



Fitbit Flex Teardown

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INTRODUCTION

Here at iFixit, we promote only the healthiest of lifestyles. We eat our vegetables *at least* once per week, and we never eat pizza two days in a row (unless it's leftovers, of course). One might go so far as to call us health freaks. We would not argue.

But we *are* iFixit, so of course we're sacrificing our fitness ambitions for science. We ripped into Fitbit's newest pedometer/heart rate monitor/sleep tracker wristband. What kind of a diet helped this thing fit into its tiny jacket? We're about to find out.

Check out [Instagram](#) if you're interested in getting a behind-the-scenes look at iFixit. Food, gnomes, and fancy filters not your thing? Get a healthy dose of fighting eWaste on [Twitter](#) and [Facebook](#).

TOOLS:

- [Precision Utility Knife](#) (1)
- [Dozuki](#) (1)
- [Tweezers](#) (1)
- [Vise](#) (1)
- [Large Needle Nose Pliers](#) (1)
- [Rotary Tool](#) (1)

Step 1 — Fitbit Flex Teardown



- So many goodies in one package! The Fitbit Flex comes with the following:
 - Two adjustable wristbands: one large, one small
 - Wireless sync dongle
 - Charging cable
- The Flex tracker sports some cool tech specs, too.
 - Bluetooth 4.0 syncing
 - Memory to store 30 days of data
 - 5-day battery life

Step 2



- With less effort than [peeling an orange](#), we peel the Fitbit Flex tracker out of the flexible wrist strap.
- Although it seems like a small consideration, we appreciate how easy it is to separate the electronics from the wrist strap—the component most likely to wear out.

Step 3



- Normally we would compare the device to other similar devices. Unfortunately, we don't really have much to compare the Flex to. How about a half dollar?
- The Flex may be slightly larger than a half dollar (though smaller than half a dollar bill), but it will cost you 200 of them.
- *(i)* If anyone pays for a Fitbit Flex with half dollars, we would love to hear about it.
- The back of the Flex reveals the model number, FB401, and provides a nice insertion arrow. It's not quite disassembly information, but it's something, right?

Step 4



- The first things we notice on the Flex are the waterproof contacts. This is good news for those who might be sweating while wearing, or tearing down, the Flex.
 - For the record, the Flex claims to be water-tight up to 10 meters, or 264 simultaneous Gatorade showers.
- This tiny gizmo fits snugly in its USB charger when its lithium-polymer battery needs juice.
 - Not to worry, it won't take the place of your smartphone on the charger each night—this little gadget has a reported battery life of 5 days.

Step 5



- With no visible point of entry, we figure the path to victory can be carved with judicious application of sharp tools.

(i) Around here, we're big fans of [Dozuki](#). We're also big fans of [dozukis](#). When saw comes to gadget, you know it's a teardown.

! Remember that teardowns are for fun and should not be followed as disassembly instructions. Please do not cut into your device with a dozuki.

Step 6

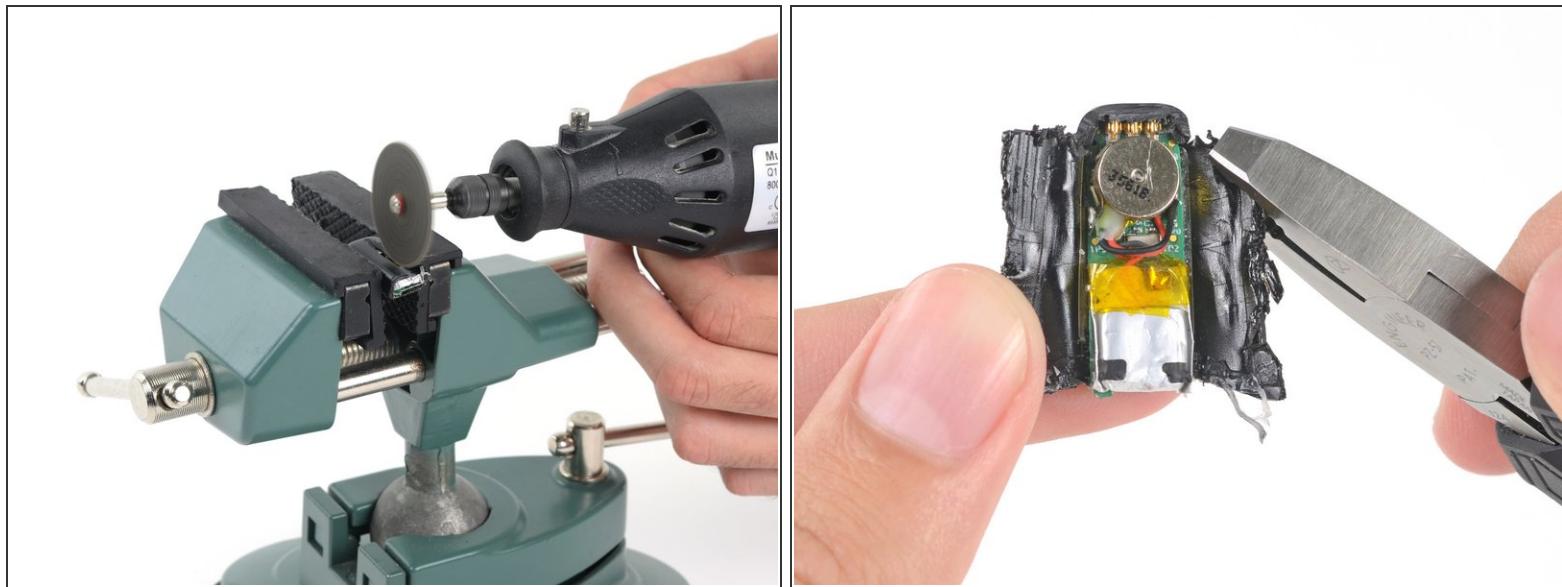


- Our first extraction: the light guides for the LEDs that pass for a display on this slim, dare we say emaciated, unit.
- Next out is the Bluetooth antenna, used for communicating with devices and the accompanying dongle.

● *Oops!* We appear to have a tiny hitchhiker; that's a piece of the motherboard hanging on to the antenna.

- To those of you following along at home: you don't need to chop up your PCB.
 - P.S. Don't follow along at home.

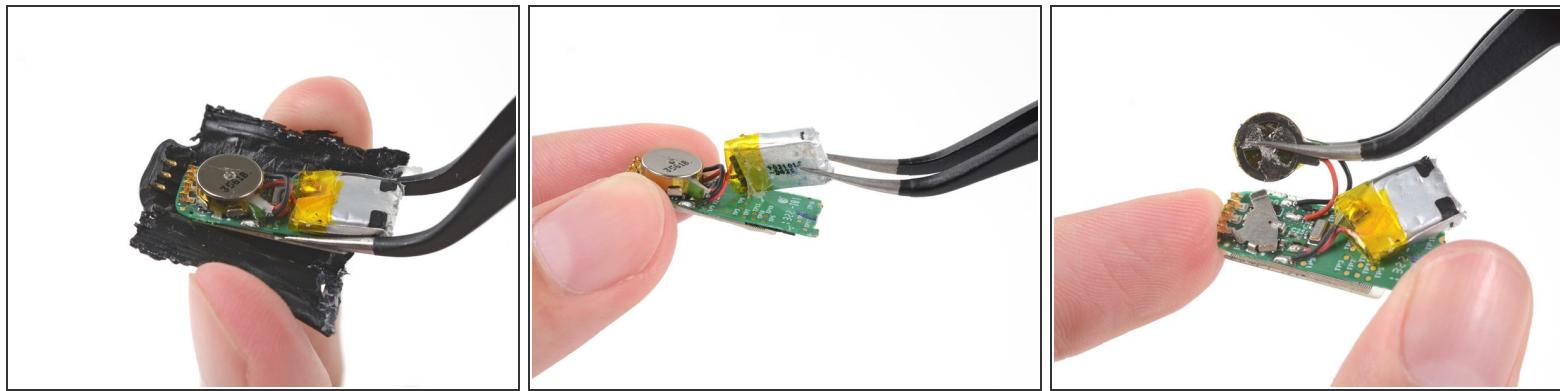
Step 7



- Pulling components out through the top of the Flex worked for a little while, but it's time to get to the good stuff.
- Using our handy [rotary tool](#), we cut through the plastic casing of the Flex tracker.
- Well hello there, Rico Suave! Peeling back the Flex's stylish plastic jacket reveals the components we've been looking for.

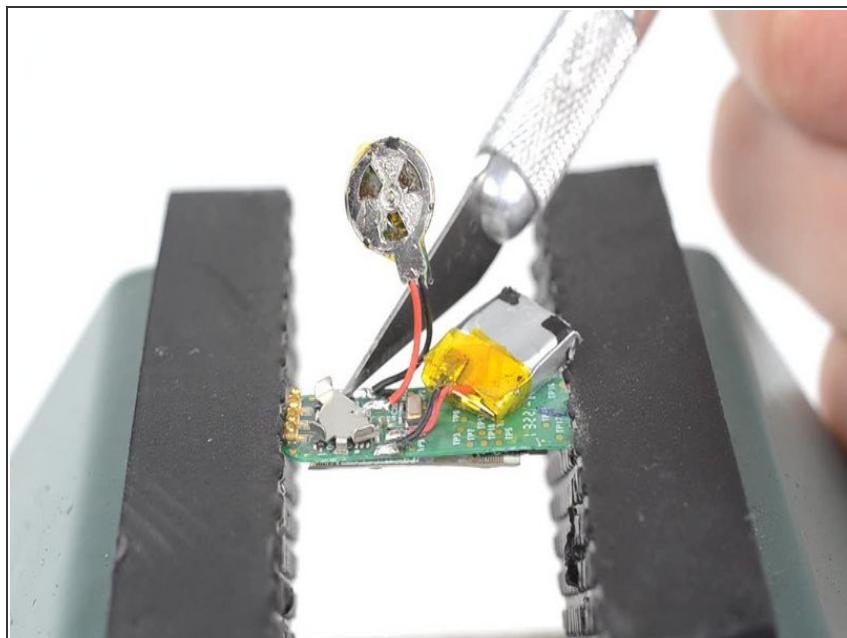
ⓘ Repairability update: This little guy is never, ever, ever going back together.

Step 8



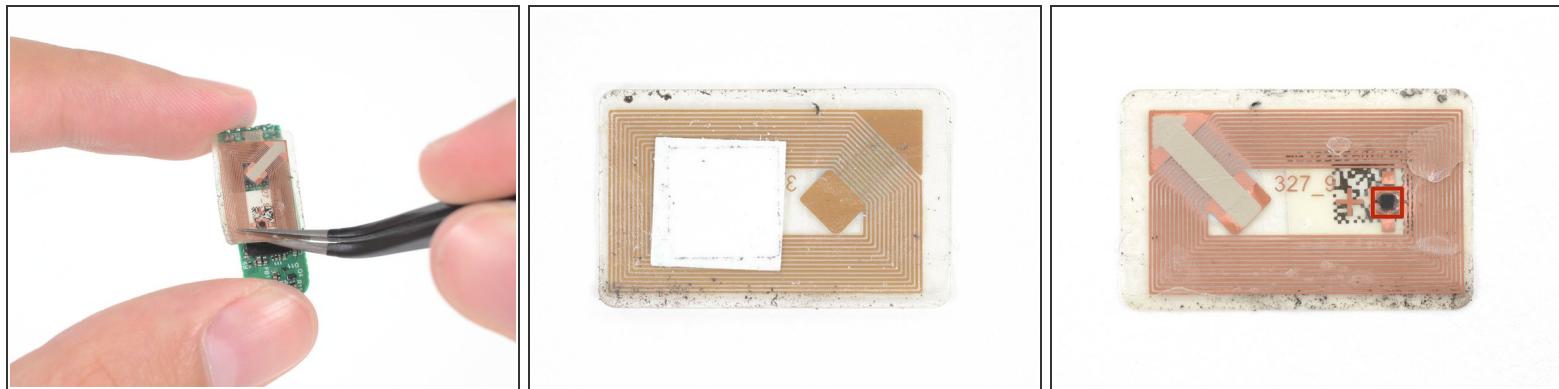
- The main board slides right away from the contact pins. Now we can get to the juicy bits.
- Small and encased in a thin sheet of metal tape, the battery is soldered to the motherboard. By this point, a replaceable battery is the least of our worries.
- We're getting some [good vibrations](#) from the prominent vibrator that functions as an alarm.

Step 9



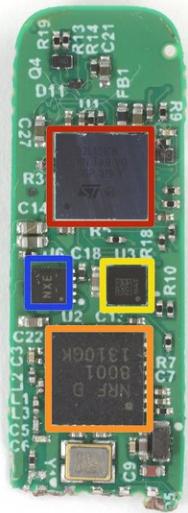
- This is how your vibrator works in your Fitbit Flex.

Step 10



- Stuck right on to the front of the board we find a near field communications (NFC) antenna.
- The NFC tag enables a tap launch of the Flex tracker's associated mobile app with "select NFC-enabled Android devices."
-  ["It's like magic."](#)
- This little guy looks like a likely candidate for the NFC controller.

Step 11



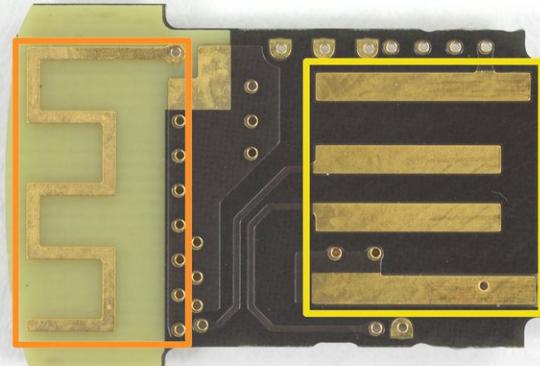
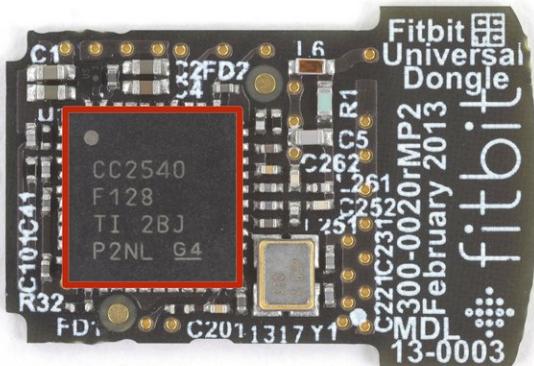
- The motherboard flexes to show us what it's repping:
 - STMicroelectronics [32L151C6](#) Ultra Low Power ARM Cortex M3 Microcontroller
 - Nordic Semiconductor [nRF8001](#) Bluetooth Low Energy Connectivity IC
 - Our best guess is that this is the accelerometer IC
 - Charger IC: TI [BQ24040](#)

Step 12



- We just couldn't keep our scalpels to ourselves, so we ripped into the Flex's dongle as well.
- Plastic aside, we get to the goodies.
- We quickly free the dongle board from the metal casing of the USB plug.

Step 13



- Enough lolligagging, let's *cut* to the chase. This diminutive USB board houses all of the hardware needed to communicate with the Flex — and your computer:
 - Texas Instruments [CC2540F128](#) 2.4 GHz Bluetooth Low Energy SoC
- On the contact side:
 - [BLE](#) Antenna
 - USB connection contacts

Step 14



IFIXIT



- Fitbit Flex Repairability Score: **2 out of 10** (10 is easiest to repair)
 - Solid waterproofing, no moving parts, and lightweight construction make the Flex a very durable device, with the potential to last a long time.
 - The wrist strap is similarly constructed and can be easily replaced.
 - It's impossible to open the device without destroying it or at least compromising the waterproofing, making internal repairs infeasible.
 - The Flex's inaccessible (and non-replaceable) battery limits the life of the device.

To reassemble your device, follow these instructions in reverse order.