

The Tourette-O-Tron

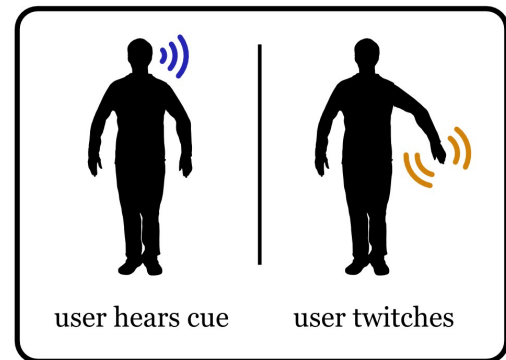
"It gives you tourette's!"

[See the video on YouTube!](#)

What?

The Tourette-O-Tron is a device which causes the wearer to experience Tourette like symptoms.

The device itself consists of three parts: an earbud, a twitch sensor, and a hip pack. When a user is wearing the Tourette-O-Tron, they will receive cues at random to which they must respond with a twitch. Upon successfully completing the twitch, the cue will subside.



The earbud

The way the user receives a cue is through the earbud. The earbud will make an annoying sound which will get progressively louder. This is the cue. And to make that annoying sound go away, the user must execute a twitch correctly.

The twitch sensor

To execute their twitch, the user must move the body part that has the twitch sensor attached. The Tourette-O-Tron is designed to allow for normal movement while still being sensitive enough to "hear" your twitch (see "How?" below).

The hip pack

The hip pack is the heart of the device. It has a belt-loop and can be worn on the hip (or other convenient location). It has ports where you plug in the wires for the earbud and the twitch sensor. It also contains a microcontroller (Arduino) that has the software to control the behavior of the Tourette-O-Tron (see "How?" below)

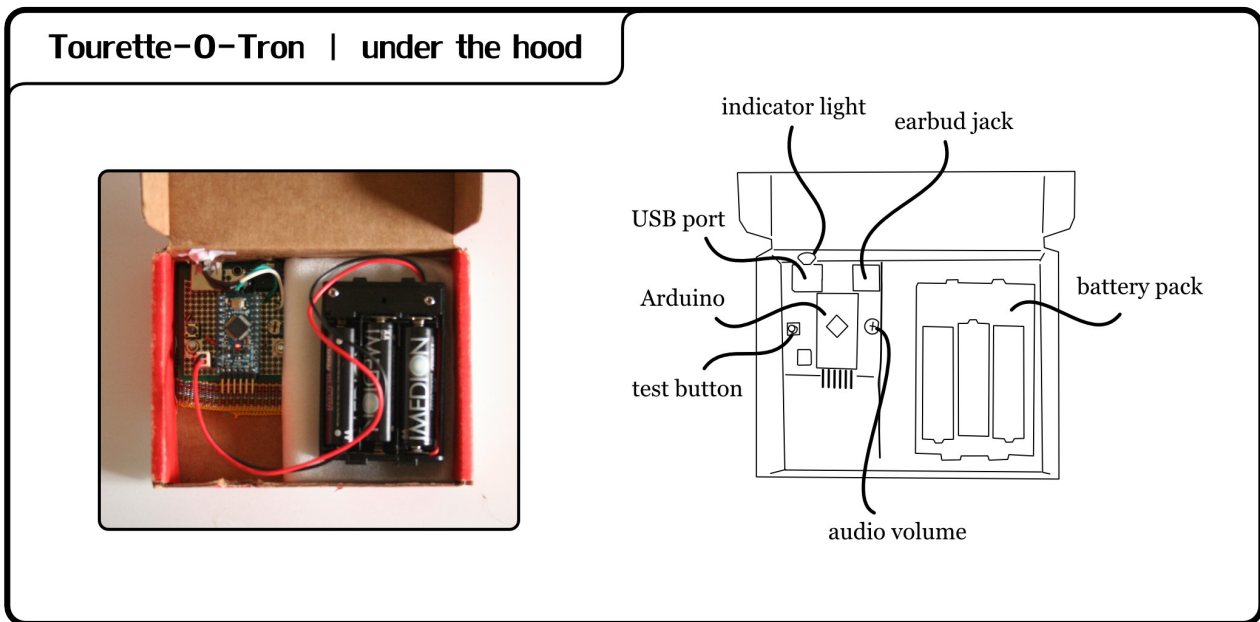
Why?

The Tourette-O-Tron is a tool for Tourette Syndrome awareness. When a user puts the device on, they will be subjected to a simulation of what it is like to have Tourette's.

The main reason for creating this device is because I have Tourette Syndrome. I have found that there is much misinformation about Tourette, and many people are only familiar with the popular mythology – which is people running around swearing. Tourette is far more complex than that. It is a spectrum disorder which shares qualities with other relatives like OCD, Aspergers, ADHD, and even schizophrenia. And I had a lot of pain growing up due to other people's ignorance, so if I can help spread awareness then I can help someone avoid what I went through.

I am also very interested in understanding impulsivity disorders in general. Tourette Syndrome is all about impulses. You get this very strong urge to do something – like move in a very particular way, or make a noise, or sure maybe even swear. To me, this issue of impulsivity was something that could be communicated via a simulation, and so it was a place for me to bring some understanding.

How?



The hip pack is the heart of the Tourette-O-Tron. It has ports to connect the the earbud and twitch sensor, and it also contains the batteries, an Arduino board, an indicator light, a volume-control knob, and a test button. And all of this is tied together on a small circuit board which is mounted to the small cardboard box that is the current enclosure for the Tourette-O-Tron.

There are (currently) two externally accesable ports. The USB port is for connecting the accelerometer (twitch sensor). There is also a standard 1/8 in. headphone jack for the earbud. The next version of the system will include multiple ports to allow for multiple twitch sensors – for an even more imersive simulation.

The Arduino board is the brain of the system. It is loaded with custom software to create the behavior of the Tourette-O-Tron. The challenge in writing the software was to create a system that could deliver consistent twitch sensitivity over a range of average activity – i.e. the Tourette-O-Tron needs to ignore the user's normal movement while still being sensitive enough that the twitches do not need to be exaggerated.

As the signals from the twitch sensor come in, the softare averages their motion out as a baseline and only listens to the motion that falls outside that average. The practical upshot is that you can go about your daily business and still get a reliable Tourette simulation experience.

