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)

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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.

- ⓘ 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.
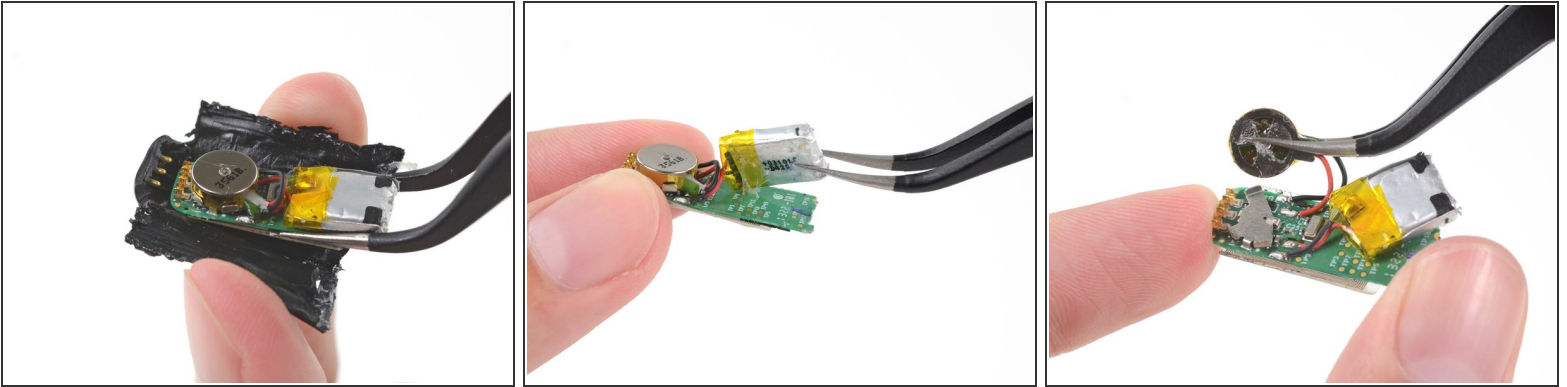
Step 6

- 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.

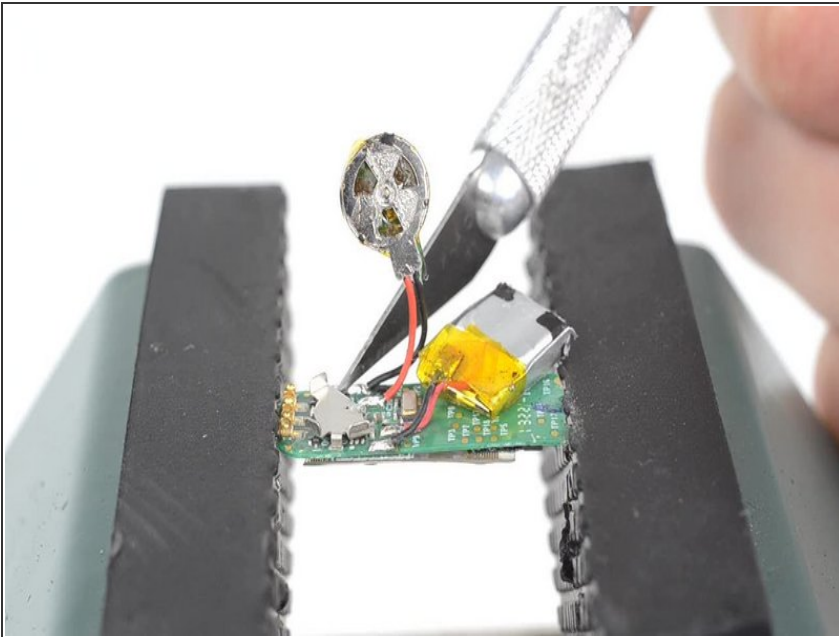   - P.S. Don't follow along at home.

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.

- *(i) Repairability update: This little guy is never, [ever](#), [ever](#) going back together.*

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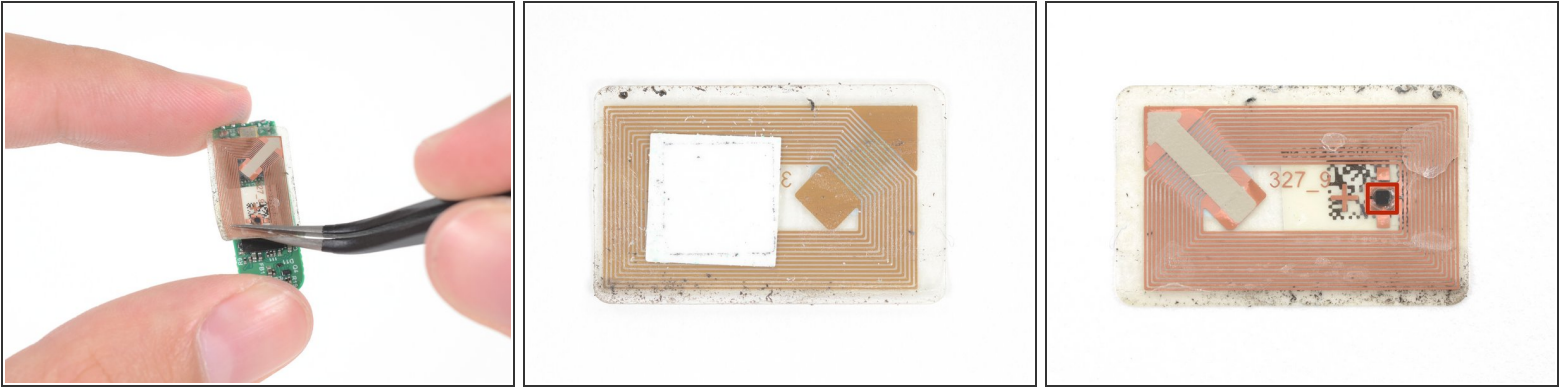© iFixit — CC BY-NC-SA					www.iFixit.com					Page 9 of 15

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.

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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
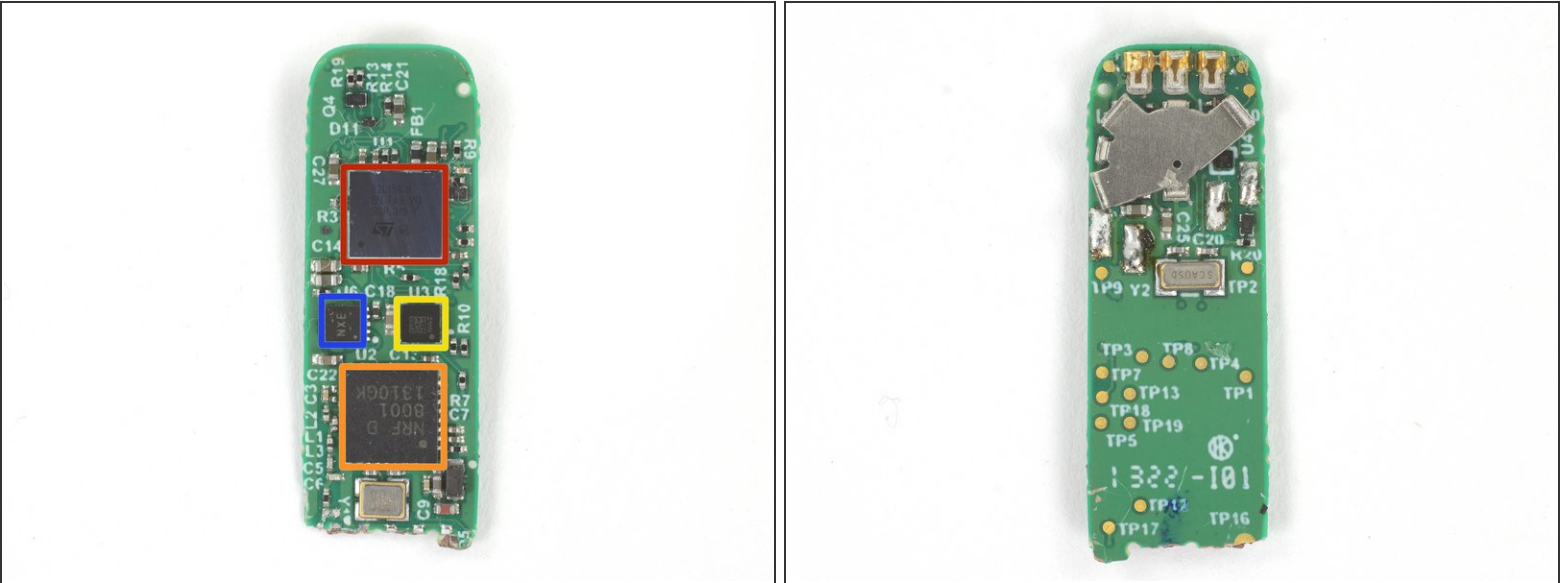
- The motherboard flexes to show us what it's repping:

  - STMicroelectronics 32L151C6 Ultra Low Power ARM Cortex M3 Microcontroller

  - Nordic Semiconductor nRF8001 Bluetooth Low Energy Connectivity IC

  - STMicroelectronics LIS2DH 3-Axis Accelerometer

  - Charger IC: TI BQ24040

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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
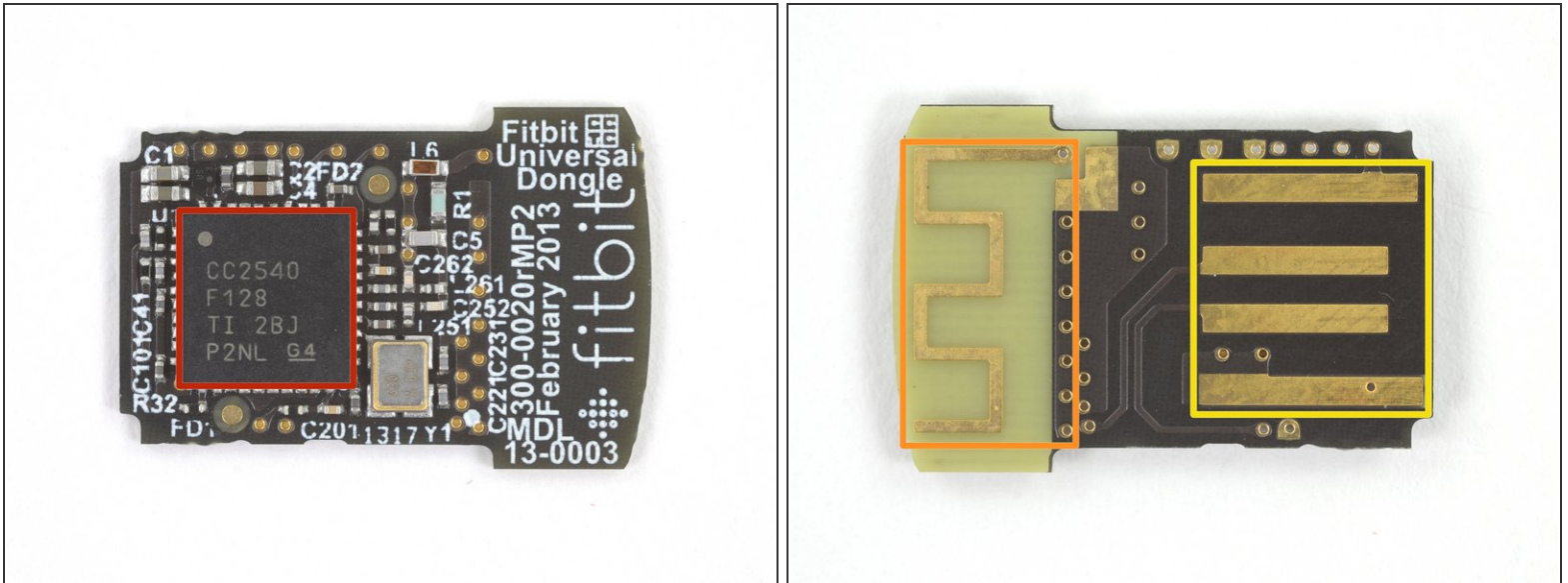
- Enough loligagging, let's *cut* to the chase. This diminutive USB board houses all of the hardware needed to communicate with the Flex — and your computer:

  - Texas Instruments [CC2540F128](#) 2.4 GHz Bluetooth Low Energy SoC

- On the contact side:

  - [BLE](#) Antenna

  - USB connection contacts

Step 14

- 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.