

Otamatone teardown

Ever since getting a classic series [Otamatone](#) of my own, I wondered how the circuitry inside worked, although I haven't been able to find any images of one's internals online, with the said fact prompting the creation of this article.

Note: The process was photographed in a rather haphazard manner, with more attention paid to the electronics; thus, some details (e.g. how the head is assembled) aren't shown.



Preparing for disassembly

Disassembly photos

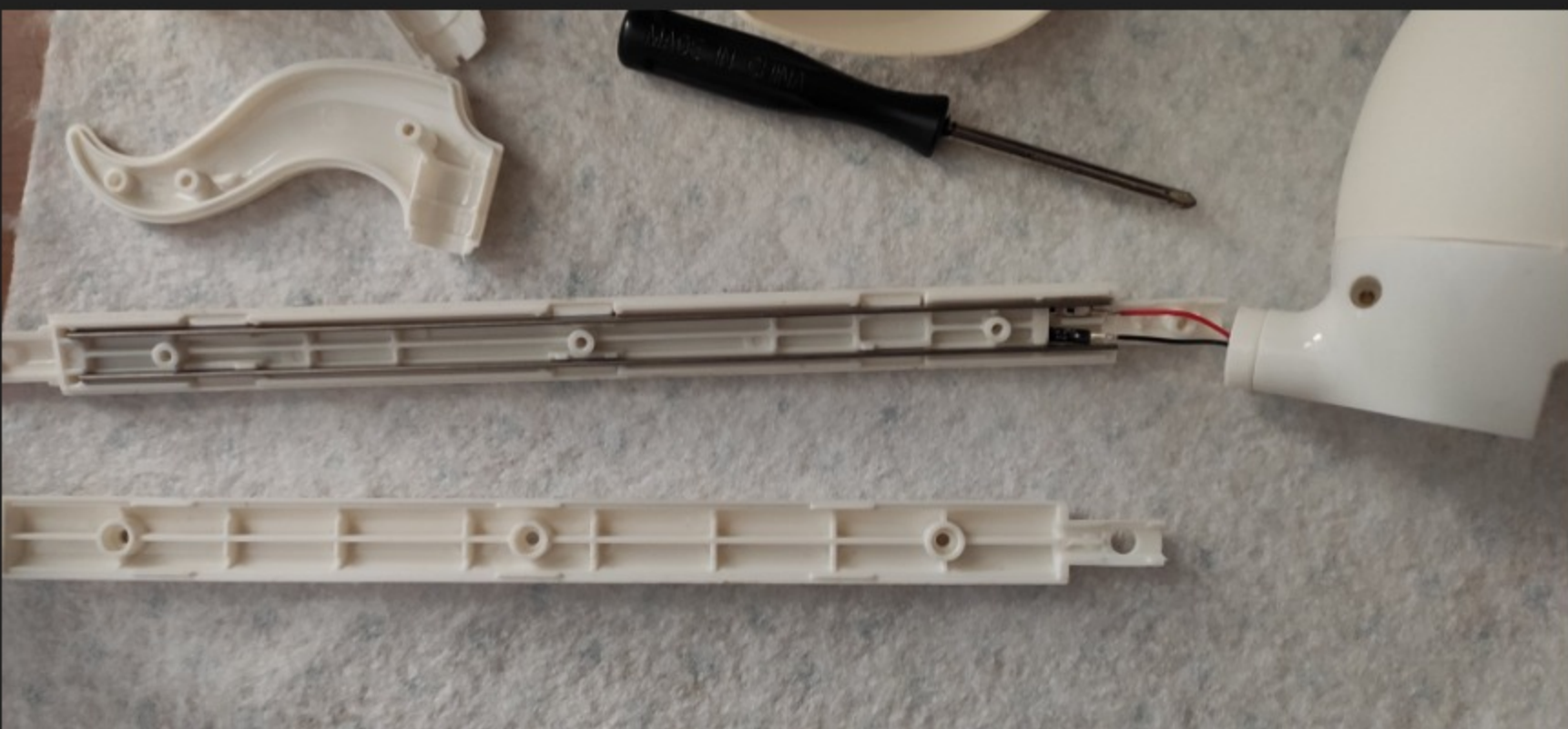
I started by removing all screws visible throughout the body of the instrument.



All screws used are the same length, except for that at the very end of the Otamatone's tail.



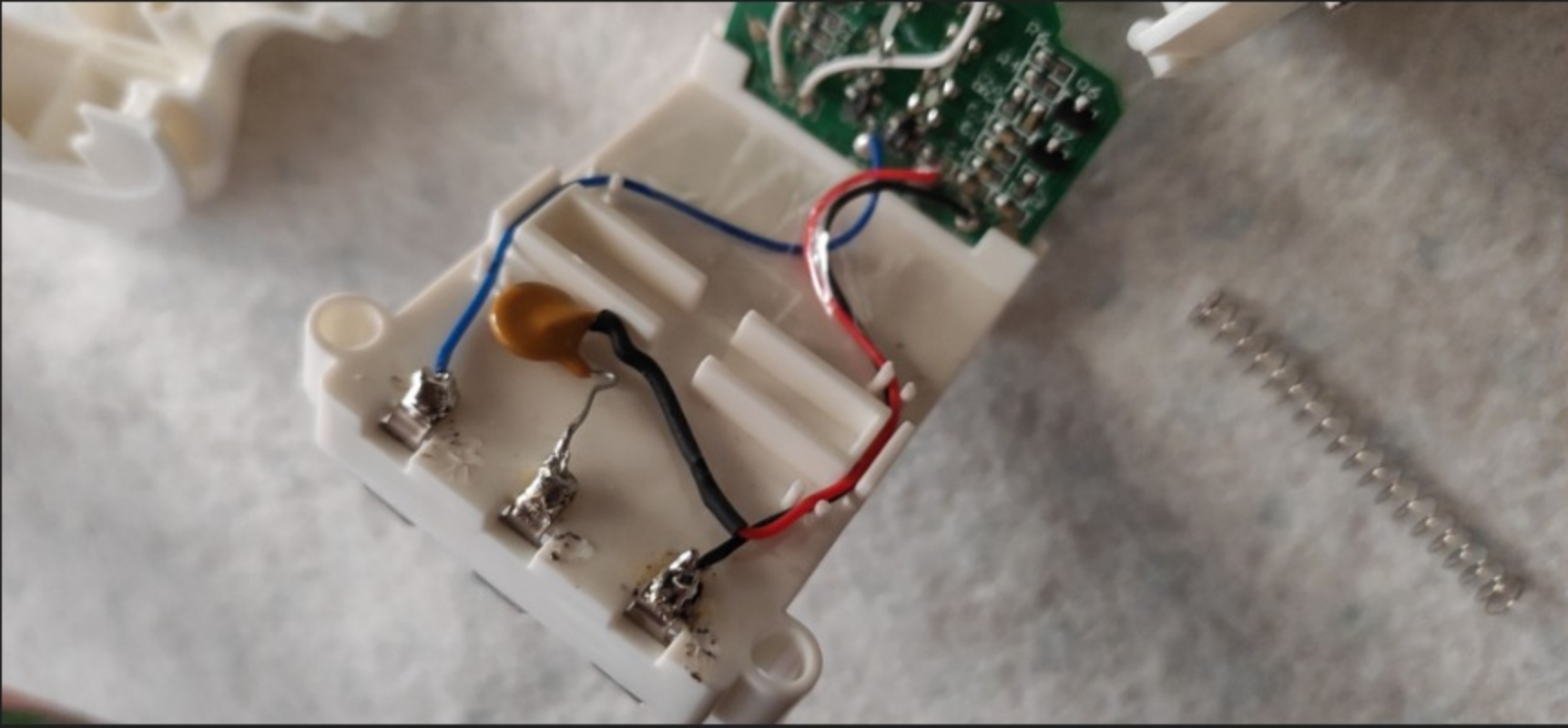
Opening the tail shows that the end of the neck is held together by a plastic ring and a red rubber band.



Inside of the neck are two metal bars for structural strength. The red and black wires lead to the finger panel, which acts as a variable resistor.



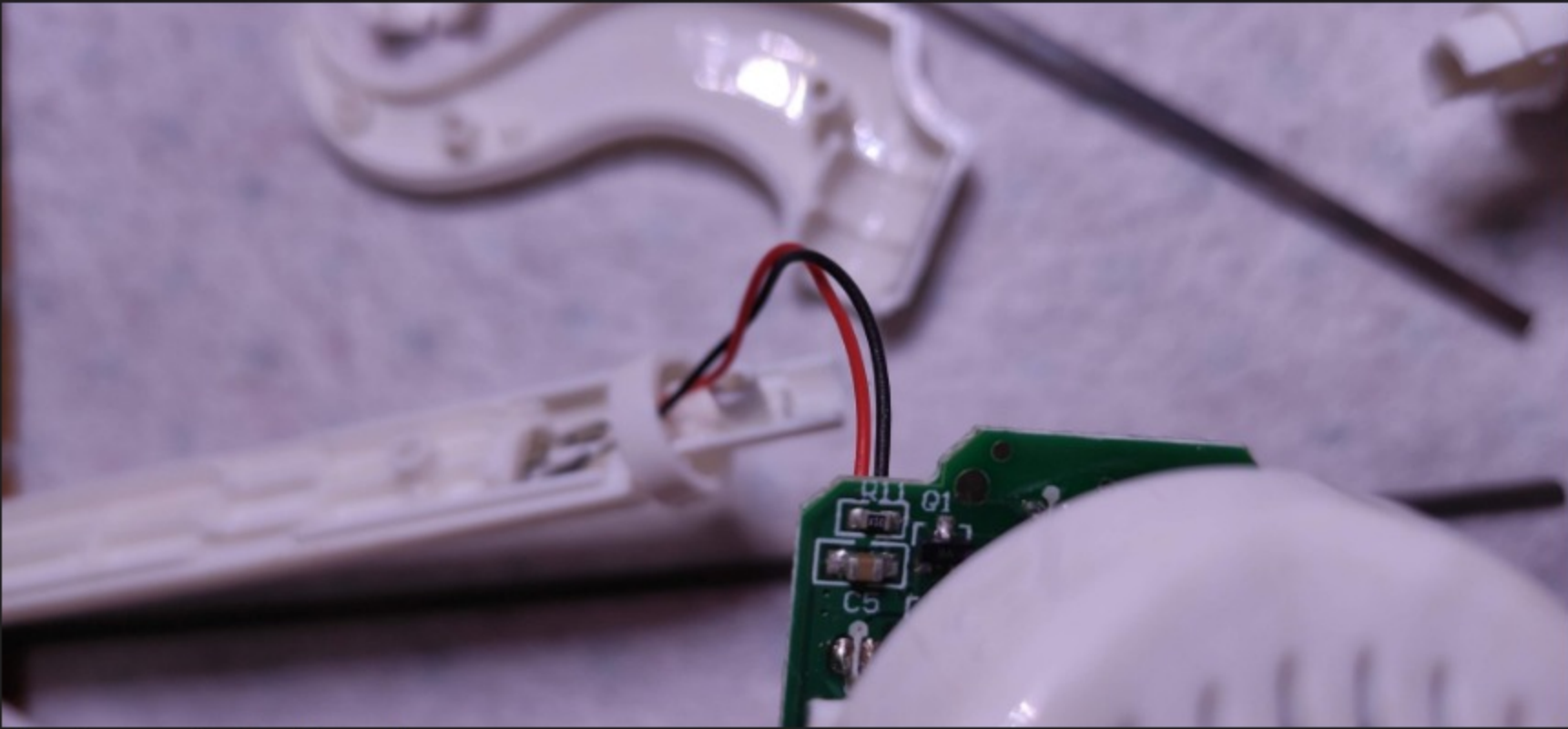
Opening the head requires the silicone front to be detached. *Note: this image was produced after the instrument was reassembled due to me forgetting to take it earlier.*



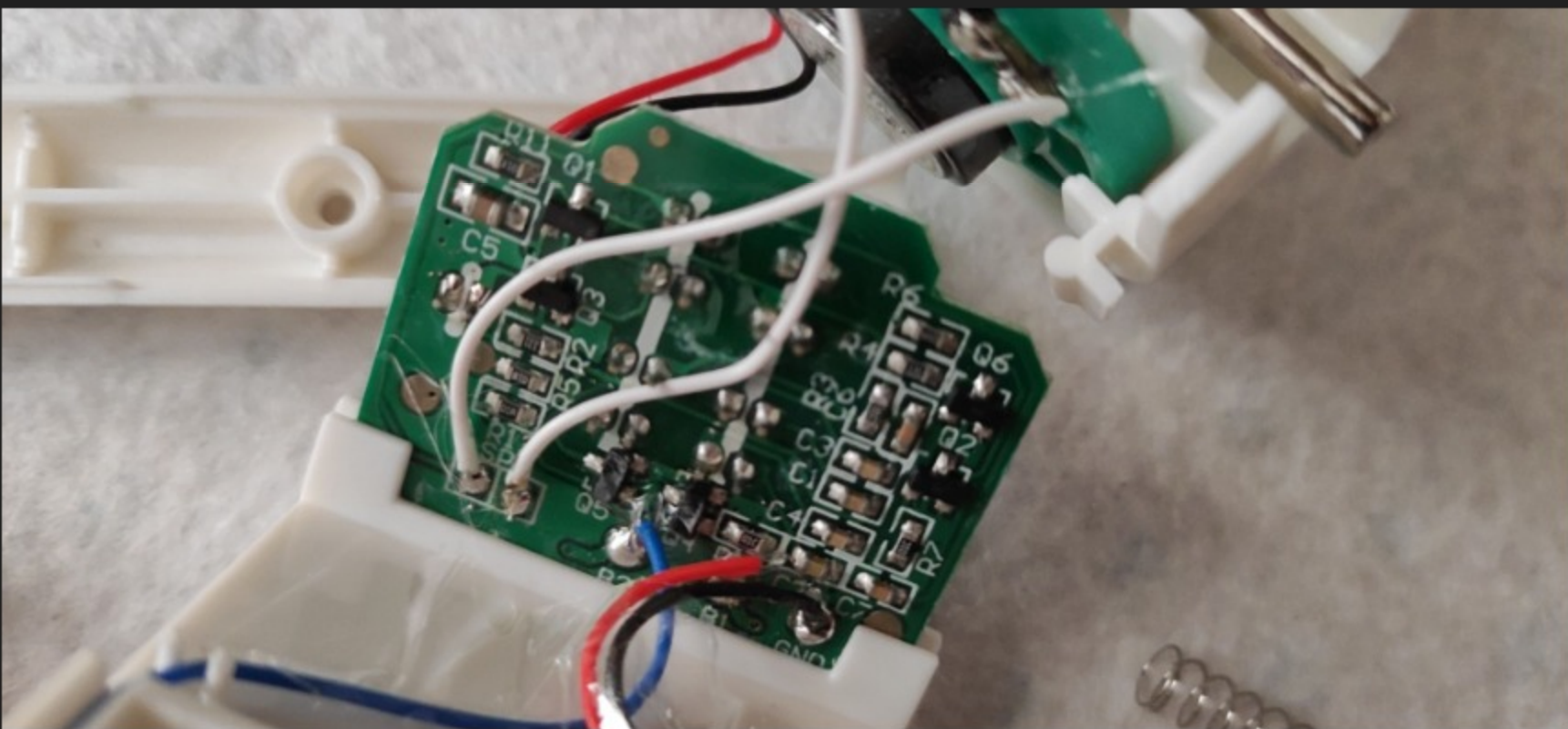
A polyfuse for overcurrent protection?



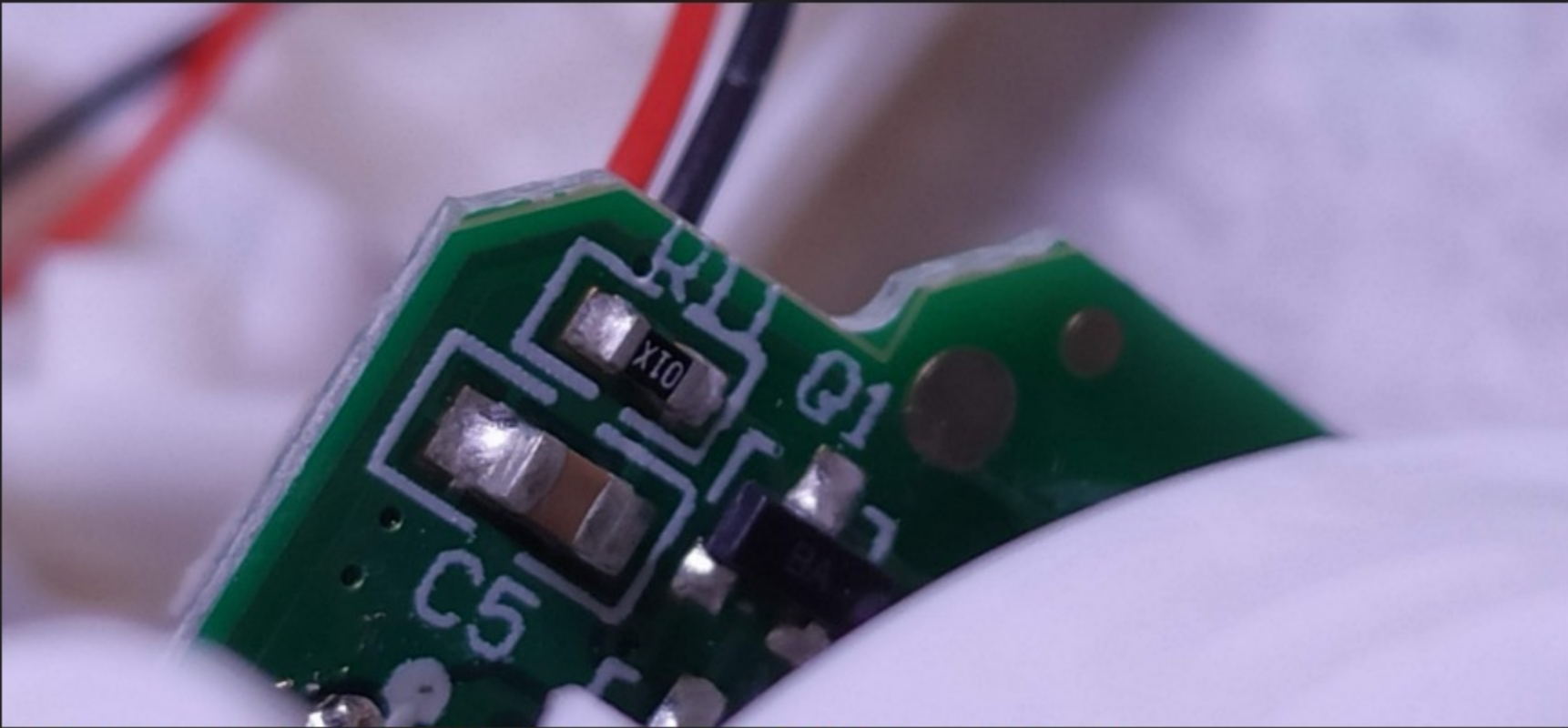
The speaker is a standard 8Ω, 0.25W one.



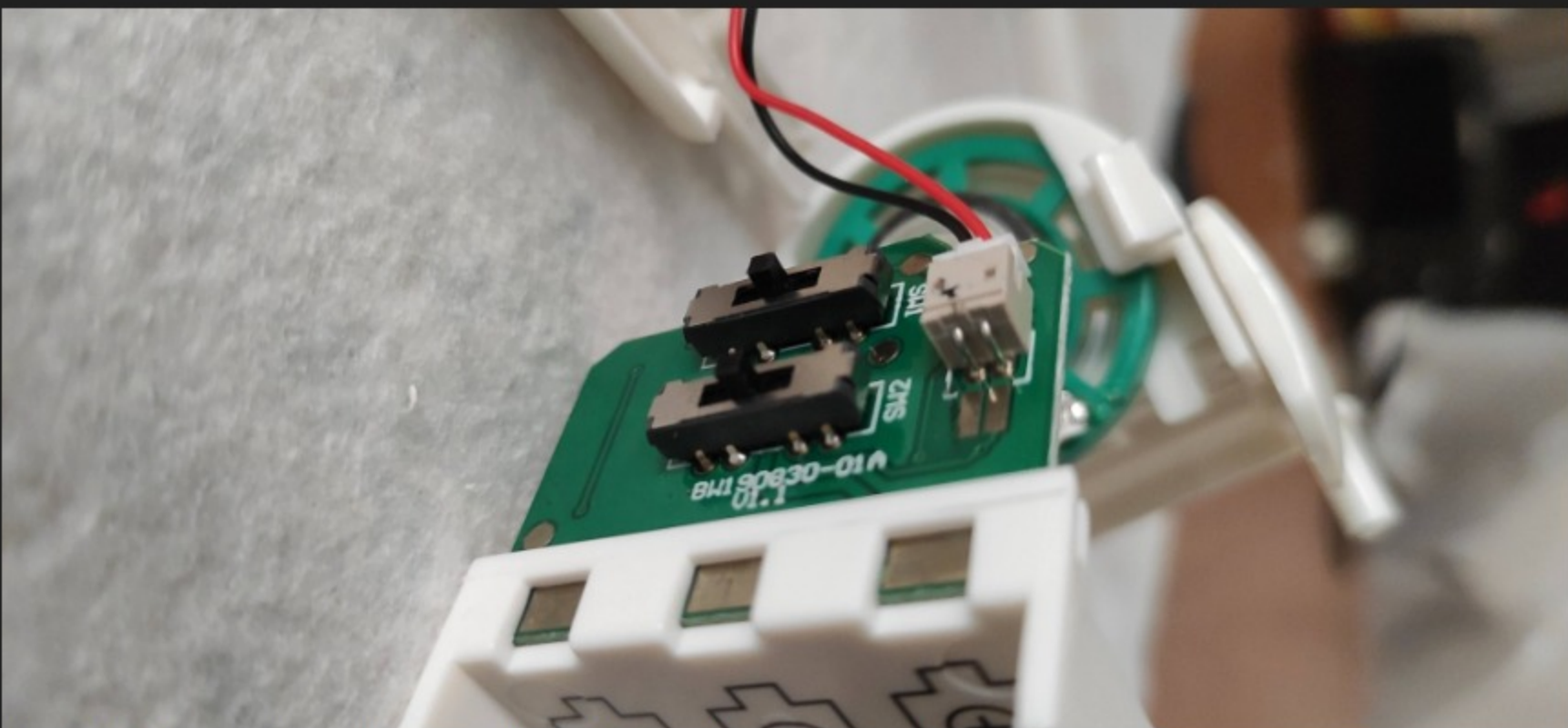
The wires coming from the neck.



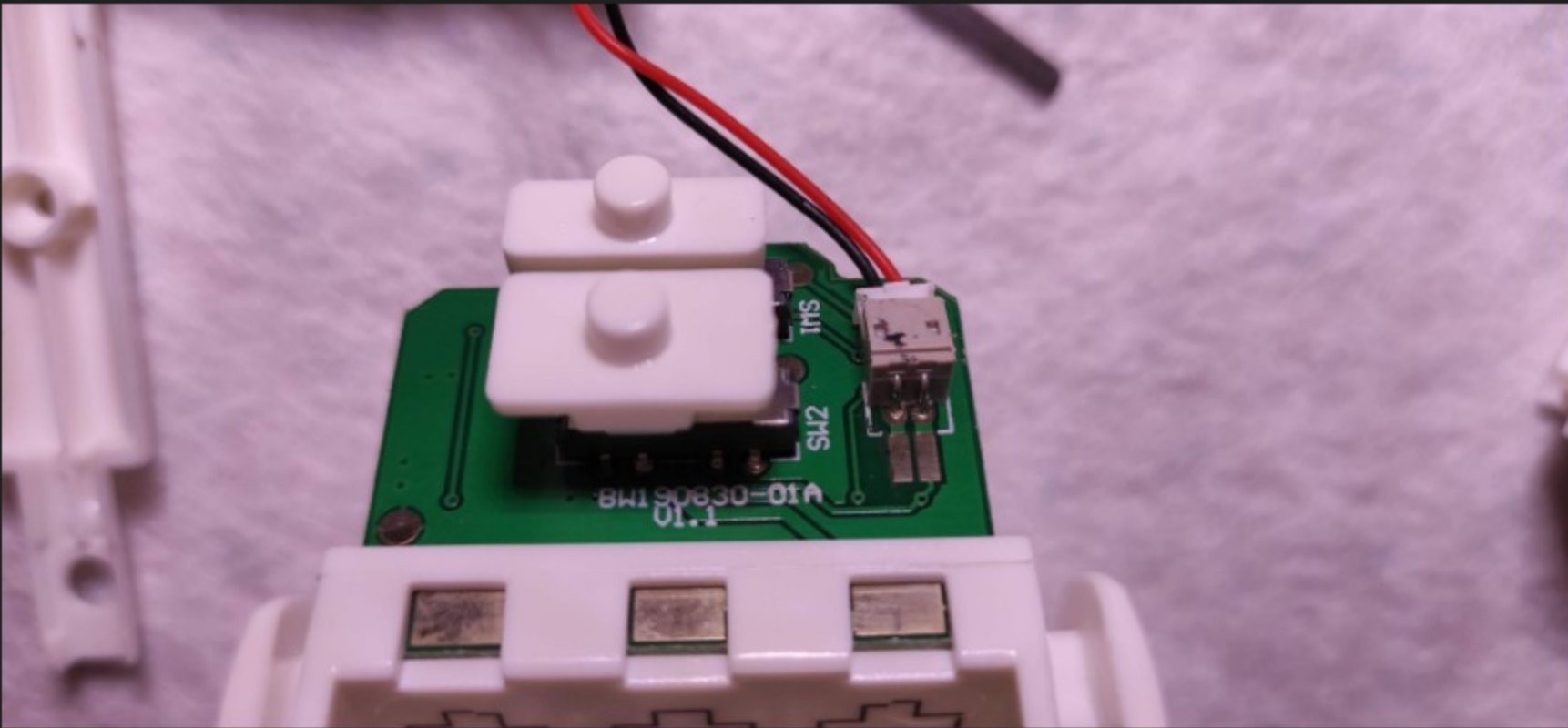
The rear side of the circuit board. It shows that the circuitry is based on discrete transistors as opposed to an op-amp chip, which is quite notable.



An SMD resistor unusually marked 01X, apparently an [EIA-96 marking](#) for 10 ohm ± 1%.



The front of the circuit board, showing the switches and the finger panel connector.



Despite the different widths, the order the switch caps are placed in seems not to matter for reassembly.

Conclusion

Several details which I consider to be of interest have been spotted.

- The circuit used only contains transistors - no integrated circuits are present!
- There's what appears to be a polyfuse present in the battery connections to prevent short circuits; I wonder why was it considered necessary.
- Several SMD resistors on the circuit board have unusual markings of a high-precision type, which, as I believe, is the first time I've ever encountered those.

I reassembled the Otamatone afterwards and it seems to work properly, ~~that's is rather impressive noting my skills~~—P