

The Distributed Dissociation Device

If you can't create your own sense of disconnection from your body, store bought is fine.

By Emma Dickson & Anneke Schwob

A topic of great interest to many people nowadays is “mental health”. The notion that the mind needs as much care and feeding as the body.

If you’ve heard someone discuss mental health recently there’s a good chance that they’ve also brought up the topic of “mental health awareness”. I myself took a great interest in this idea during my early twenties

However, it wasn’t until a recent self imposed psychiatric hold that I realized what my home studies had been lacking.

To put it plainly, the problem wasn’t my lack of awareness around mental health, it was rather that I was **too aware**. In conversation with some of the other residents of my floor it was clear that the majority of them were similarly inclined. It was quite obvious to me then how I might build a device to aid in my treatment.

The moment I got home I set to work. The result was a wonderful little diddy I’m calling the “Distributed Dissociation Device”. It’s akin to Virtual Reality goggles and uses several of the same parts. However instead of viewing a game or video, what the D3 does is provide a filter between you and the world.

The moment I tried it I felt an immediate and almost overwhelming sense of relief. Finally,! A way to turn down the volume of my awareness! Now I engage in a regular practice of using D3 for at least three hours each day. And I’ve found that it has reduced my overall levels of anxiety and dissatisfaction a tremendous amount.

Construction

Unlike most things published in this magazine the construction of the D3 is laughably simple. It’s easy enough for a child to put together and can be made with easily found supplies. At

the time of this publication the total cost for building the D3 was \$200 dollars.

Indeed the most difficult thing about this project will likely be building the enclosure and waiting for the parts to arrive!

Parts List

- Two 3.5 inch tft lcd screens with RCA video output
- One small camera, a car backup model is preferable, with RCA video output
- A hollow antenna
- A 12v rechargeable lithium battery pack
- Two 12v Female DC threaded barrel jack.
- Mini toggle switch
- 12 volt power cord
- Four M2.5 (10mm) Double-Pass Standoffs
- Four M2.5 (8mm) Double-Pass Standoffs
- Eight M2.5*8mm Screws

- Four small circular magnets
- 23 1 in. 90 degree brackets
- 46 M6 metal Washers
- 46 M6 metal screws
- 46 M6 metal bolts.
- Enough acrylic to make the enclosure.

- 3 sheets of 18x24 in.
 $\frac{1}{4}$ thick acrylic is what's used in this article.
- Acrylic cement
 - 42mm Diameter Double Convex Lenses
 - 30 AWG wires

The Enclosure

You can use the provided blueprints to cut and drill your enclosure. The diagram is sized for acrylic that is $\frac{1}{4}$ in thick but with a little bit of adjustment you could also use acrylic of $\frac{1}{8}$ thickness.

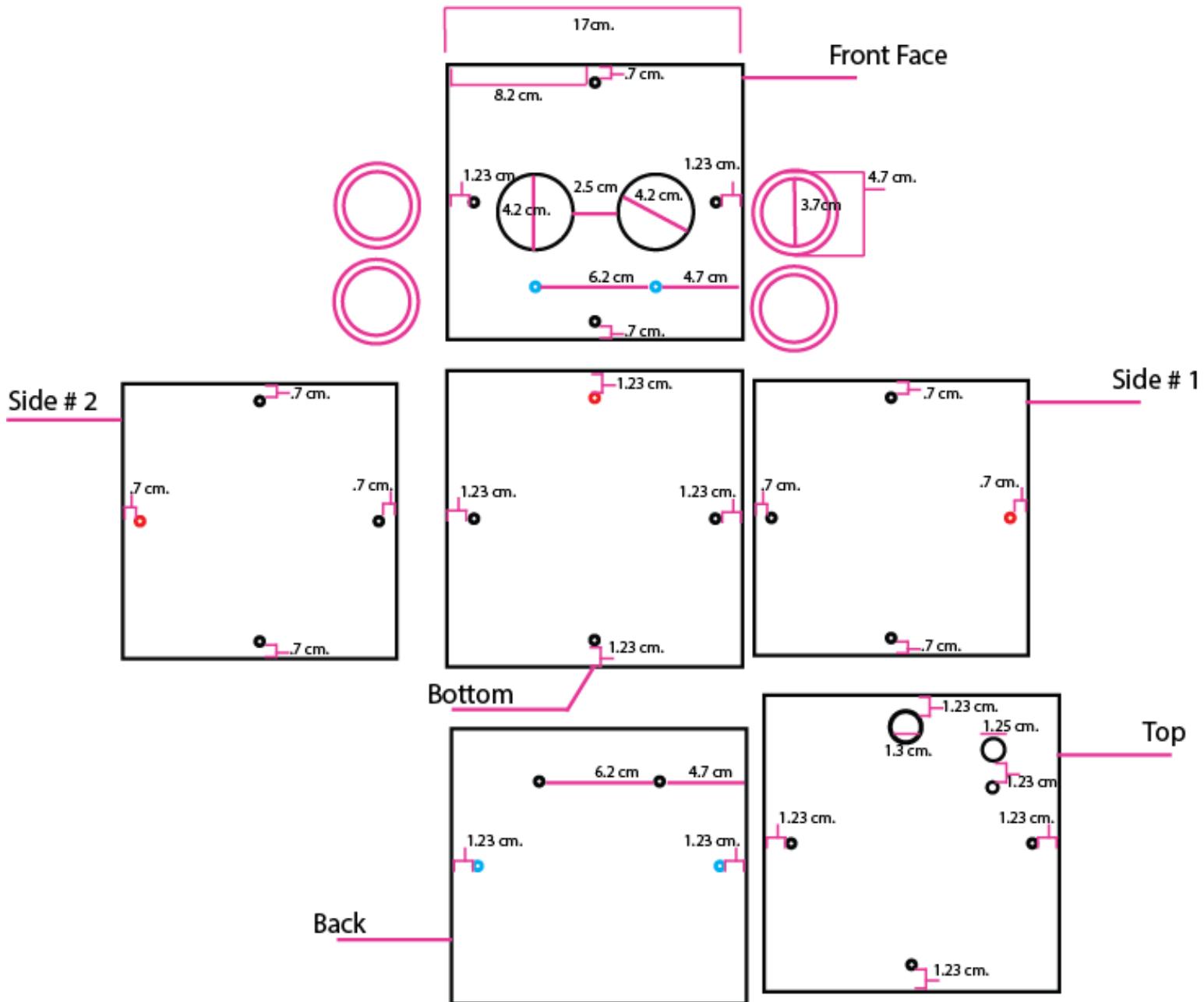


Diagram 1

This author used a Glowforge to laser cut the acrylic, you could also use a hand saw, and a hand drill to enlarge the holes as needed.

The holes in the diagram outlined in black are .6 cm in diameter. This is so the M6 screws will fit snugly. If M6 screws are unavailable for some reason you can resize the enclosure pictured here in order to fit their dimensions.

When building the enclosure it's best to start from the bottom and work your way up. Screw the plates together slowly, careful not to damage the acrylic. Refer to Figure 1 to see how the brackets should be placed.

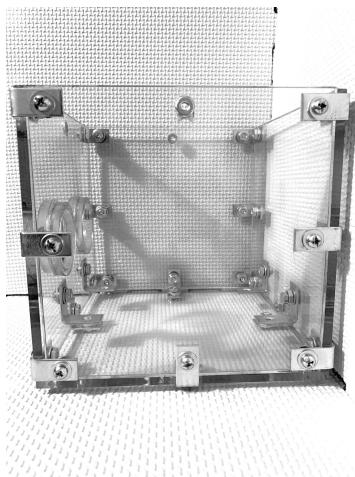


Figure 1

The blue holes in Diagram 1 present a special case. Affix the brackets so that they act as a shelf on the interior of the enclosure. This will hold the circuit enclosure in place in the last step. See Figure 1 for a visual reference.

After screwing together the bottom and sides, enlarge the holes marked red on Diagram 1 until they can comfortably hold an M6 bolt. Glue the bolt in place with the acrylic cement and let it dry so that it will hold fast.

While the bolts are drying, take the hop placate and screw its brackets in. Leave it unattached to the rest of the enclosure for now.

Before moving on to the other parts of the assembly place the bifocal lenses in the front plate. These are what will allow your eyes to focus on the screens so it's crucial that they are held firmly in place.

First glue two of the hollow circles to the back of the front acrylic plate. Place the circles over the eye holes so that they provide a backing for the lenses.

Drop the lenses into the hole and glue the other hollow circles to the front of the front plate.

Your lenses should have one side that bulges outwards, make sure that this is pointed out towards where your eyes will go.

If you don't have access to a laser cutter or a tool that would make creating the hollow circles feasible simply affix the lenses with hot glue.

The Antenna

This bit of assembly requires patience. Take a simple antenna with a on the base, any length over 24 in. will do, and snap the topmost section off.

Next drill a small hole in the base of the antenna. You'll be threading five small wires from the top through this hole in the base. Leave about 12 cm of wire coming out of the base and 7 cm coming out of the top.



Figure 2

Next take the camera and cut the wire leading from the camera lens to the circuit as seen in Figure 3.

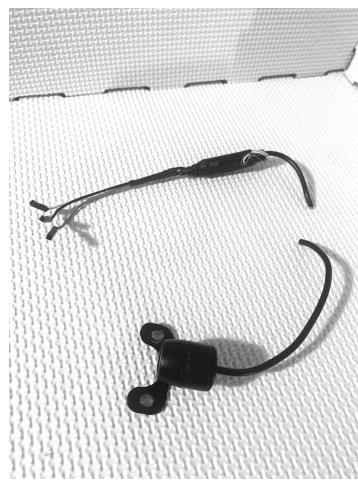


Figure 3

Strip these wires and solder them onto the wires you threaded through the

antenna in the previous step. If the base of your camera matches the one in Figure 4 you can simply bend the wire crimp to hold onto the antenna. Otherwise you can use hot glue or zip ties to hold the lens against the antenna.



Figure 4

You'll need to adjust the camera lens later on to properly tune the device so simply making sure it's roughly in place is good enough for now.

Now that the camera is attached to the top of the antenna, take the wires from the base and attach themselves to the other end of the cut wire of the camera as seen in Figure 3.

The final step is to affix the antenna to the acrylic top plate. Take one of the 12v Female DC threaded barrel jack and drill a hole in its center so that it's hollow.

Now place the barrel into the larger hole towards the top of the Top Plate and screw it in place with a bolt. Thread the

antenna wires through, being careful to leave the join outside so that you can adjust the antenna later on. Use hot glue to cement it in place.

The Circuit

Begin constructing the circuit by removing the lithium battery from its case.

Once it's out solder about 8 cm of wire to either side of its switch. Next solder another 8cm of wire to the positive and negative sides of the 12 v charging port. Use a multimeter to determine which side is which. Attach male cable pins to each of these, keeping the colors consistent where possible.

Now take both of the screens, the rca connections should be clearly color coded, red for power, balck for ground and yellow for signal. Take each of the outputs, cut the ports off and solder the wire to a male cable pin as seen in Figure 3.

If you haven't already, solder these same male pins to the end of the camera as you see in Figure 3. Once all of these parts are assembled it's time to build the enclosure.

Take the base plate indicated in Diagram 2 and enlarge the holes until they snugly fit the circular magnets that you have.

Place the magnets in the holes and put a dab of acrylic glue on top to hold them. This Base plate will sit on the shelf you made in the enclosure earlier.

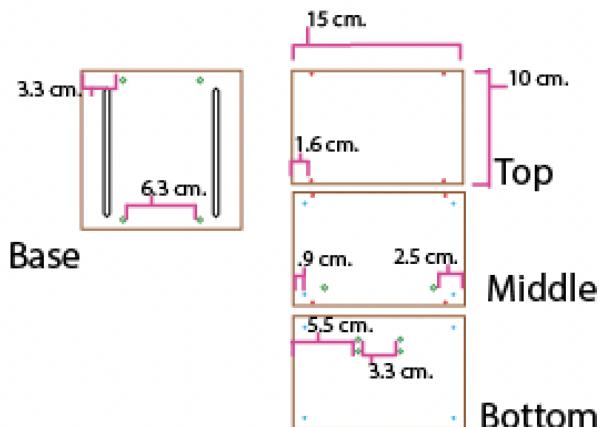


Diagram 2

Begin assembling the enclosure with the Middle plate. Place the four taller standoffs in the red holes indicated in the diagram. Next place the brackets so that they are oriented in the same direction as the taller standoffs as seen in Figure 5. Next put the smaller standoffs in the blue holes facing the other direction.

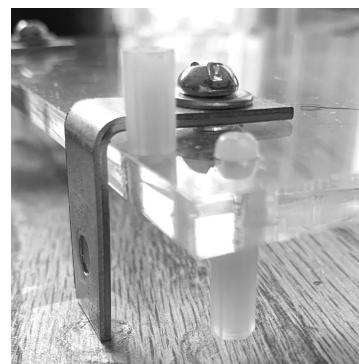


Figure 5

Now place the two screens face forward on the side with the smaller standoffs. Place the Top acrylic plate gently on top of the screens and screw it in place. Be careful to not screw the acrylic plate in so tightly that it damages the screen, thread the male adapters out through the side without the brackets.



Figure 6

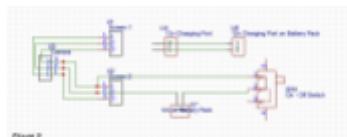
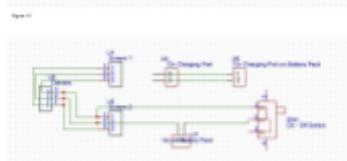
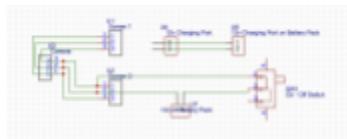
Perform the same action with the disassembled battery, threading the wires over the top and using the four green holes indicated in Diagram 2 to hold the camera circuit in place with zip ties.



Figure 7

At this point you should have the batter and screens held in place with their connectors hanging out of the top.

Next attach your circuit enclosure to the Base Plate with the magnets that you made earlier. Do this by screwing the brackets in



place. At this point leave the bolts loose enough that you can slide the enclosure up and down. You'll use this to tune the device later on.

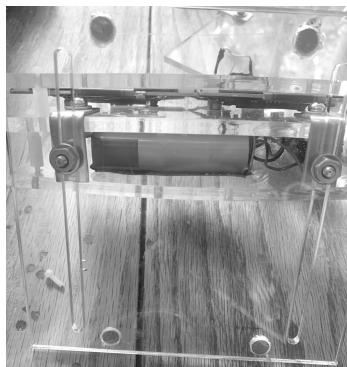


Figure 8

Now take the remaining female DC threaded barrel jack and screw it into the larger hole on the Top acrylic

place. Do the same for the toggle switch.

Figure's 9 and 10 show the simple circuit necessary to make the D3 complete, and that same circuit's gerber file.

If you are using a custom fabricator you may use the gerber file as a useful visual reference. Make sure that the switch footprint is on the bottom layer as the circuit will be held to the Top plate by this switch.

It is entirely possible to build this circuit without any solder or a proper board. Simply twisting the appropriate wires together will do. In that case Figure 9 should be referenced for the proper connections.

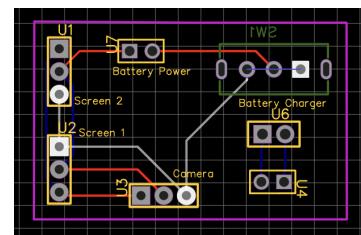


Figure 10

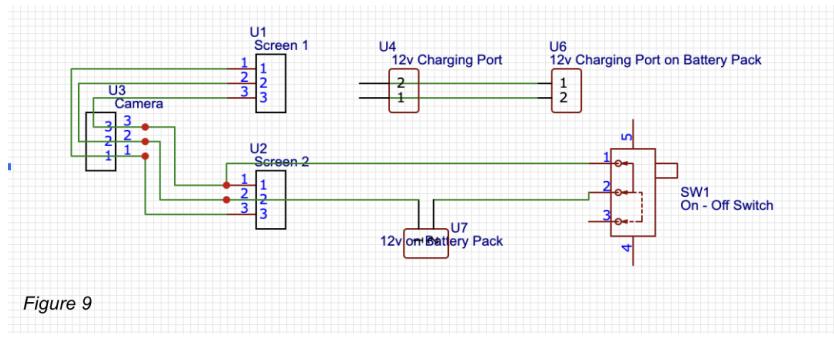


Figure 9

Tuning the Cube

The final step in assembling D3 is to “tune” the device to work best for you.

Place the assembled circuit inside the enclosure so that the magnets rest on the internal brackets shelf. Turn the camera on and look through the lenses slowly sliding the circuit forwards and backwards until the image resolves clearly.

Once you've identified where on the base plate the circuit needs to sit, remove it and tighten the bolts. Then return it to the shelf.

You may at this point also need to gently readjust the screens in the circuit enclosure to meet your eye-line.

Place the lid gently on top of the enclosure and screw it in place with your last three screws.

Now when turning on the cube you should see the output from the camera in the antenna and be able to clearly view one image when you look through the lenses. Adjust the antenna and camera so that the image you see is from above and behind your head as shown in the photo.

Enjoy!