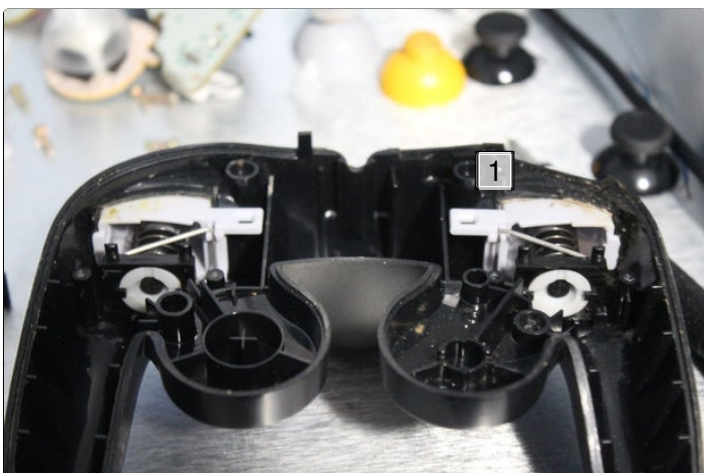


1. Tri-wing screws
2. Tri-wing screws
3. Tri-wing screws
4. Tri-wing screws
5. Tri-wing screws
6. Tri-wing screws

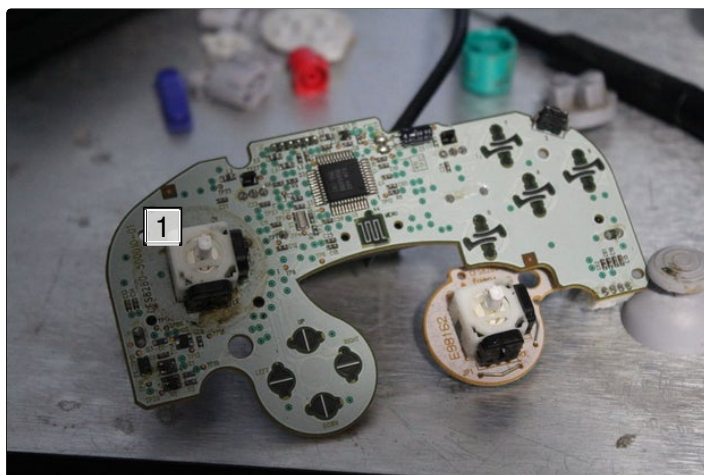




1. Screws to hold in the triggers.
2. Screws to hold in the triggers.
3. Screws to hold in the triggers.
4. Screws to hold in the triggers.



1. You can really just see the dirt and grime that needs to be cleaned



1. Gamecube Stickboxes, if they have excessive wiggle, they might need to be replaced. These are the plastic types that are screwed into the PCB, some are metal that need to be desoldered.

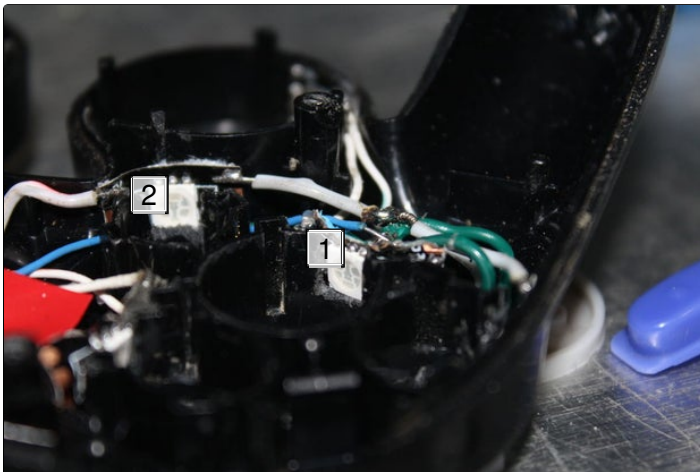
Step 3: Modding the Casing

If you decide to go with this step, just take your time. My thoughts with this mod were that if I ever wanted to, I could go back to the original look of the controller, so my suggestion is to only do internal mods. **I really should've taken photos when I was cutting it, but I forgot to.**

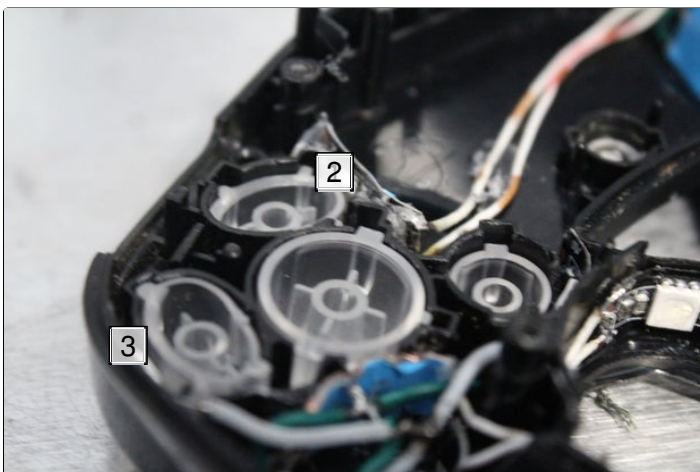
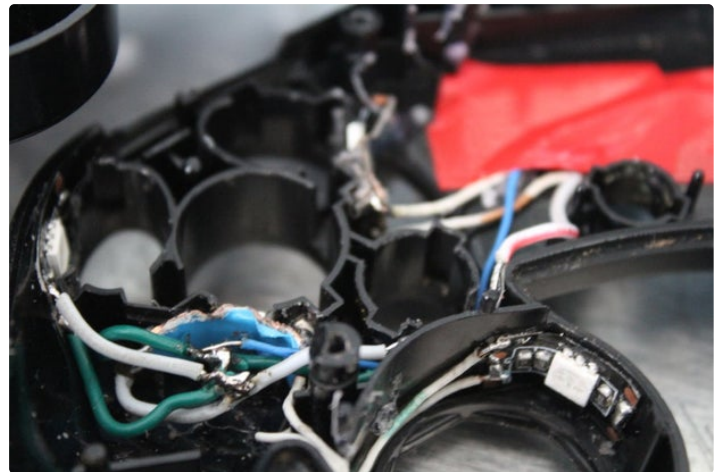
To fit the LEDs so that it shines into the buttons, you will need to cut into the casing. In the largest side of each button, I cut just enough to fit the 5050 LEDs (not the strip, just the LED). The C-Stick, L/R, Z, and

Start don't need to be modified. I put 2 LEDs on the D-Pad, Control stick, and C-stick, and 1 LED for each button.

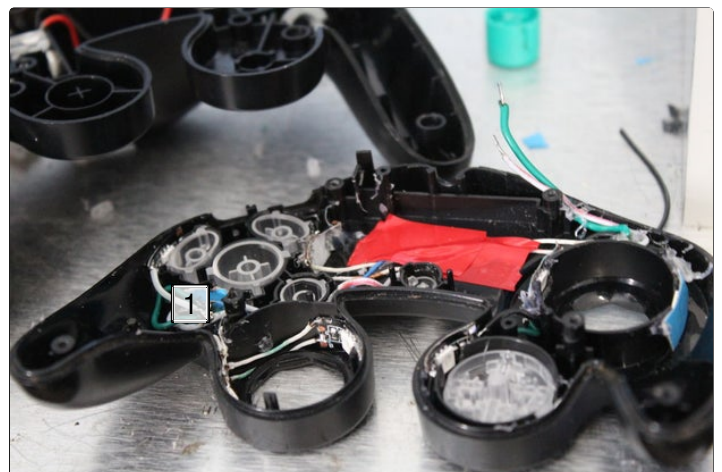
I used a pair of side cutter pliers and some small files to complete this step. I would cut a small section out, then file it down a bit, then test if it was the right size for the LEDs, and adjust accordingly. **Carefully do this step, as it is easy to take too much plastic out, or twist it out of shape.**



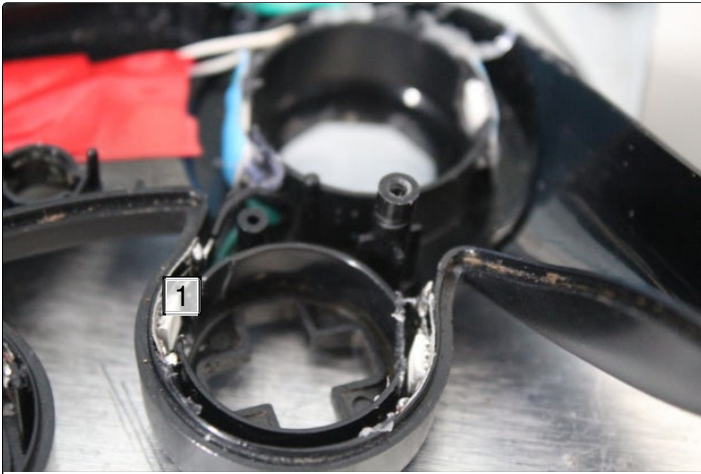
1. Cutout with LED in it.
2. Another cutout, with the LED in it a bit further back



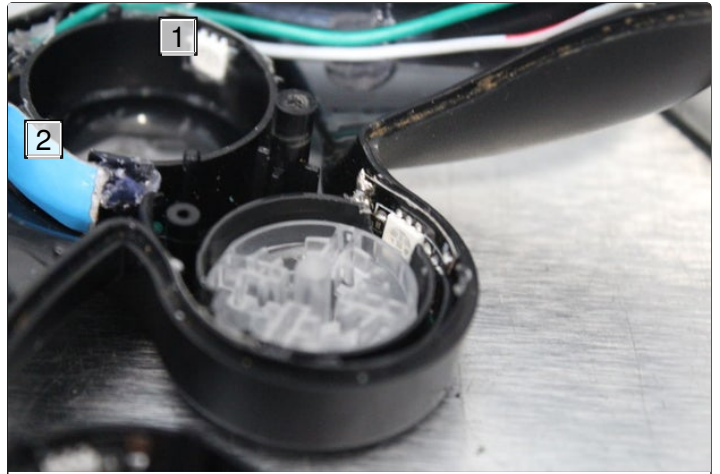
1. Cutout for the Y button
2. Cutout for the Y button
3. Cutout for the X button, LED was taped to the side.



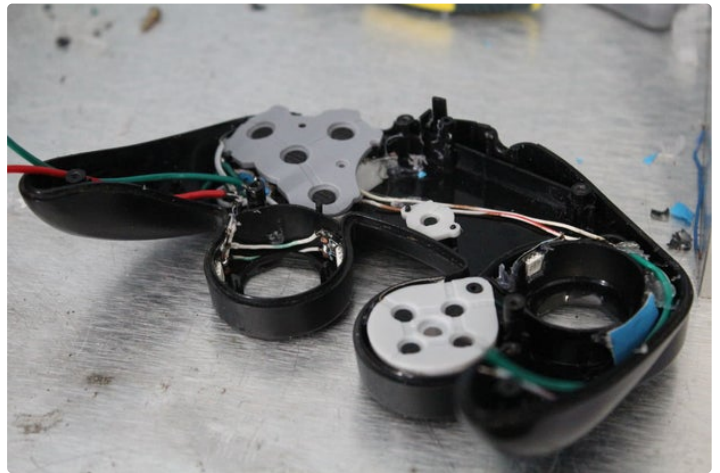
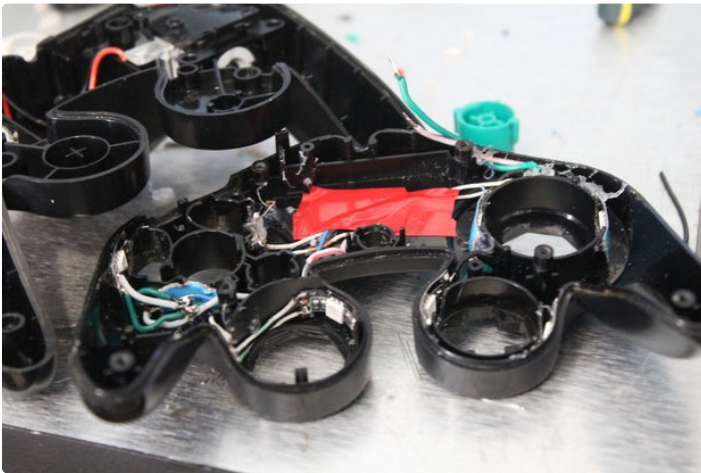
1. These wires are dangerously close. One is 5v and one is Gnd. I've since put electrical tape in there so I don't kill my controller.



1. Cutouts for 2 LEDs, there should still be space for the contact pads



1. Second cutout for the control stick
2. Cutout for the control stick



Step 4: LEDs and Wiring

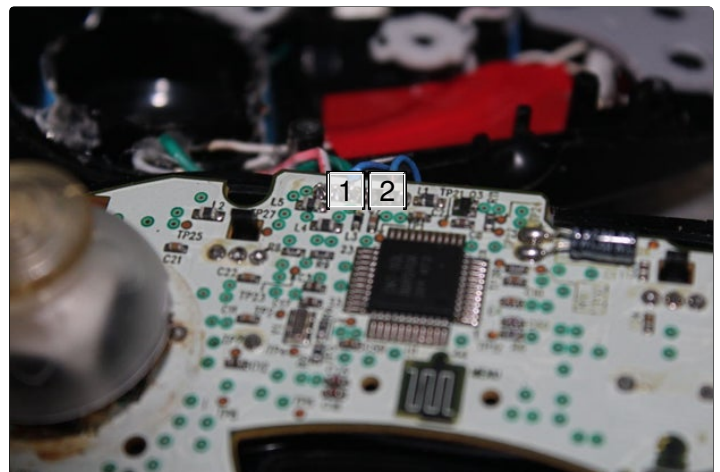
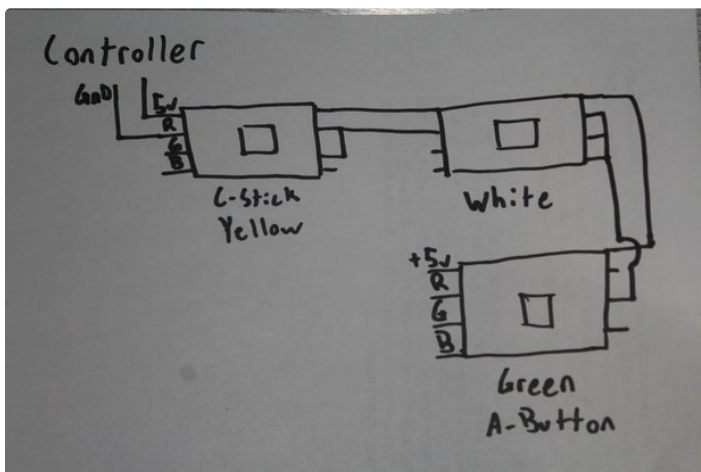
LEDs are a way to spice up anything. If done well they look great. Luckily, Gamecube controllers can have LED's modded in every button except Z and Start. Issue is, they aren't the easiest to put in without the button contact pads getting in the way. Just try to place the LEDs as low as possible, and if you can't, you can shave a bit on the tape down with a set of small files. It's best to solder before gluing in place. **The best tip I can give is to constantly test the LEDs, (I used an Arduino to test them) and test that the buttons contact pads are properly working. Take your time.**

Another great thing is that the Gamecube controllers also have a 5v line, which is uncommon now with wireless controllers. I used 4 pin 5v LED strips (One 5v line, 3 Gnd lines for RGB). This was because I only wanted the original button colours. Since the LEDs won't change colours, it means that I only needed 2 power wires going to each LED. Then to mix colours, I only needed to short the different Gnds to get different colours. For example, on the C-Stick, I only needed to run the 5v and Gnd line, which I connected to the Red pin, then on the other side of the strip, I soldered the Red and Green pin together. This made it so that the colour was Yellow. For the white buttons I just shorted all three Gnds.

The LEDs themselves are glued into the cut areas, with some of the tape near the buttons folded over, or shaved down, as to not interfere with the contact pad. **You need to make sure that the LED tape is out of the way enough that the contact pad will sit properly, otherwise the buttons will not always register when you press the button.** The L and R buttons, and C-stick have enough space beside them, so just use the sticky tape on the back of the LEDs and stick them beside, as shown in the photos.

Next you want to route the wires with as little slack as possible, with the exception L and R around the rumble motors, as you want to leave enough wire so that it can be routed under the motor.

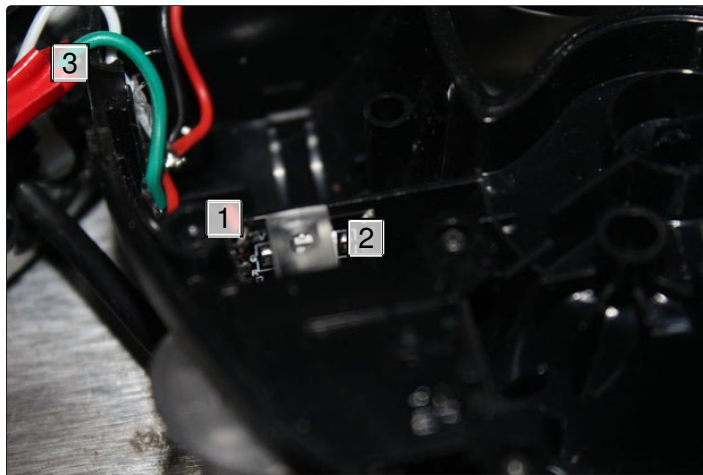
Finally connect the 5v and Gnd to the controller. Pinouts were found online, and then I tested it by putting one multimeter pin on what was listed as 5v, and test it to the positive output of the rumble motor. If they connect, you know that it is 5v. Gnd can be tested by connecting it to one side of the contact pads, and the pin on the wiring, if they connect you know that it is Gnd (try both side of the contact pads, one will be Gnd).



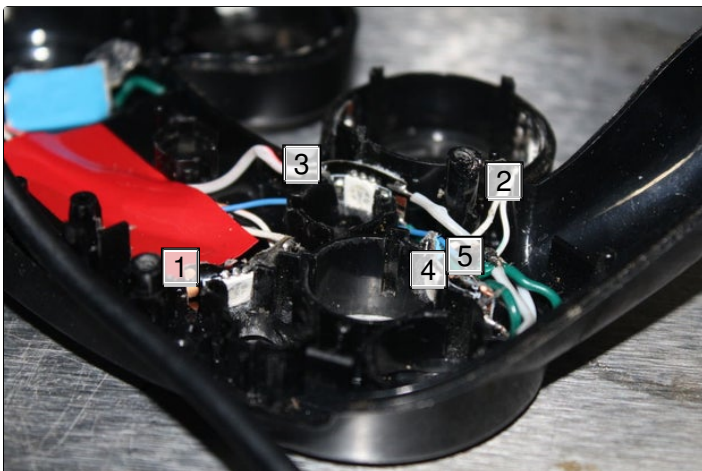
1. Gnd
2. 5v



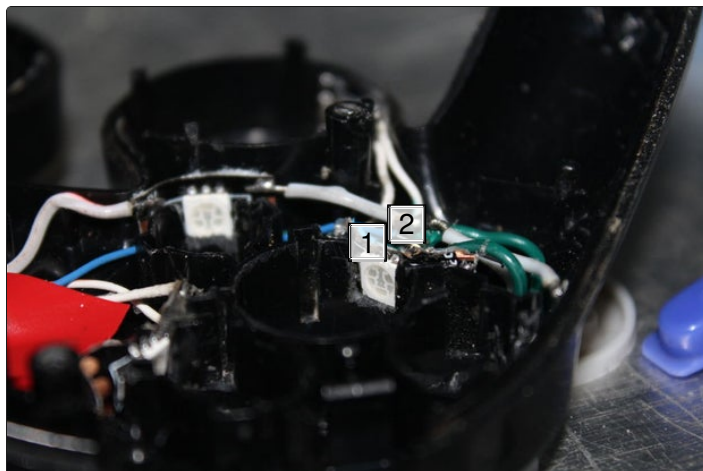
1. Shorting the Red and Green Gnd to create Yellow



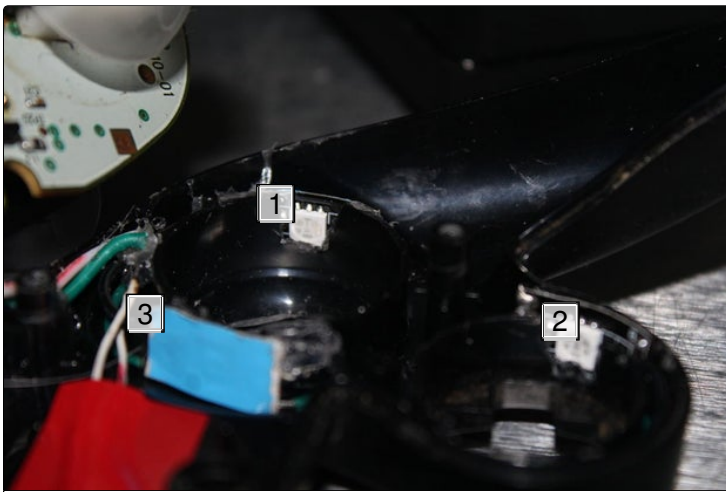
1. LED stuck beside the L button
2. All 3 Gnds shorted to create white
3. Wires tucked to the front to keep out of the way of the rumble motor



1. LED tape folded back and shaved to keep out of the way of contact pads
2. Wires running to the C-stick
3. LED here was already far enough away so it isn't in the way of the contact pad. This LED is stuck to the outer casing using the tape on the back
4. Shaved LED to stay out of the way of the contact pad
5. These wires should be insulated a bit better, I added some electrical tape after, so 5v didn't directly short to Gnd



1. The LED tape was shaved down a bit to fit the contact pads properly, otherwise the button cannot be pressed properly
2. These wires should be insulated a bit better, I added some electrical tape so 5v didn't directly short to Gnd



1. 1 of 2 LEDs for the control stick
2. 1 of 2 LEDs for the D-Pad
3. 2nd Control stick LED

Step 5: Buttons and Sticks

Now all you have to do is place the buttons in place. **A little note here, the Z button does not fit properly, so do not use it. I suggest to use the original.** As far as I have heard, it is a problem with these kits, so it's best to use the original Z button. Now if you really want to get into it, you can mold your own too, I personally haven't done it, but there are great tutorials on Youtube.

The sticks sometimes don't fit completely either, I had

my control stick too low, so I just fit a bit of wire shielding in, and it brought it back up. The C-stick was a bit high, so I carefully used a knife to cut a bit of the inside down. I highly suggest against cutting the Gamecube stick box, as they are hard to get good replacements, its best to leave the original ones intact. Attach the L and R buttons back to the spring, and then compress them and place them back in the shell. Then screw on the covers for the L and R button to secure them in place.



1. Buttons and Sticks that come with the pack of Gamecube buttons on Ebay

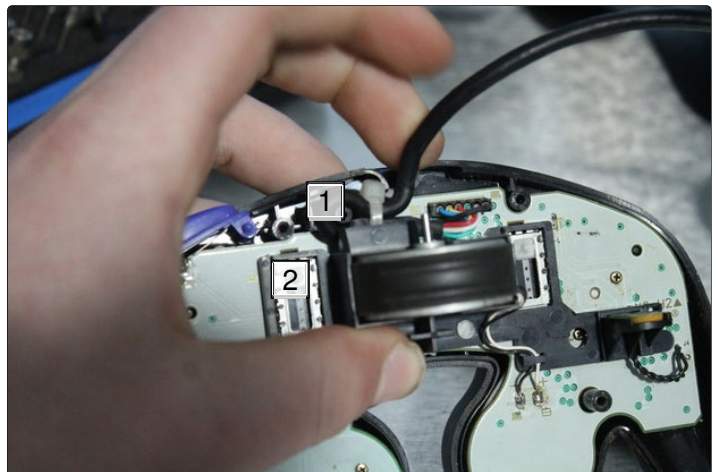
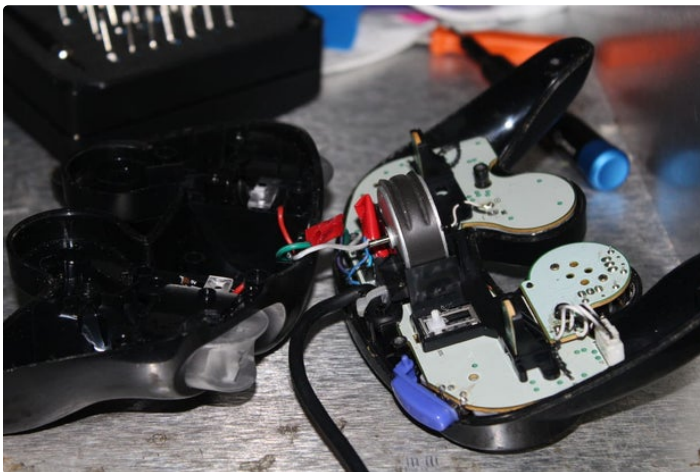
Step 6: Closing It Up

Carefully handle the controller now, as both sides should be connected with wire. Then, if not done already, place the buttons in place, and add the contact pads. Place in the PCB, making sure to route the wire around the left screw mount. Then set the Z-button in place. Slide the analog sliders up to the top position, so that the L and R button will latch on when closed. You should then be good to close it up. Slowly slide the bottom of the Gamecube controller back onto the faceplate, making sure not to break any wires.

Before you put in all 6 screws, quickly test the buttons, sticks and LEDs to make sure everything works. Quickly plug in the controller to test LEDs.

Then test the buttons, especially make sure that the L and R buttons go down all the way, that way you can tell that they are on the analog sliders. Test the control sticks to make sure that they aren't rubbing against anything (I had my C-stick get stuck sometimes the first time I closed it). Lastly, test the face buttons to make sure that the contact pads were installed correctly. If the buttons feel off, or extra mushy, then the contact pads need to be re-positioned (or the LEDs moved a bit, so they don't interfere).

Then just screw all 6 tri-wing screws back in. Now it's done! You have your own modded controller!



1. Screw mount to wrap the cord around
2. Left analog Slider, make sure this is in the top position when closing

Step 7: Extra Modification Ideas

Most of these are other mods I have seen. I haven't personally done them myself. This is mostly a compilation of other Mods I have seen. There are great resources on other mods to do to Gamecube controllers, can be found on the [r/customGCC](#) subreddit, or one of the best Youtube channels for Gamecube Modding, [Rocker Gaming](#)

1. Sticks

- For the sticks you can use the ones that came with the packs, or you can fit other

sticks on. You aren't limited to certain sticks, although they won't fit quite properly. For example, Xbox One sticks will fit over top, although with a bit of a tight fit. Note though, they will have gaps when you use them, so more dirt and dust will get inside of the controller. Personally I like the original sticks, so I stuck with the ones that came with the kit.

2. Cases/Shells

- There are plenty of different colours of Gamecube controllers to buy. You can mix and match different controllers to have different top and bottom colours.
- Some third party controllers can be modded to fit original Gamecube controller PCBs. This will heavily expand the colours you can use, creating even more possibilities for mods. From what I've read, the controllers usually just need some plastic cut away to fit the original Gamecube rumble motor.

3. Custom molded buttons

- You can create a silicone mold of the Gamecube Buttons. Then using materials like epoxy and coloured dye, you can make buttons for any colour you would like. A great video was made by [Rocker Gaming](#) about this.

4. Colour Changing LEDs

- The same concepts from my LED mod can come into play here, but if you run a couple more wires into a Bluetooth LED controller, you can control the LEDs with your phone

5. Reactive LEDs

- Originally made by Garrett Greenwood, then sold as a kit by Rocker Gaming, this mod takes button presses from the Gamecube controller and outputs certain colours depending on what button was pressed. The colours are based on certain presses, and sadly can't be changed without reprogramming it completely. ([Documentation by Garrett here](#))

6. Paracord Wire

- The idea of this is that you remove the rubber shielding on the outer wire, and replace it with Paracord wire. You want to remove the plastic cover on the connector side (**Be very careful! It will need to be heated up to be removed, but if it's too hot you can melt it!**), and desolder the wires from the controller board. Then you feed the cord through the hollow Paracord. Another great video was made by Rocker Gaming to explain how to do this properly.

7. Painting the Shell

- If you're any good at painting (I'm not) then you can paint your controller shell. If done properly, this can look amazing, just remember to seal it so that the paint doesn't chip over time.

Here is an example of a controller using these concepts



1. Gap if your use X-box one sticks (Can and probably will collect dust)

Step 8: Conclusion (and How to Get Working on PC)

So now that you have your custom controller, how do you use it? Am I only stuck to using it on Nintendo consoles?

Nope. Not at all.

To get it working on a PC you will need a Gamecube to USB adapter. The Mayflash adapter is one of the best on the market right now. The official Nintendo adapter works amazing too, although its prices are way too high unless you bought it right when it came out.

Now how do I get it working? Well, if you have the Mayflash adapter, you can just switch it to PC mode, and this should work reasonably well for certain

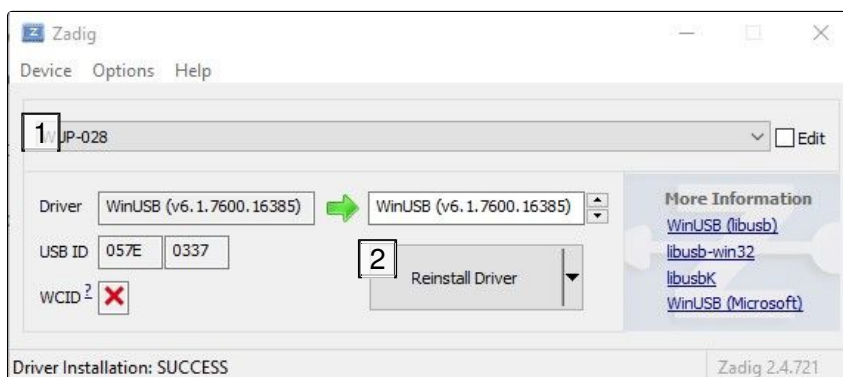
games, although if you want to get it working on Dolphin emulator, you will need to install some special drivers.

Download and run Zadig. Then, make sure your adapter is set to Wii U/Switch mode. Go to options, and select 'List all devices'. Then select the adapter (Usually Named WUP-028) from the dropdown menu, and click replace driver. Next all you need to do is switch over to Dolphin Emulator and in the controller options, switch to the Gamecube adapter for Wii U on all four ports.

Now you have your own custom modded controller, working perfectly on PC for Gamecube emulators!



1. My Mayflash adapter in a 5.25in drive bay, in a custom 3d printed enclosure (with Classic controller adapters too)



1. Mayflash Gamecube Adapter device name
2. Should say "Replace Driver", but I already have the drivers installed.

