Reverse engineering challenge

By Cristian Bele

What did I choose and why?

The device I chose to deconstruct were my old pair of headphones. I chose these headphones because they were one of the devices I used on an almost day-to-day basis. They have served me well over the years, but unfortunately they do not work anymore, and I figured the best way to put these headphones to "rest" was to deconstruct them and figure out what was actually inside them.

Speakers

When you first open up the headphones, you find these pieces of plastic, and in the middle of these pieces is a magnet. With this information, we can deduce that these are the actual speakers that sound comes through. The magnets allow the speaker to transmit sound waves to your ears.

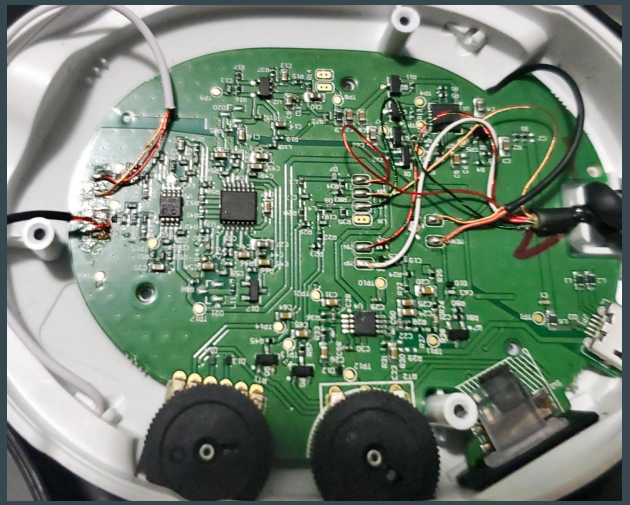
Left

-

Right

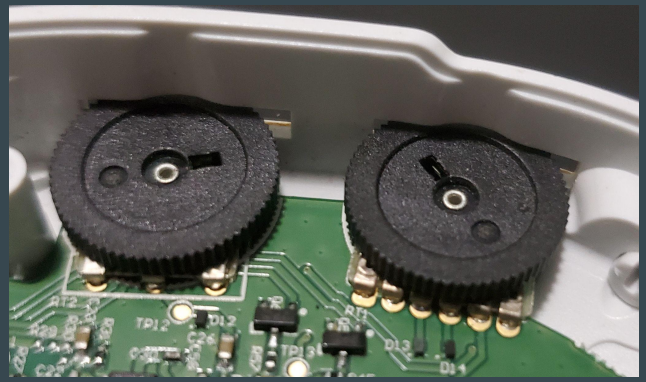
Circuit board

Just below the left speaker is a green board that many people will recognize as the circuit board. A circuit board is a board with circuits printed on it; its purpose is to connect all the electronic components to each other.



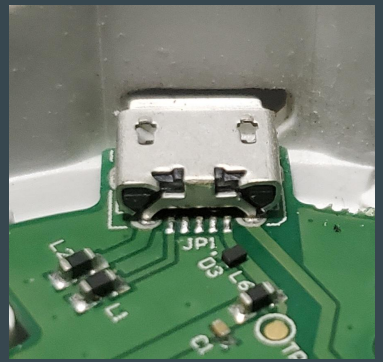
Volume wheels

Next to the circuit board, we have these two black wheels that rotate up to a certain point. Just under the wheels, you can see two components printed on the circuit board. These detect how much the wheels spin.



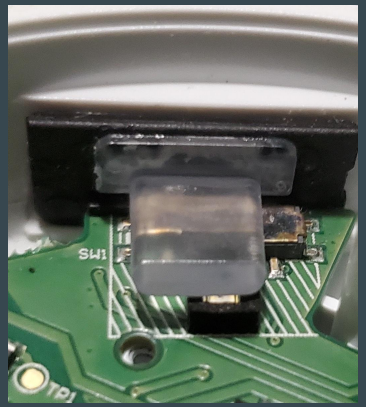
Charging port

This little piece of metal connects the motherboard to a cable outside the headphones. This port was specifically designed to fit a charger cable to provide electricity to the headphones.



Switch

To the left of the wheels, there is a small piece of plastic that slides up and down. This is a switch. A switch usually controls something like the flow of information, but this switch actually controls the power. When the switch is in the off position, it will not allow power to flow to the circuit board and, in turn, to the rest of the components.



What I learned

This has been the second object that I have reverse engineered, but the first electronic device. The first thing i learned is that safety is a must; my headphones were dead and could not electrocute me, but other devices could easily electrocute you or worse. The second thing I learned was that learning how a device works is way more fun when you take it apart with your own hands than watching someone else.