

This post is intended to give a quick look at the hardware setup for the 60<sup>th</sup> Anniversary Made With Magic ear hats. I don't have the capability to really dig into the details of the various components nor their connections. But, hopefully, this presentation will shed a little light on the changes that have been made between this model and the previous model that was described on the Mulluzi Labs page at <https://08milluz.wordpress.com/2013/11/11/glow-with-the-show-ears-teardown/>

We're focusing on these guys:



The first difference that was noted is the location of the on/off switch. It's now on the outside of the cap on the bottom edge of the right ear instead of being inside the top center of the cap. This is much more convenient while wearing. You don't have to take the cap off to control the power to the ears. Nice change:



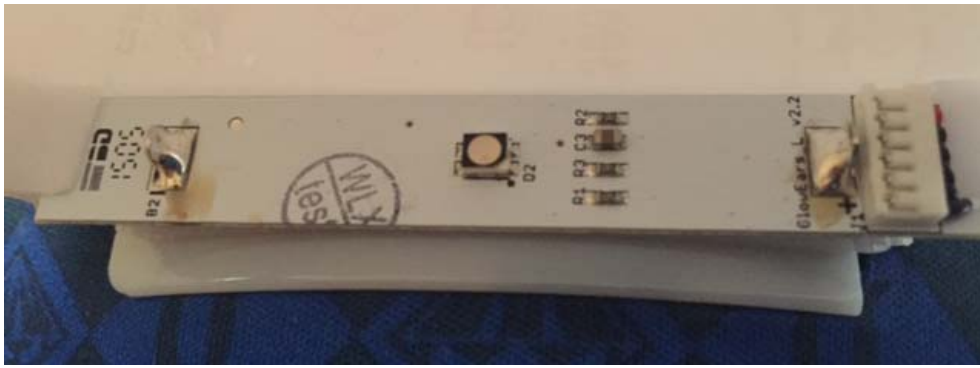
If you are used to the on/off switch being inside the cap and looked there first, you'd notice another change in design – there are now two battery compartments, one directly beneath each ear; there is a new wire connecting the batteries and no sign of a main circuit board. In this view, the black foam liner has already been removed. The connector is not visible without removing the foam liner and the battery compartments have black plastic covers that have been removed for this photo:



The circuit boards have been moved to inside the ears, one board in each ear. For this photo, the white plastic backs of the ears have been popped off to reveal the boards:



The board in the left ear mostly contributes one LED:

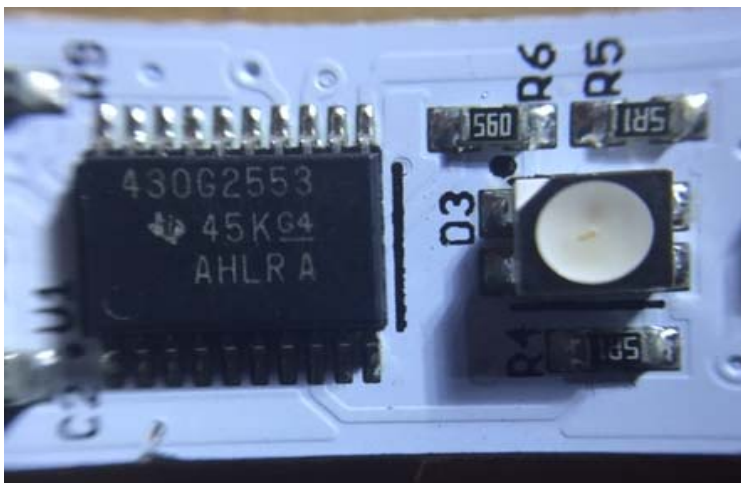


The label indicates this is GlowEars version 2.2. Those large soldered posts connect all the way through to the battery terminals in the compartments beneath. To release the board, those connections have to be desoldered. I couldn't come up with a way to manage that without pretty much destroying the hat. These devices are meant to remain 'as is'. Given that the dang thing doesn't fit my head at all, I didn't mind doing a destructive tear down, but it's good to know about this if you are one who likes to repurpose the components and hope to possibly reassemble back to the original in the future. This is probably not a good choice for such strategies.

The board in the right ear contains most of the main components:



I tried to take some close ups of the various components on that board but the lighting was pretty bad by the time I got around to doing so. It took a while to figure out how best to release the boards from their perches. With that caveat, looks like the processor remains the TI 430G2553:



Presumably the IR emitter and receivers:



Remaining components on the switch end of the board:



That connector between the two boards connects six wires from each board. One wire is red, the other five are black. The wires and the connector are both heavily glued into place and part of the cable runs between the cap fabric and the black plastic ear support piece. You get a glimpse of that situation on the far right side of this photo:



Freeing that wiring required some careful hat dissection. There doesn't seem to be much hope for an easy means to simply slip the wires through that assembly. Lots of glue. Lots.

I didn't spend any time trying to sleuth out the wiring setup. I'll leave that to others.

Once I got to this point, it became clear that this device doesn't lend itself nicely to being repurposed. There are other possibilities available, so I'll move on to those and describe what I find in future posts.