



# Magic Mouse Teardown

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## INTRODUCTION

We're wondering what's so magical about Apple's Magic Mouse... so we're going to look inside to find out!

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Wired and iFixit are hosting a [Sony Teardown contest](#). Take apart anything made by Sony, take photos, and use [our editor](#) to post a teardown. You could win a PS3 or PSP Go!



### TOOLS:

- [iFixit Opening Tools](#) (1)
  - [Spudger](#) (1)
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## Step 1 — Magic Mouse Teardown



- Ladies and gentlemen, children of all ages, welcome to the Wonderful World of Gadget Magic Teardown sponsored by iFixit.
- We have a special guest tonight in the audience. From Cupertino, California, it is our pleasure to introduce the world's first mouse to use Apple's revolutionary Multi-Touch technology, the Magic Mouse.
- Let us, at iFixit, be the first to welcome you, Magic Mouse, to the grandest stage of them all, please just stand there and let us admire you in all your infinite glory.

## Step 2



- Now now Magic Mouse, no need to be modest, let us tell the audience a bit about yourself.
- The Magic Mouse is composed of an aluminum base topped off with a smooth multitouch panel, giving it a lustrous buttonless appearance.
- Unlike Apple's previous mouse, the Mighty Mouse, the Magic Mouse relies completely on gestures to enhance the user's experience.
- Scroll in any direction with just one finger, swipe through web pages with just two fingers thanks to the powerful technology of momentum scrolling, where the speed is calculated by the rate of the gesture.
- Oh Magic Mouse...you're so magical!

## Step 3



- For our next trick, we will need a volunteer from the audience...yes, you, Magic Mouse...well come on up!
- ⚠ Ladies and gentlemen, the following teardown features stunts performed by professionals or under the supervision of professionals. Accordingly, iFixit must insist that no-one attempt to recreate or re-enact any stunt or activity performed on this teardown.
- With the public disclaimer out of the way, we can now begin tearing down the Magic Mouse.
  - Batteries *are* included. They're plain ordinary Energizer alkalines. We're surprised Steve doesn't have Apple-branded batteries, maybe he's been too busy working on other things to notice...perhaps a tablet...maybe Steve...no...yes??



## Step 4



- Alakazam! Wow, at \$69, the Magic Mouse isn't cheap. You would think for \$69 the Magic Mouse would actually be capable of performing magical acts.
- ⓘ To meet their [earnings target](#) for next quarter, Apple needs to sell about 164 million Magic Mice. (However, we've been told Apple sells some other products too). At that rate, it'll be about nine years before everyone in the world has a Magic Mouse.

## Step 5



- Let's get inside and find the magic amulet that gives the Magic Mouse its mighty powers. Not surprisingly, copious amounts of magical glue stand between us and our goal.
- We used a [Plastic Opening Tool](#) to pry the mouse out of its shell.

## Step 6



- The glue didn't want to let go, but we overpowered it with a flick of our magic wand. Screws would have been a lot easier to get apart (and much nicer to put back together).
- There's not much Aluminum in the mouse, we weighed just 10 grams. That's compared to 37 grams of plastic and 47 grams of batteries. Nearly half the mouse's weight comes from the two AA batteries.

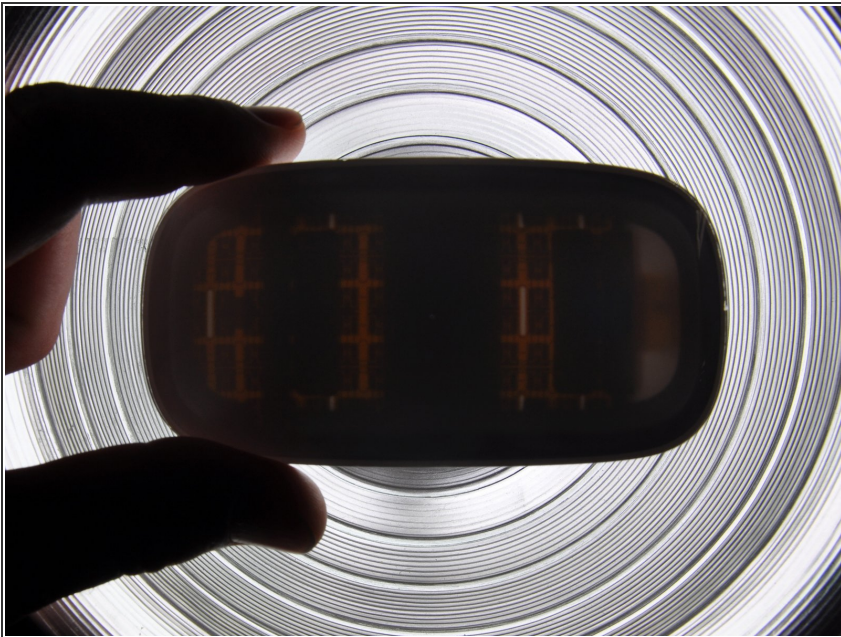


## Step 7



- Open sarsaparilla! Open Saskatchewan! Open septuagenarian! Open saddle soap! ... **OPEN SESAME!** Now that was easy enough.
- Here we receive our first glimpse of magic. (aka orange capacitive touch sensors).
- The top of the mouse is connected to the main board and power via a single large ribbon cable.

## Step 8



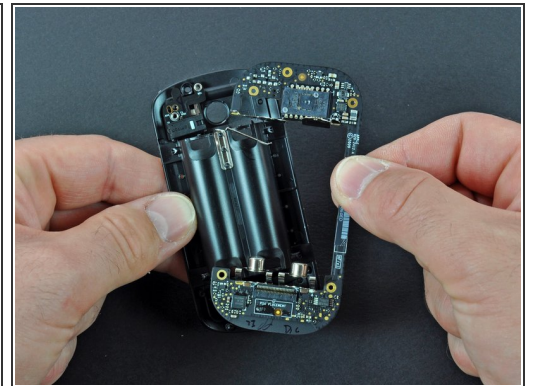
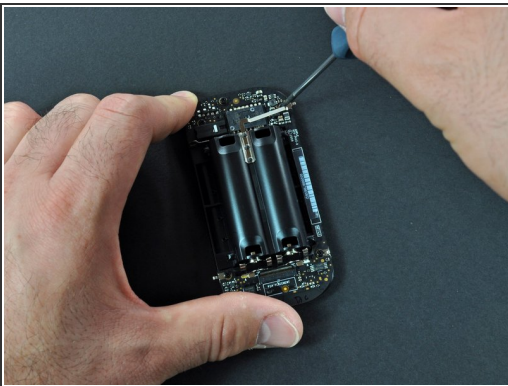
- The top of the mouse is translucent. Maybe Apple should make a backlit mouse.

## Step 9



- After prying up the black plastic internal frame, we finally get an unobstructed view of the sensors.
- From the Apple logo up, the entire surface of the mouse is covered with capacitive touch sensors.

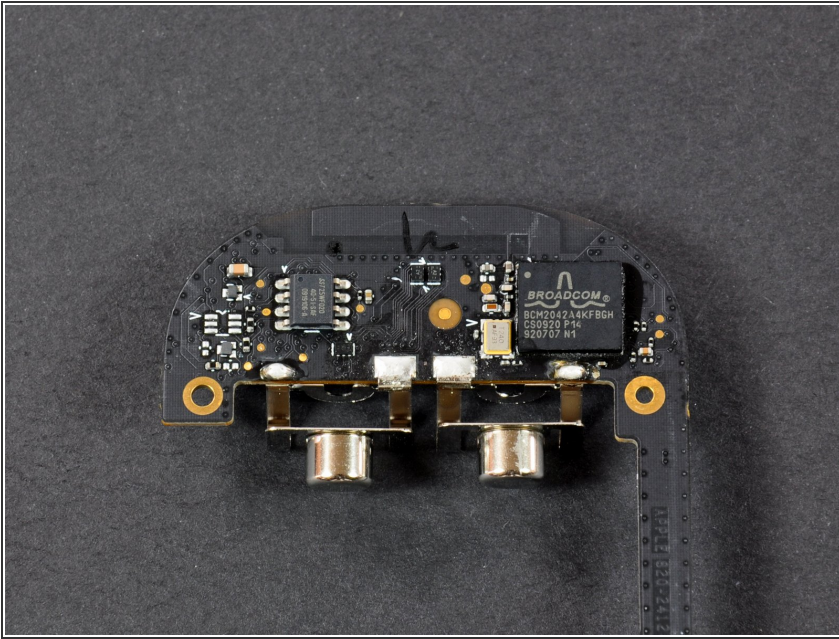
## Step 10



- The brains.
- ① The average mouse brain weighs .4 grams. The brains of the Magic Mouse weigh 9 grams. That means the Magic Mouse is 22.5 times smarter than your average mouse. Who knew?



## Step 11



- Here's the Broadcom BCM2042A4KFBGH chip that allows the Magic Mouse to talk to its host.
- This is a [BCM2042](#) "Advanced Wireless Keyboard/Mouse Bluetooth Chip."
- According to Broadcom, "By integrating all components within today's mouse and keyboard into the BCM2042, low system costs can be achieved to approach the price points of legacy-wired mice and keyboards." Apparently Apple missed that memo.

## Step 12



- Magic Mouse, RIP. Another mouse killed in the name of science. We didn't break anything, but gluing it back together will be challenging. *Update: We put it back together and it still works!*
- We'll be taking apart the iMac that came with our Magic Mouse next. Follow [@ifixit on twitter](#) and we'll keep you updated.

