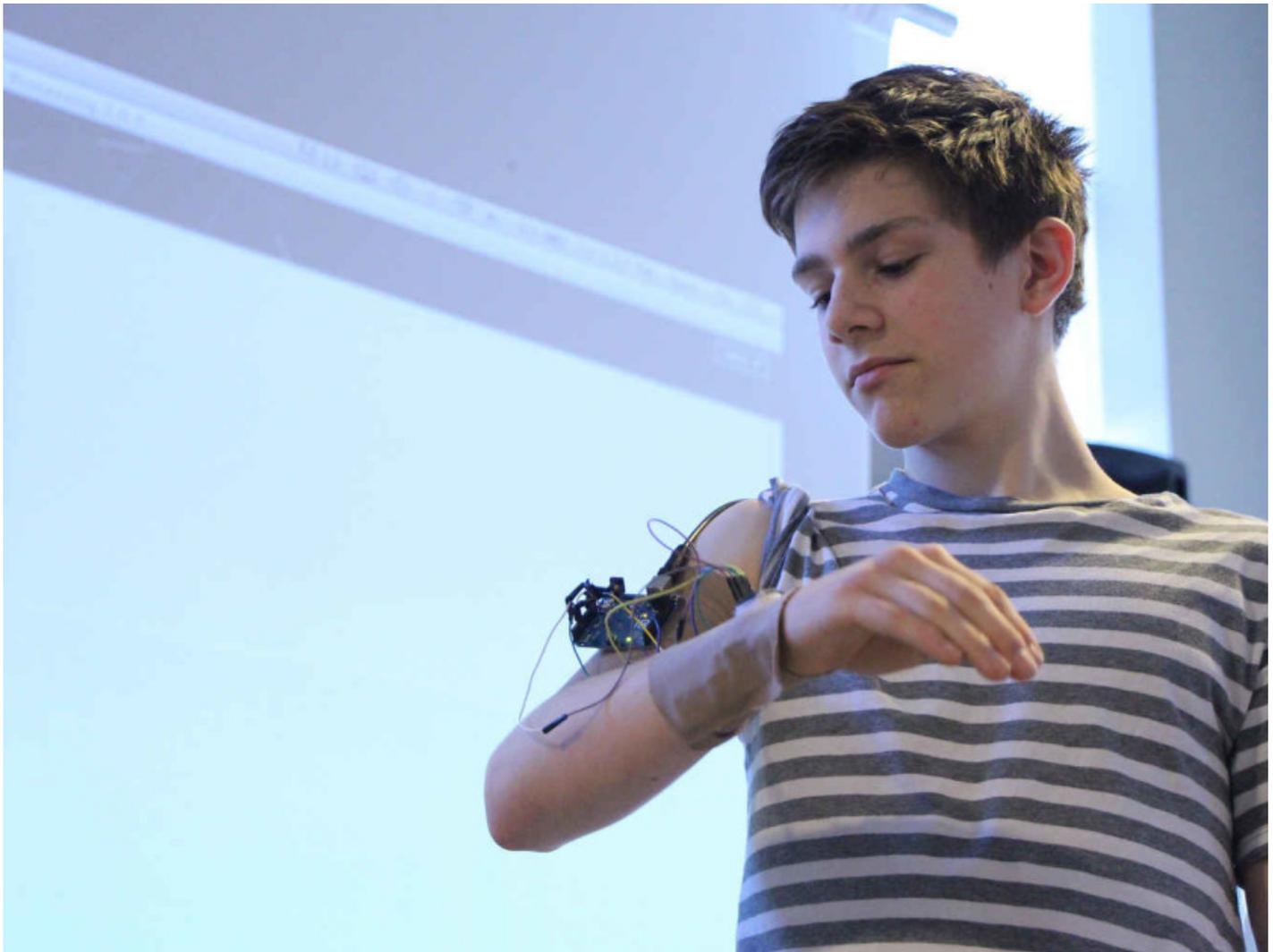


TREMOR SUPPRESSOR

Final ⚙ (<https://Cambridge.Nuvustudio.Com/Posts/21997/Final>)

By Max Ingersoll (/Users/22) 📅 03/07/14 AT 9:27 AM

In Tremor Suppressor (/Studios/Mobile-Health/Ring-Bracelet)



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Brothers, Max (14 years old) and Sam (17 years old) Ingersoll, realized they could use the frequency of Parkinson's tremors to generate brain stimulation for patients to reduce the severity of their tremors. They developed this concept into a prototype while participating in a two-week "Mobile Health"-themed design studio at NuVu Studio, an innovation studio for middle and

high school students in Cambridge, MA. The studio was led by Dr. Nir Grossman, a postdoctoral scholar in MIT's Synthetic Neurobiology Group. Subsequently, working with their advisors, the brothers developed the concept into the "Tremor Suppressor," a platform for Tremor Research and for mobile/connected health.

The Tremor Suppressor is a device that will help Parkinson's Disease and Essential Tremor Disease patients mitigate their tremor symptoms. It measures the patient's tremor and processes the data, generating a frequency, amplitude and phase for the tremor. It then synthesizes a signal which is used to stimulate the brain. The hardware of the device is integrated into a 3D printed package which a patient can wear on their wrist.

In addition to the device itself, Sam and Max created an application that will allow doctors to control the duration and type of stimulation the patient will receive, as well as how long. This application, in its later iterations, will allow for accurate, advanced, and in-depth experiment planning and data analysis.

This upcoming summer, Max and Sam will continue to work with Dr. Nir Grossman and Dr. Michael Fox at Beth Israel Hospital on clinical trials of the device.

Video

(<https://Cambridge.Nuvustudio.Com/Posts/27037/Video>)

By Max Ingersoll (/Users/22)  05/16/14 AT 1:51 PM

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[Download Video \(https://nuvuplatform-prod.s3.amazonaws.com/uploads/video/video/467/output.mp4\)](https://nuvuplatform-prod.s3.amazonaws.com/uploads/video/video/467/output.mp4)

Presentation



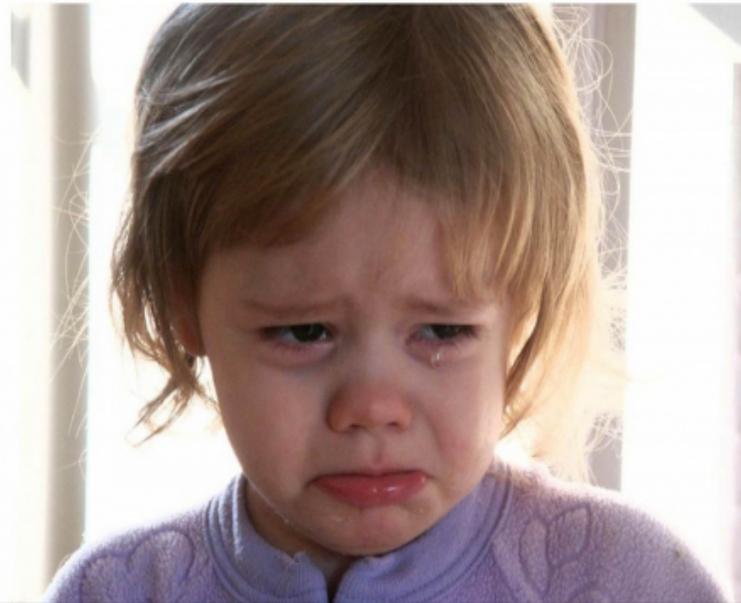
(<https://Cambridge.Nuvustudio.Com/Posts/27034/Presentation>)

By Max Ingersoll (/Users/22) 📅 05/16/14 AT 1:40 PM

In Tremor Suppressor (/Studios/Mobile-Health/Ring-Bracelet)

Parkinson's Disease

•Affects 10 Million People Worldwide



1 / 5

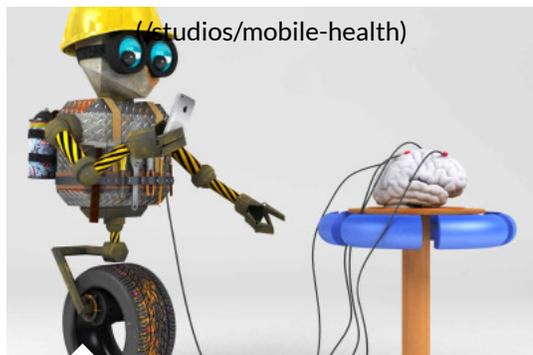
Our vision was to create a low-cost, portable product that would unobtrusively measure and record the tremor of people with Parkinson's Disease and Essential Tremor. This product would also be able to send the data about the tremor to the patient and doctor.

This product would be useful because, doctors currently have no way to monitor their patients tremors throughout the day, which means the only way that they can get information about their tremor, is by asking the patient or the patient's family members. This is not a reliable means of acquiring data about the patient's condition.

It is helpful for doctors to know how their patient's tremor is changing throughout the day for a number of reasons; 1) it helps doctors understand exactly how the medication that they prescribed to their patient is working. 2) It also is helpful for the makers of the medications because it tells them important information about the performance of their drug. 3) It also gives doctors long term data about their patient's tremor so they can see if it is improving or deteriorating .

This product has ring with an accelerometer attached to it, which the patient wears all day. The accelerometer measures the tremor throughout the day and send the data to an Arduino which the patient is wearing on their wrist. The Arduino then either stores the data, or sends the data to a computer or smartphone, where it is displayed and recorded.

STUDIO



MOBILE HEALTH (BRAIN) (/STUDIOS/MOBILE-HEALTH)

By Nir Grossman, Saeed Arida

STUDENTS



Max Ingersoll (/max-ingersoll)

(/max-ingersoll) NuVu Resident



Sam Ingersoll (/sam-ingersoll)

(/sam-ingersoll)

COACHES



Nir Grossman (/nir-grossman)

(/nir-grossman)



Saeed Arida (/saeed-arida)

(/saeed-arida)

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