



Samsung Gear Fit Teardown

Teardown of the Samsung Gear Fit, performed Thursday, April 10, 2014.

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INTRODUCTION

We're completing this week's teardown trifecta with the Gear Fit, Samsung's latest offering that attempts to either sportify a smartwatch, or smartify a sportwatch. Will it leave us as breathless as its brother, the [Gear 2](#), or will it just give us fits? The teardown team is in high gear, so join us and find out!

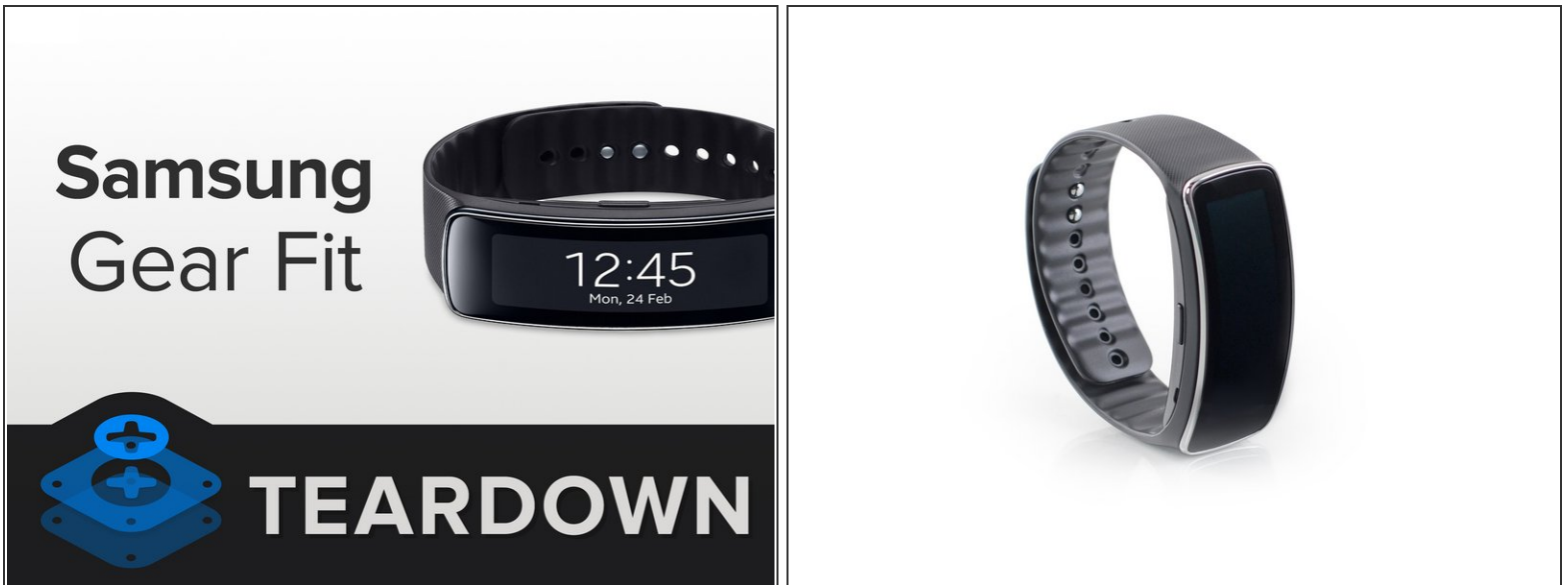
If high-tech hardware sets your heart racing, you're fit to befriend us on [Facebook](#), trade tweets with us in the [Twitter](#)verse, and swoon over some sweet photos on our [Instagram](#).

[video: <https://www.youtube.com/watch?v=J1Sis0-qGEg>]

TOOLS:

- [Metal Spudger](#) (1)
 - [iFixit Opening Tools](#) (1)
 - [iFixit Opening Picks set of 6](#) (1)
 - [iOpener](#) (1)
 - [Spudger](#) (1)
 - [Tweezers](#) (1)
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Step 1 — Samsung Gear Fit Teardown



- What did Samsung fit inside the Gear Fit?
 - 1.84" Curved Super AMOLED touchscreen display (432 x 128 pixels)
 - 180 MHz ARM Cortex M4 CPU
 - Accelerometer, gyroscope, and heart rate sensor
 - Battery good for 3-4 days of normal use
 - Bluetooth 4.0 LE
- It's a tidy little package, but you know how this works: it's all gotta come out.

Step 2



- "Hey, does this watch have an easily removable band like the Gear 2?"
- "Maybe, give it a shot."
- "...Yes."
- ① In fact, you'll soon be able to buy replacement bands in a variety of colors, to "[make you look cool even during the most strenuous of activities.](#)"
- Feel free to ponder that while we go find our fleeing Fit. This here's a teardown, and it's [not getting away so easy.](#)

Step 3



- Wrist strap dispatched, it's time for a close-up inspection of the ~~dark-side~~ wrist-side of the Fit.
- Riding along against your arm, you'll find the heart rate monitor and charging cradle contacts.
- ⓘ Let's hope that Samsung didn't include a remote taser feature.
 - They *did* include a model number: SM-R350, if our eyes do not deceive us.
- A single button serves as a sleep/wake and power switch, and is the only significant opening in the unibody enclosure.

Step 4



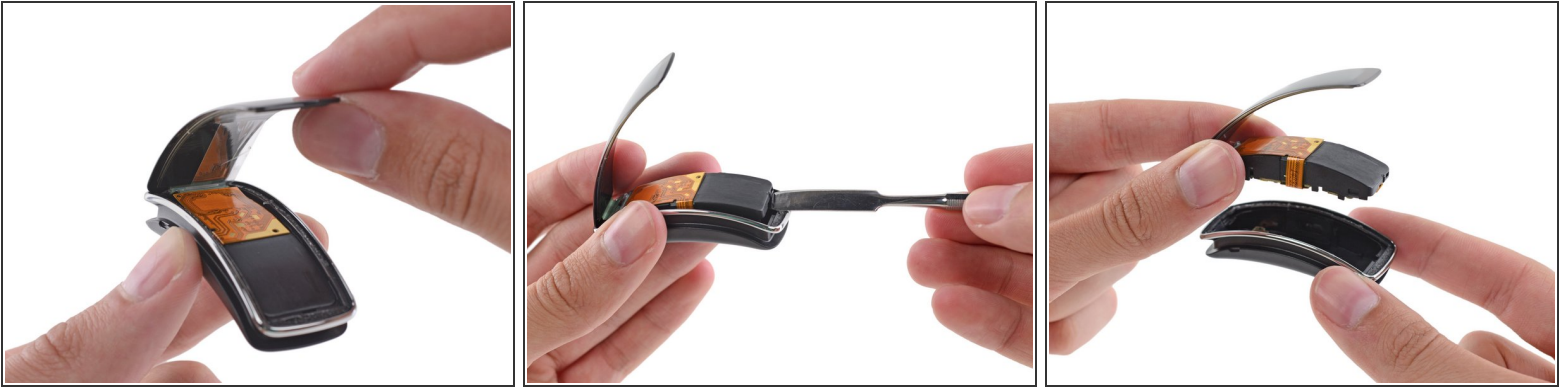
- On the hunt for screws, we take a peek under a promising cover...
- ...Only to find a hole. Perhaps for a microphone?
- Whatever it is, it's no help in the opening procedure mystery. Looks like we're gonna need a little help.

Step 5



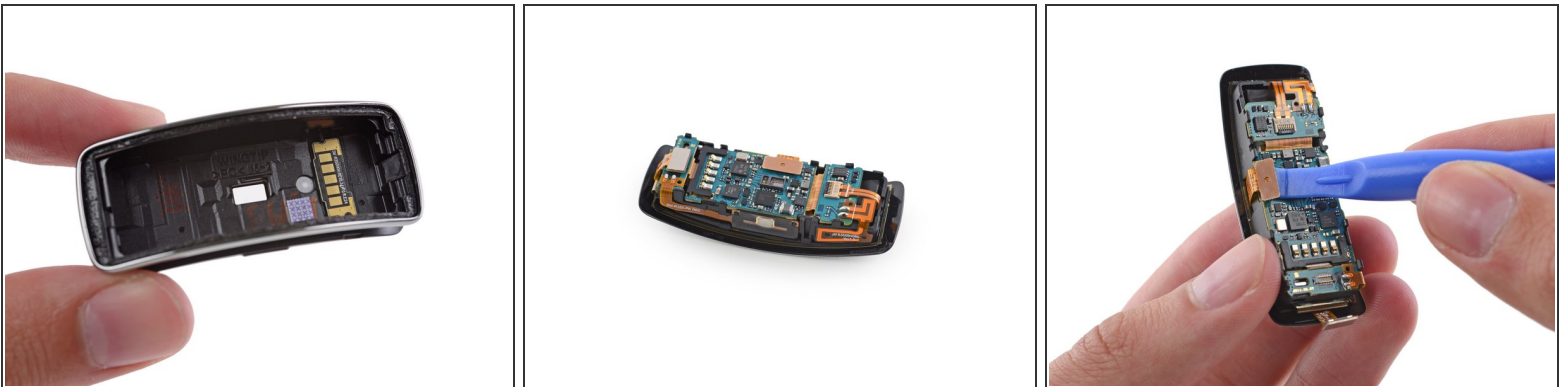
- And help we shall receive—after we tell you about our exciting product, the [iOpener](#). The [iOpener](#) makes repairs safer for you and your devices by gently heating and softening stubborn adhesives, without the danger of melting plastic or warping LCDs that you risk when using a heat gun.
- Let's go ahead and throw an [iOpener](#) on our device, and—oh, what's that? We already did?
 - Why hello there, little Fit. Looking pretty cozy there. Sure would be a shame if somebody...
 - PRIED OFF YOUR FACE.
- Thanks, [iOpener](#).

Step 6



- Adhesive softened, a little gentle prying and slicing is all it takes to separate the curved display from the body, hinging on its data and digitizer cables.
- This thing is [layered like an onion](#). Let's hope this is a safe place for some prying...
- It is! With a wee pop, the cute sushi-shaped innards are free. We personally think it looks like some tasty [nigiri](#) (we *are* a California company after all).

Step 7



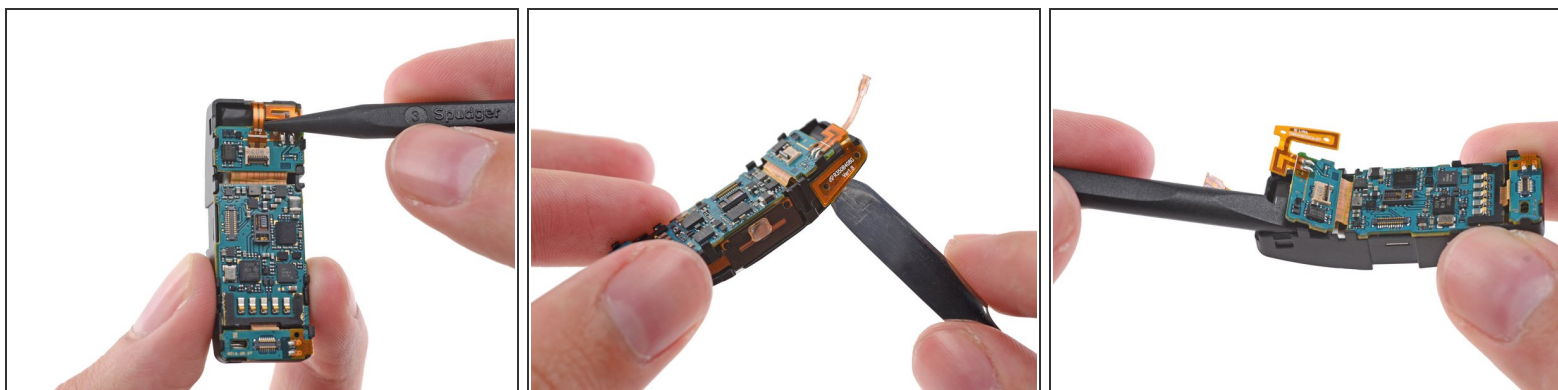
- The display is out, and all that's left is an empty case. Teardown complete!
 - ❗ Our hats are off to Samsung, creators of the world's first apparently air-powered smartwatch.
- Hang on, there seem to be a few bits stuck to the back of the AMOLED unit. Hats back on for the moment.
- We get back to work, plastic opening tool in hand, to free the LCD from its burdens.

Step 8



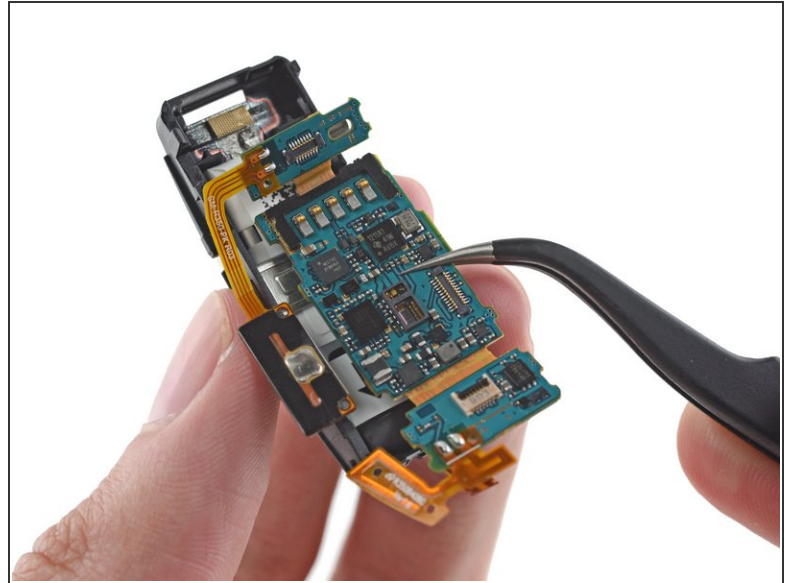
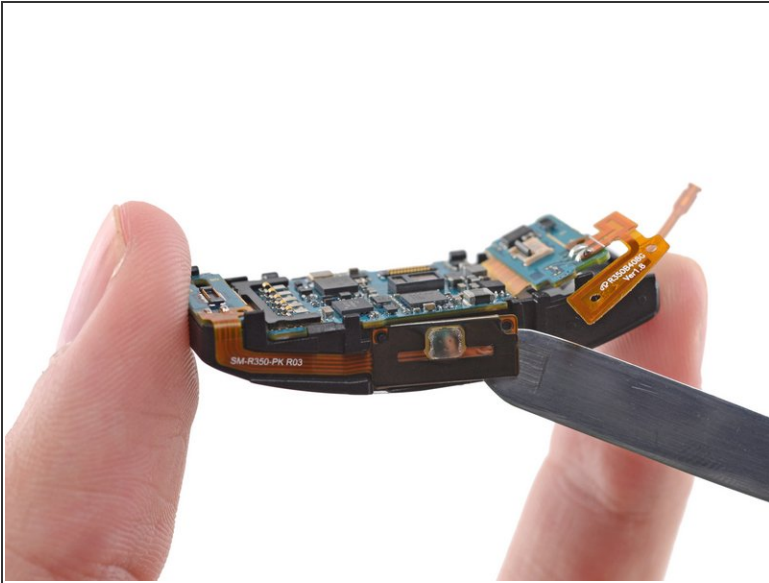
- With some careful coaxing, we pick our sushi apart and peel the display assembly off the frame.
- We liked the Gear 2's [combined digitizer and LCD data cable](#), but it really isn't *that* much more effort to disconnect two things to remove the display.
 - At least these guys never got in the way of our industrious opening tools, [unlike others we could name](#).
- At 432 x 128 pixels, the Fit sports just over half the pixel count of the Gear 2's 320 x 320 display.
- ❗ Pity it costs [far more than half as much](#).

Step 9



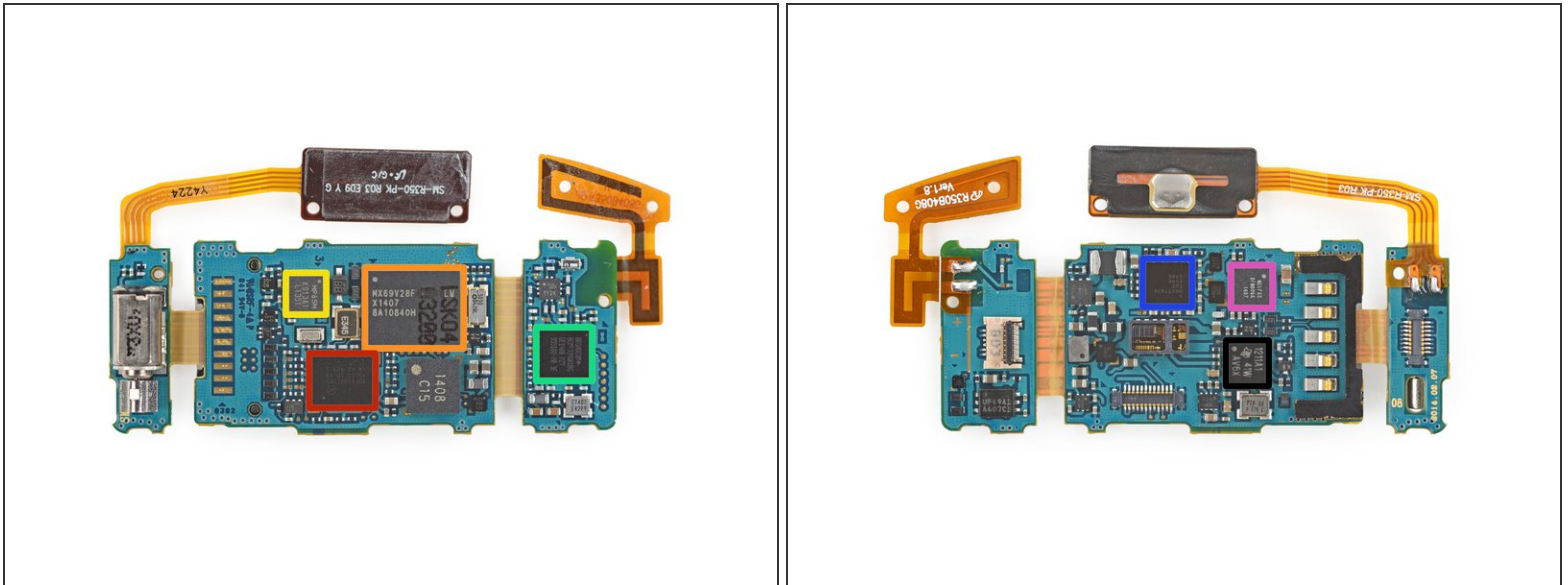
- A close look at the motherboard shows a segmented, three-piece construction, with ribbon cables joining the parts—certainly an interesting approach, in contrast to the [rumored flexible PCB](#) of the upcoming wearable iDevice.
- Our first stop: disconnect the battery. Next step: figure how to get it out. That's gonna take some digging...
- Peeling the Bluetooth antenna up from the side allows us to pop the first segment free of the plastic frame.

Step 10



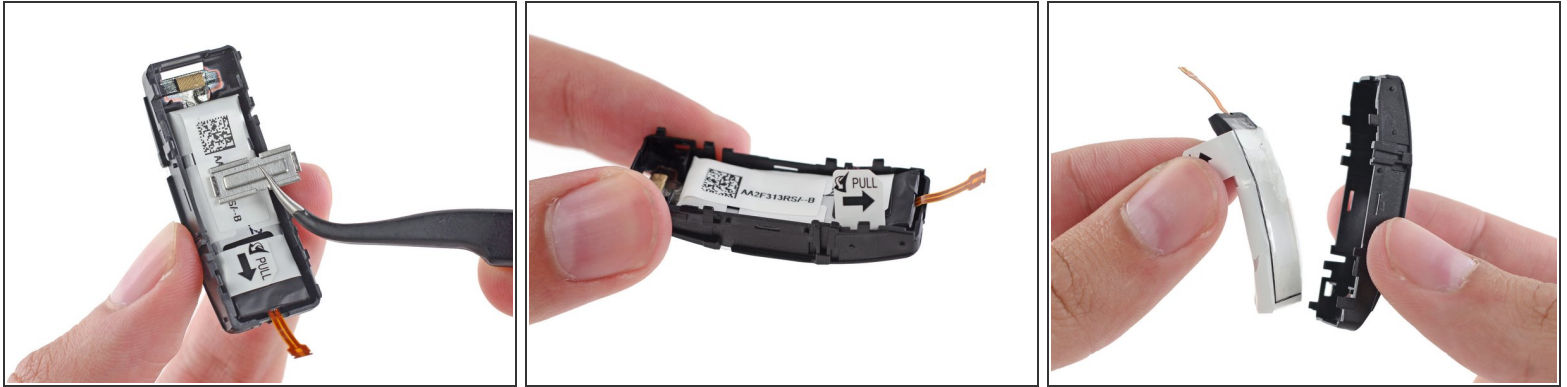
- This is starting to feel [a lot like KP](#). More peeling as the ribbon cable and contact for the Fit's sole button are spudgered away.
- Aww, you're a cute little itty bitty motherboard, aren't you? Yes you are!
- It could be a [mirage](#), but is that a battery under there? We'll have to wait to see.

Step 11



- Populating the board, we find this fittingly Lilliputian array of chips:
 - STMicroelectronics [STM32F439ZI](#) 180 MHz, 32 bit ARM Cortex CPU
 - Macronix [MX69V28F64](#) 128 Mb flash memory
 - InvenSense [MPU-6500](#) 6-axis gyroscope / accelerometer
 - Broadcom [BCM4334WKUBG](#) dual-band 802.11n, Bluetooth 4.0+HS, FM receiver combo chip
 - Maxim Integrated MAX77836 (the same chip we found in the [Gear 2](#)—likely the micro-USB interface controller and Li+ battery charger)
 - Melfas 8FM006A (likely touchscreen controller)
 - Texas Instruments [1211A1](#) standalone USB transceiver chip

Step 12



- A small metal strut separates the motherboard from the battery, and protects the unit from over-enthusiastic squeezing, to ensure your Fit is fit for active duty.
- The curvy Fit features a curved battery, snugly fitted as [a bug in a plastic rug](#).
 - Although it is pretty deeply buried, the battery is still equipped with a friendly and useful pull tab. We'll call this "fairly" user-replaceable.
- While we couldn't find any useful markings to confirm, [Gizmodo](#) tells us this is a 210 mAh battery, with 3-4 days between charges.
- That puts the Gear Fit ahead of the Gear 2 in the battery department, due mostly to a simpler OS and its low-power processor.

Step 13



- Samsung Gear Fit Repairability Score: **6 out of 10** (10 is easiest to repair).
 - While it's a bit of work, users can replace their own battery, greatly extending the useful life of the Fit.
 - Watch band can be removed and replaced in seconds.
 - The display is the first component out, easing repair of the most-likely-broken component, but still requires melting adhesive and prying.
- Low modularity—peripheral components (home switch, antenna, and vibrator motor) are soldered onto the main board and not individually replaceable without soldering.
- The unibody design means any repairs require trucking through the display removal procedure first, risking damage to the LCD.

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