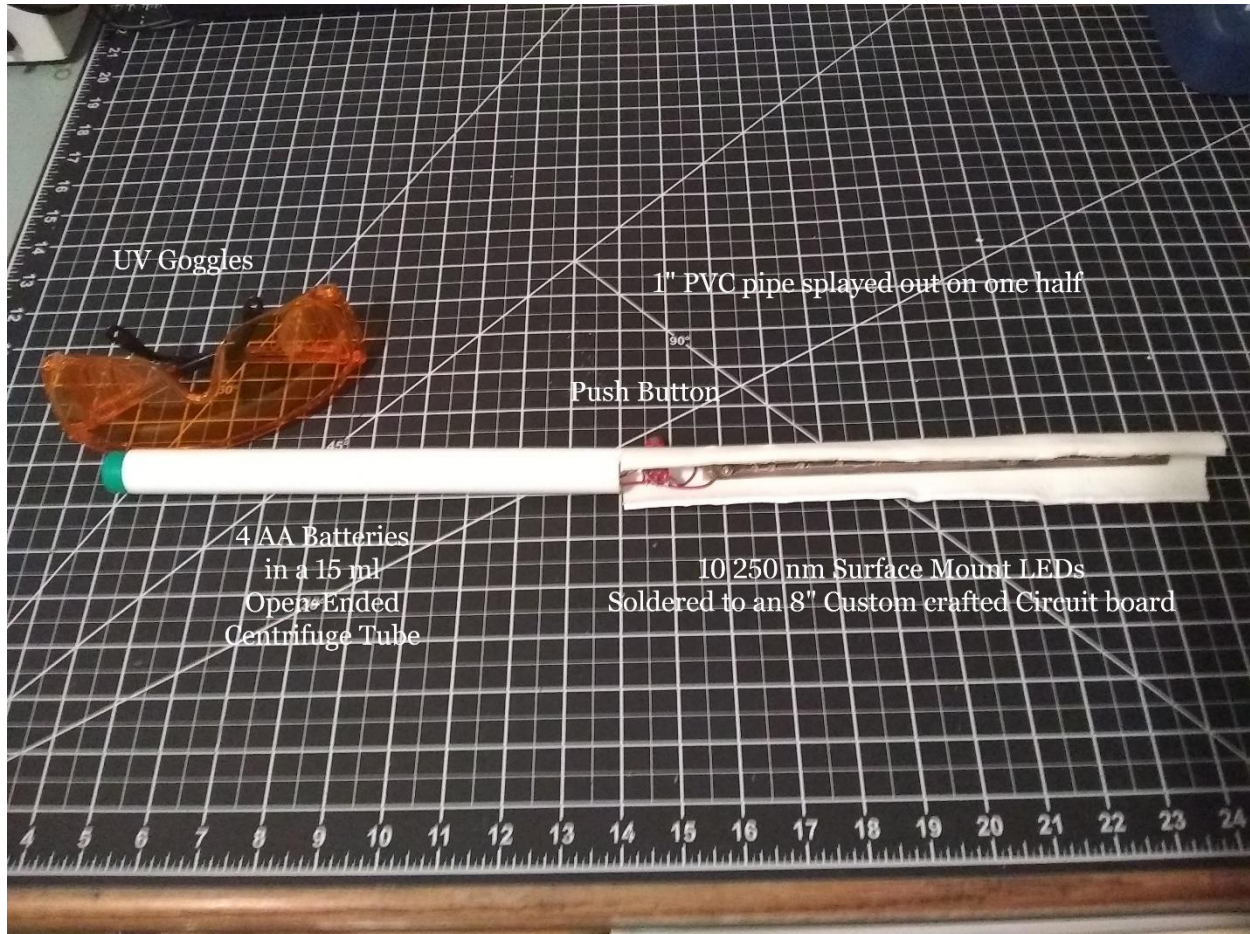


UVC Wand

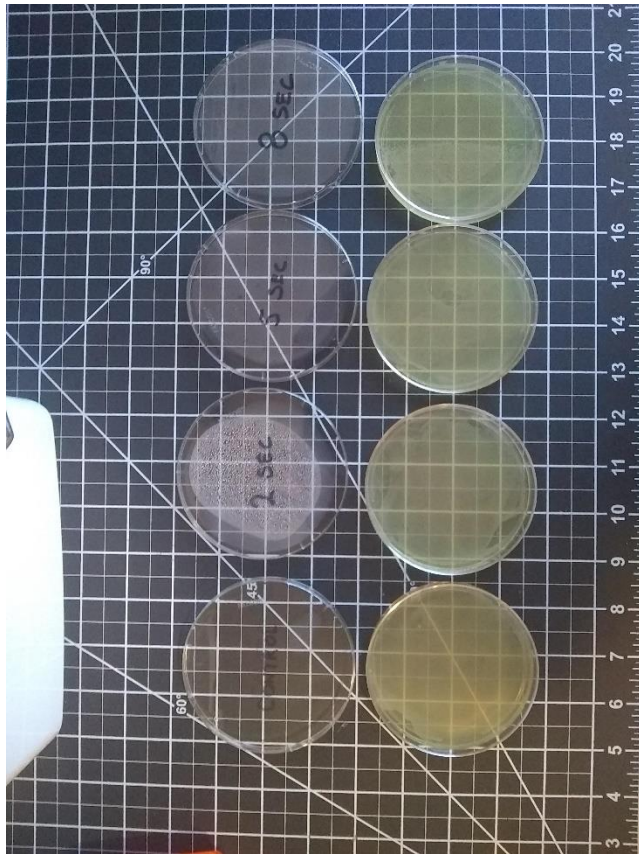
Construction April 2020



At the height of the COVID restrictions I decided to build a UVC sanitizing wand using 10 250 nm LEDs from China. These are pretty deep UVC and should kill about anything.



I checked the energy it was putting out using an LTR390 UV sensor I got a reading of 4.3 mW/cm². That's not much but its enough to give you a tan and certainly enough to kill bacteria. The question remains is it strong enough to break the tough capsids of viruses?



I checked the bacteria killing power using the DH α strain of *E. coli* on agar plates. I covered half of the plate and exposed the half plate for 0, 2, 5 and 8 seconds using the wand at 1 inch above the plate.

There were still a few *E. coli* colonies at 8 seconds but the results are clear that the wand kills bacteria.

The second test was to repeat the above using T4 bacteriophages that had been exposed to the UV radiation for 5, 10 and 20 seconds and seeing how many clear spots emerged on a field of DH α *E. coli*. The results were less conclusive probably because the T4 from Carolina Scientific were not as dense as advertised.