



# FitBit Surge Teardown

This is a complete teardown of Fitbit surge, let's see what makes this "Ultimate Fitness Super Watch" tick.

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## INTRODUCTION

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### TOOLS:

- [Pro Tech Toolkit](#) (1)
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## Step 1 — The Surge



- Fitbit's latest fitness "super watch" has some pretty nice features, including:
  - Built-in GPS
  - Wrist-based optical heart rate monitor
  - Wireless syncing to smartphone or computer
  - 7+days of battery life without gps and up to 7h with gps (according to some [reviews](#))

## Step 2 — Removing the bands



- Remove the four screws
- The bands are glued pretty well so you need to cut your way through to remove them and expose the fitbit body
- Cutting through the middle and lifting sideways worked pretty well

## Step 3 — GPS antenna



- Once you remove the bands scrape away the glue on the top side to expose the GPS antenna

## Step 4 — Bluetooth antenna



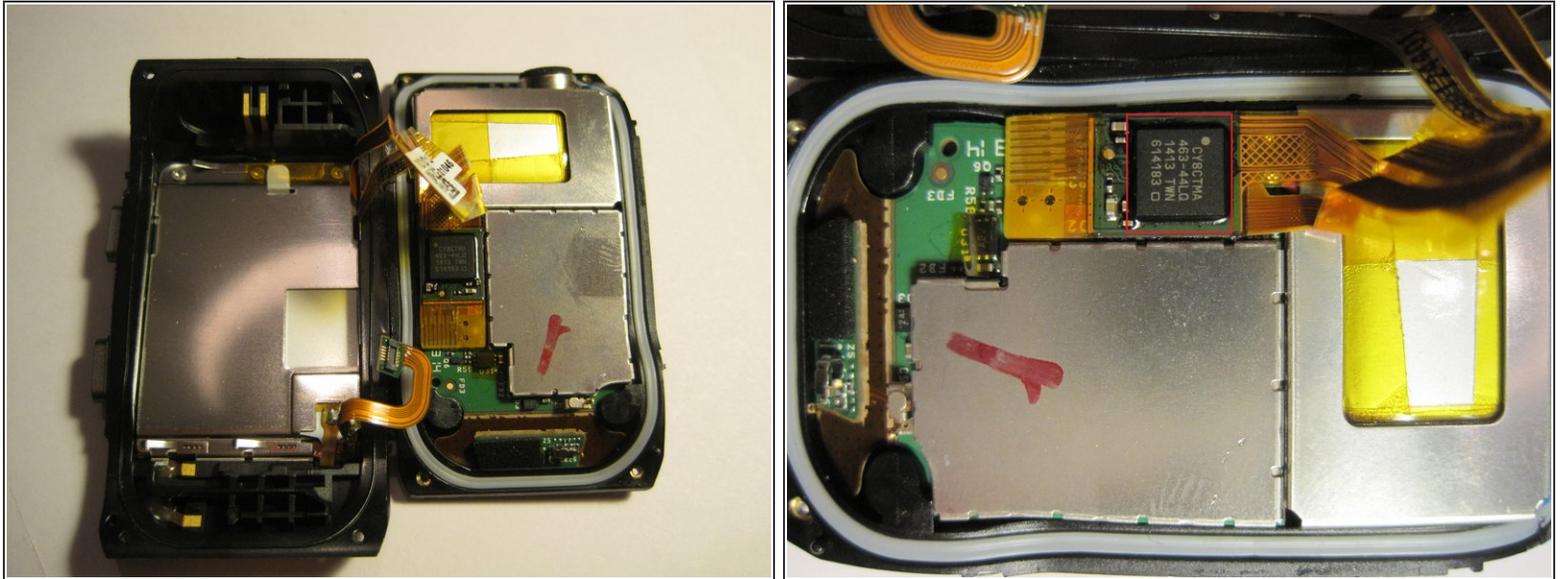
- On the other band you'll find the bluetooth antenna which is actually a flexible antenna glued to the inside of the band.
- This antenna can be left on the surge if you try to detach wrist band by fitting something thin between front glass and the band.

## Step 5 — Opening the body



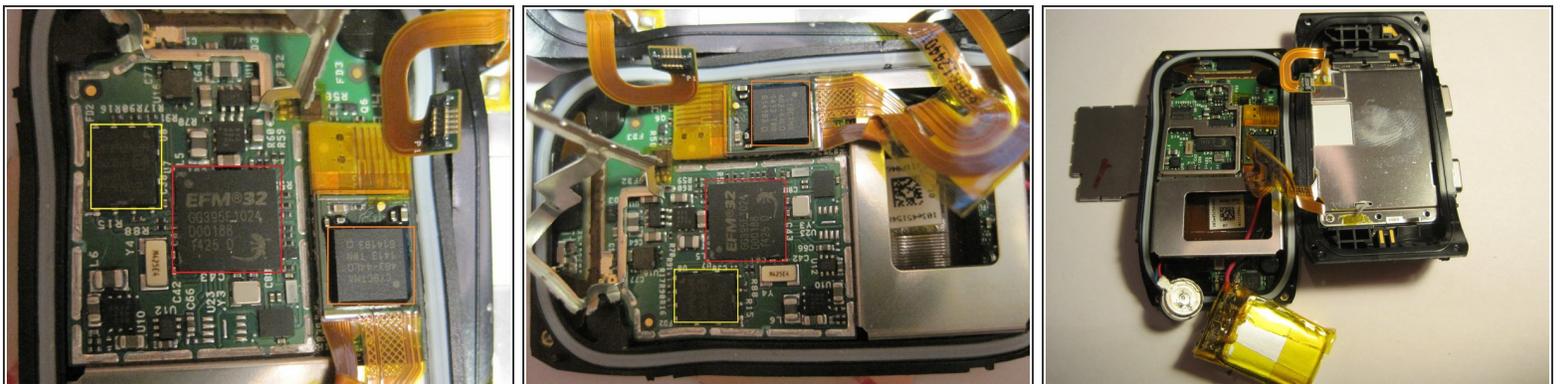
- With the bands out of the way it's time to go inside Fitbit's guts
- Remove the four metal parts as shown in the photo
- After that just insert a screw driver or other sharp object into the fissure and voilà

## Step 6 — Touchscreen controller



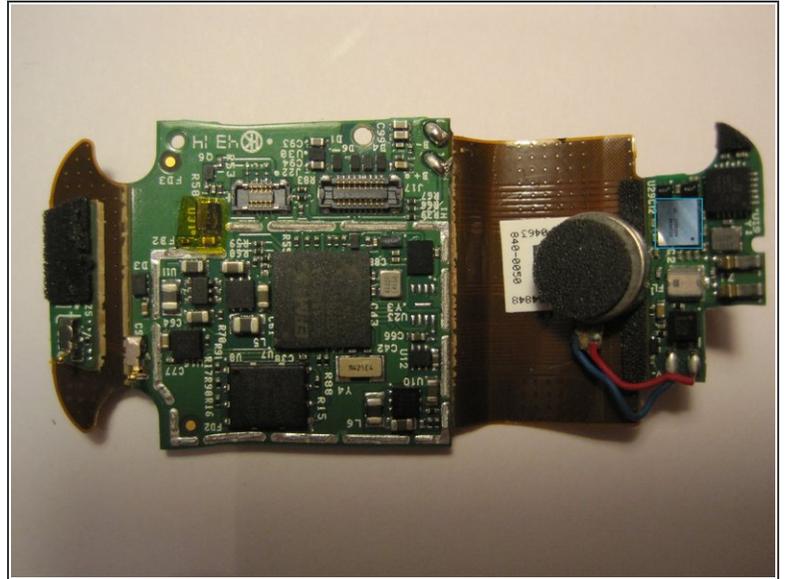
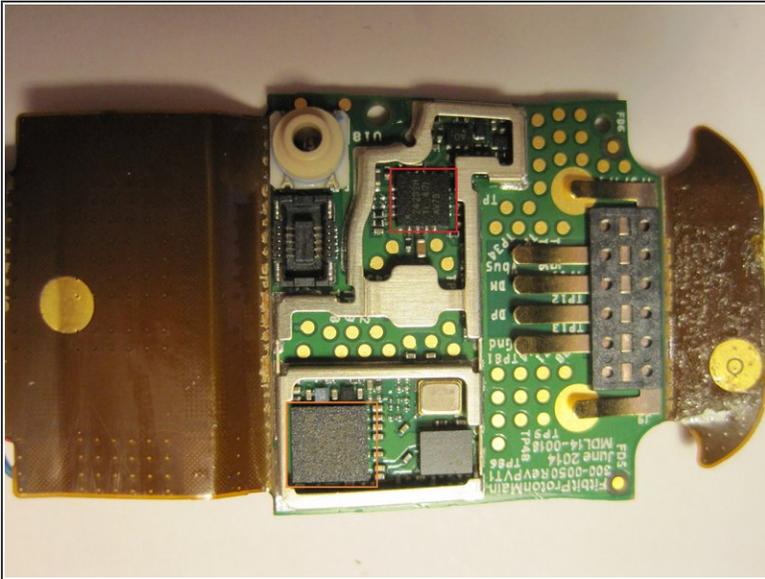
- Right after splitting Fitbit into 2 the first component is immediately exposed
  - Cypress [CY8CTMA463](#) touchscreen controller

## Step 7 — Microcontroller



- After removing the large shield on the main PCB the brains of the gadget become visible
  - Silicon Labs EFM32 Giant Gecko (ARM Cortex-M3) [EFM32GG395F1024](#)
  - Micron Serial NOR Flash [N25Q064A11ESEA0F](#)
  - (Cypress touchscreen controller still visible here plugged into the main PCB)

## Step 8 — The other side



- After removing the battery holder the main PCB can be carefully dislodged from the plastic body
  - Texas Instruments Battery Charger [BQ24232H](#)
  - MediaTek GPS Receiver MT3339 (couldn't find any datasheet, just a [press release](#) on it)
  - Texas Instruments Bluetooth Controller [CC2564](#)

## Step 9 — LCD and back side



- The LCD is secured with 3 very visible screws on the bottom side
- Sharp TFT-LCD [LS013B7DH01](#)

## Step 10 — Family photo



- Here are all the parts after the teardown