



Necomimi Brainwave Cat Ears Teardown

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<https://learn.adafruit.com/necomimi-brainwave-cat-ears-teardown>

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Inside the Brainwave Cat Ears

The [Necomimi Brainwave Cat Ears](https://adafru.it/cjX) (<https://adafru.it/cjX>) by NeuroSky detect fluctuations in brain wave activity to twitch and wiggle a pair of fuzzy cat ears atop your head, visually indicating your attention level. We decided to take them apart to see how they work!



Tools used in this teardown:

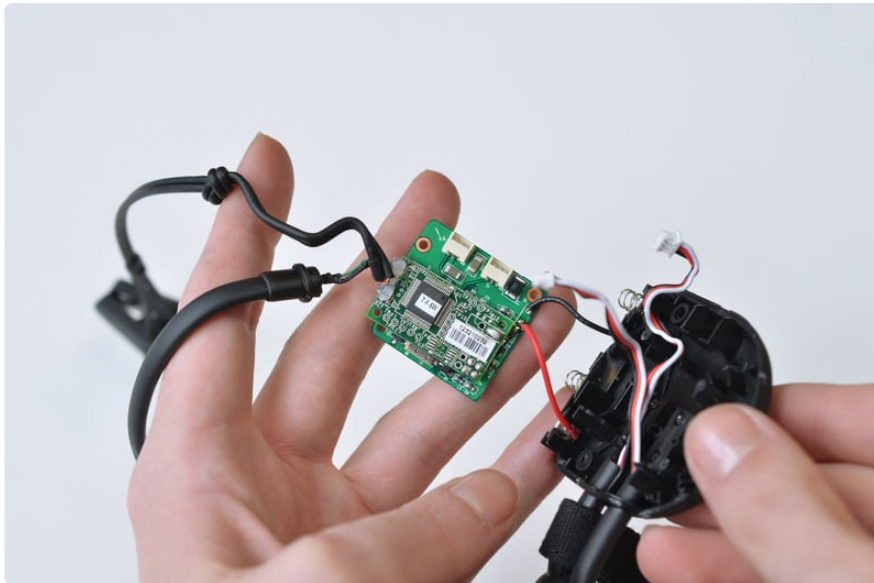
- [Precision screwdriver set](http://adafru.it/424) (<http://adafru.it/424>)
- [Soldering iron](http://adafru.it/180) (<http://adafru.it/180>)
- [Solder wick](http://adafru.it/149) (<http://adafru.it/149>)
- [Flush diagonal cutters](http://adafru.it/152) (<http://adafru.it/152>)
- [Helping hand tool](http://adafru.it/291) (<http://adafru.it/291>)
- [USB microscope](http://adafru.it/636) (<http://adafru.it/636>) with [articulated stand](http://adafru.it/969) (<http://adafru.it/969>)



The brainwave cat ears are put together with screws, but many are hiding under stickers. Remove the stickers and unscrew all the screws!



When you open up the main electronics compartment, the brainwave sensor and ear clip will come free.



Unplug the three-pin connectors that mate the servo wires to the main board. The main board is a circuit sandwich, so use your solder wick and soldering iron to desolder the four header pins that join the boards.



We didn't hold out hope of reassembling our cat ears, but if you're careful and keep track of your screws, you should be able to put them back together. The EEG interface board has a custom NeuroSky T-QFP microcontroller, which NeuroSky markets independently as the [ThinkGear ASIC module](https://adafru.it/cjY) (<https://adafru.it/cjY>), and the other board contains a basic 8-bit microcontroller, crystal, battery management, and servo connectors.

