adafruit learning system

Reebok CheckLight Teardown

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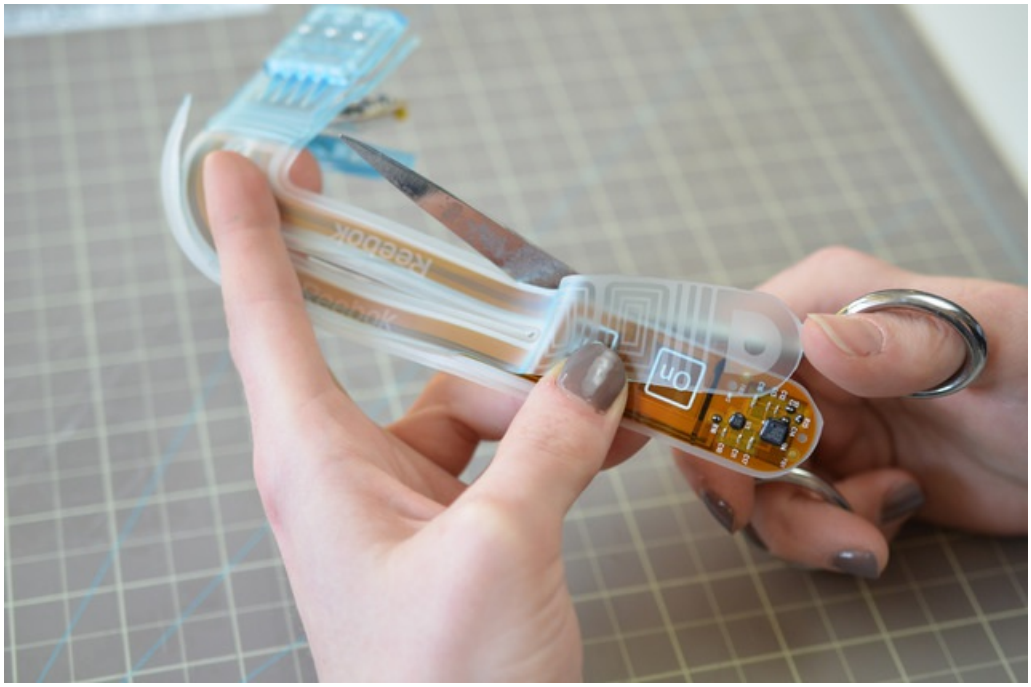
Guide Contents

Inside the Reebok CheckLight

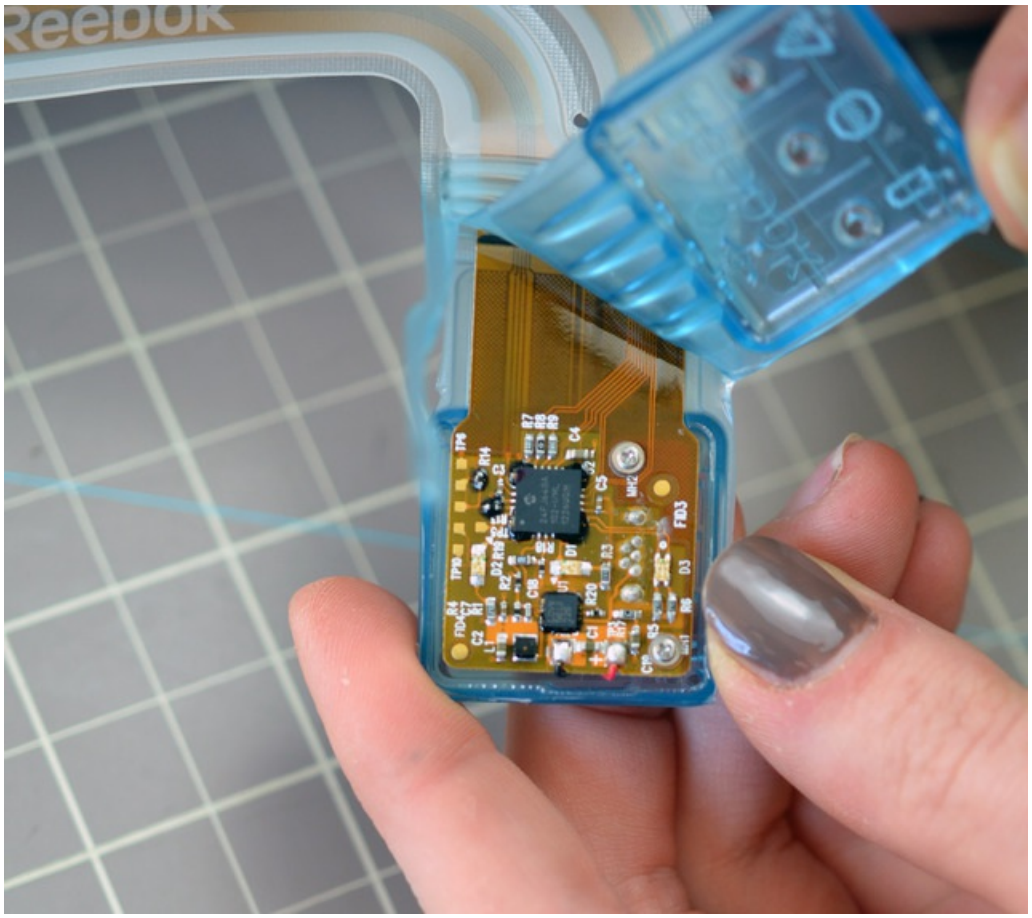
The Reebok CheckLight (https://adafru.it/d9Q) is a sports activity impact indicator for athletes at risk of head injury, like football and hockey players. The lights at the back of the neck light up in reaction to severity and cumulative number of head impacts as sensed by an accelerometer and gyroscope.

The components inhabit a flexible PCB that fits inside a slim skullcap, with a molded plastic enclosure that keeps the logic sections stiff and allows the midsection to bend along the athlete's skull.

The CheckLight uses traces on the flex PCB as capacitive on/off buttons behind the ear.

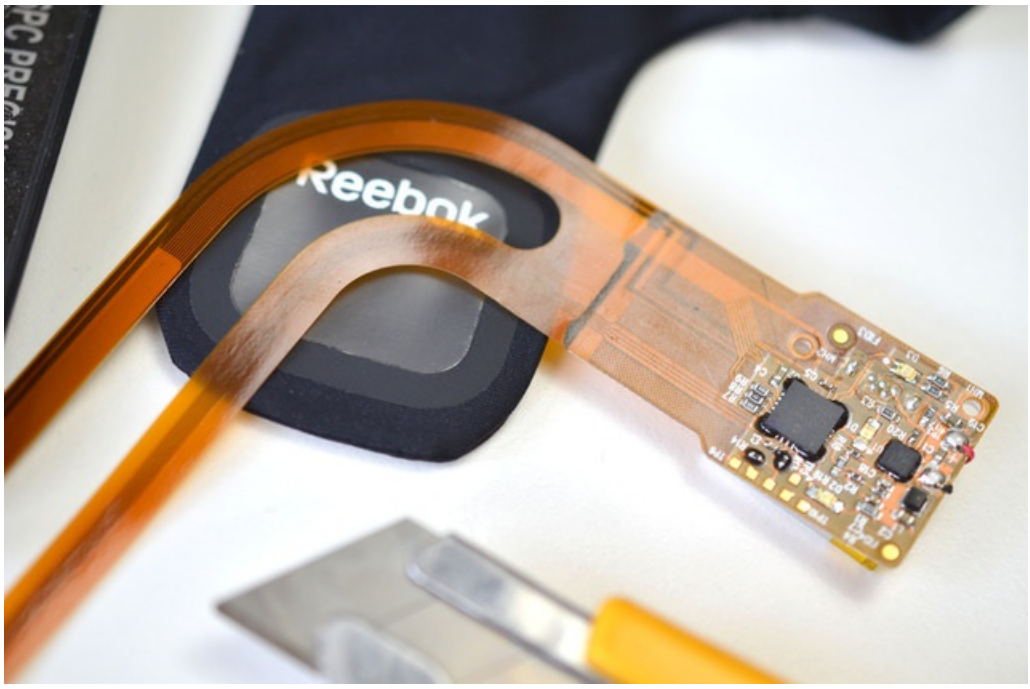


We used scissors and a utility knife to cut away the plastic enclosure to reveal the flexible PCB inside.



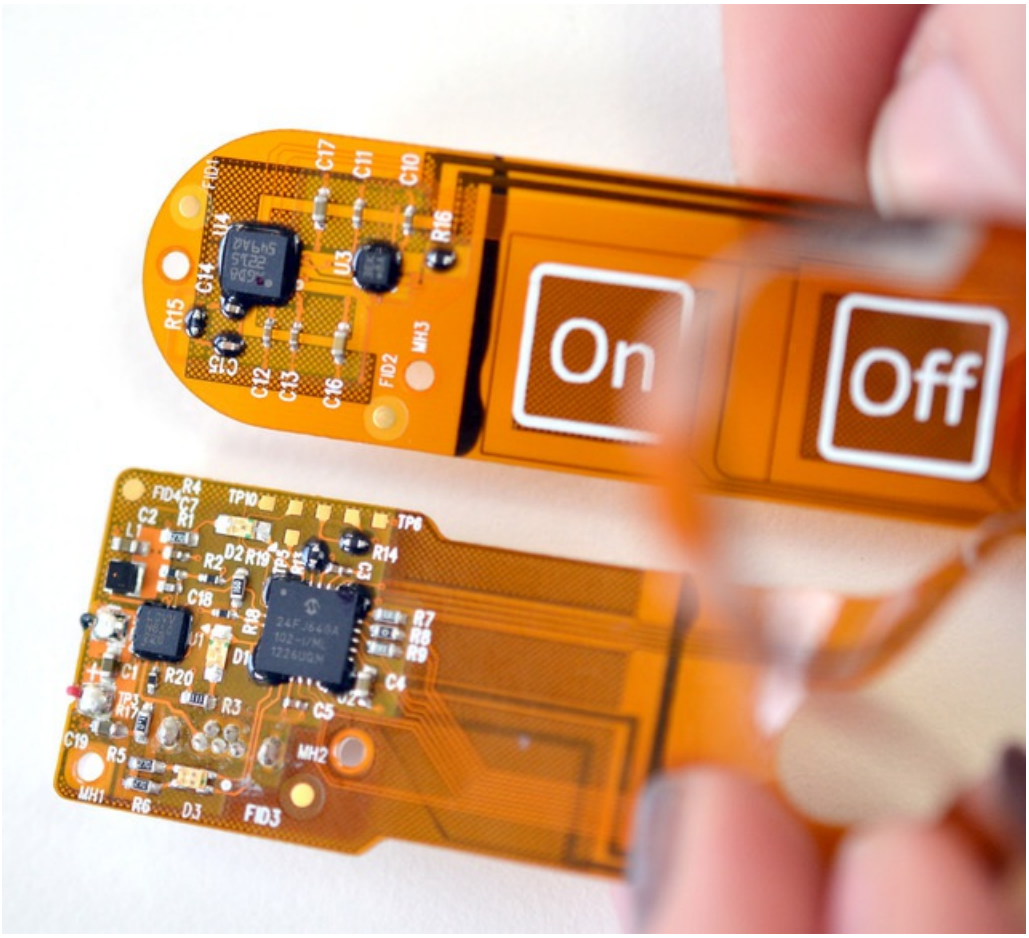
Two philips screws affix the logic end of the board to the enclosure-- we removed them with our six-piece screwdriver set.

We used a USB microscope to closely inspect the parts on the board.



Ladyada looked up the parts in the CheckLight! They are:

- LTC4080 Linear Tech battery charger & buck converter
- 24FJ64 PIC microcontroller
- ADG8 L3GD4200 STMicro gyroscope
- BMA250 Bosch accelerometer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