

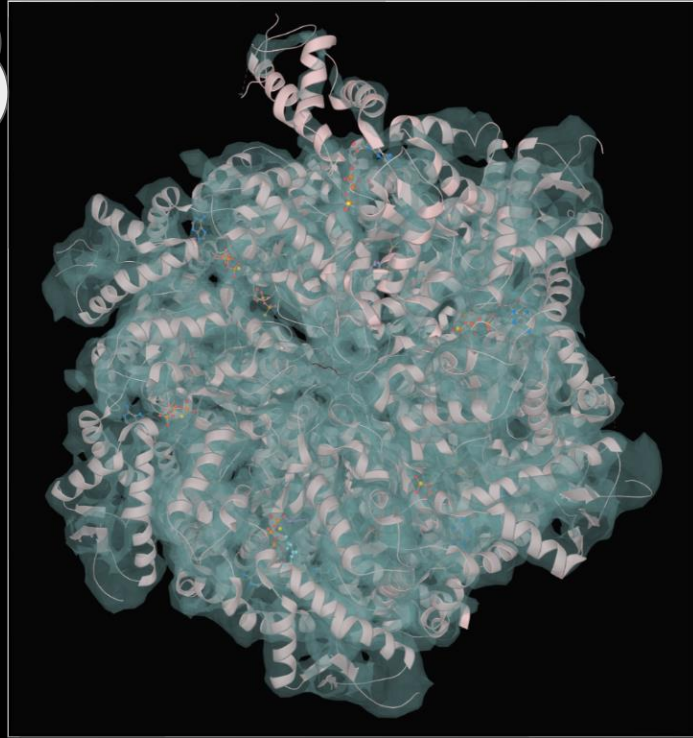


MOO'D presents

The Casein Allergy Sensor

Emily Case, Chloe Curtis, Grant Kresge, Ian Oakes

I can cause
anaphylaxis!





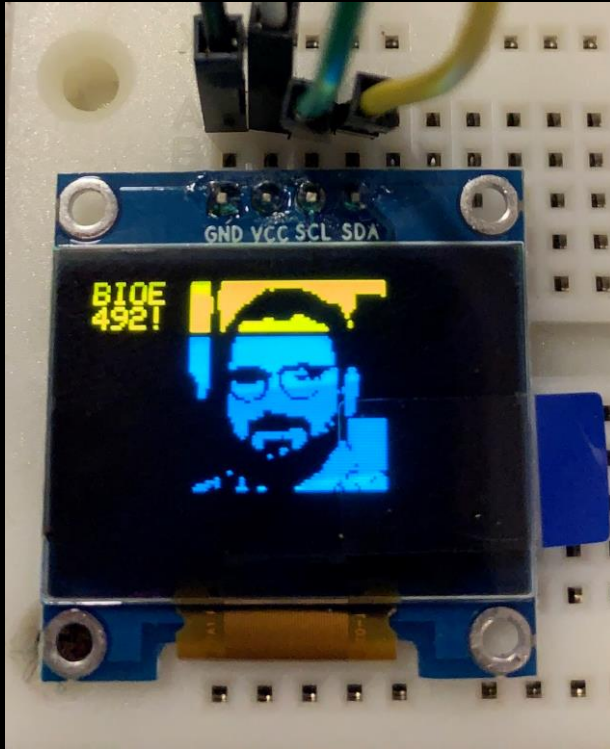




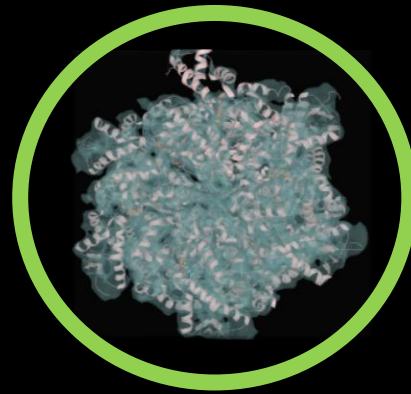
Existing Solutions



Market Competitors

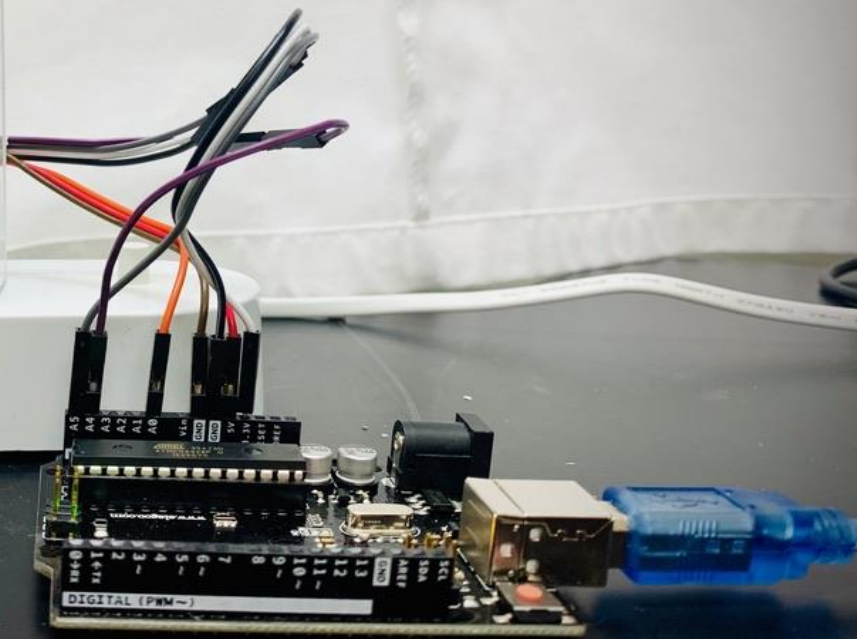


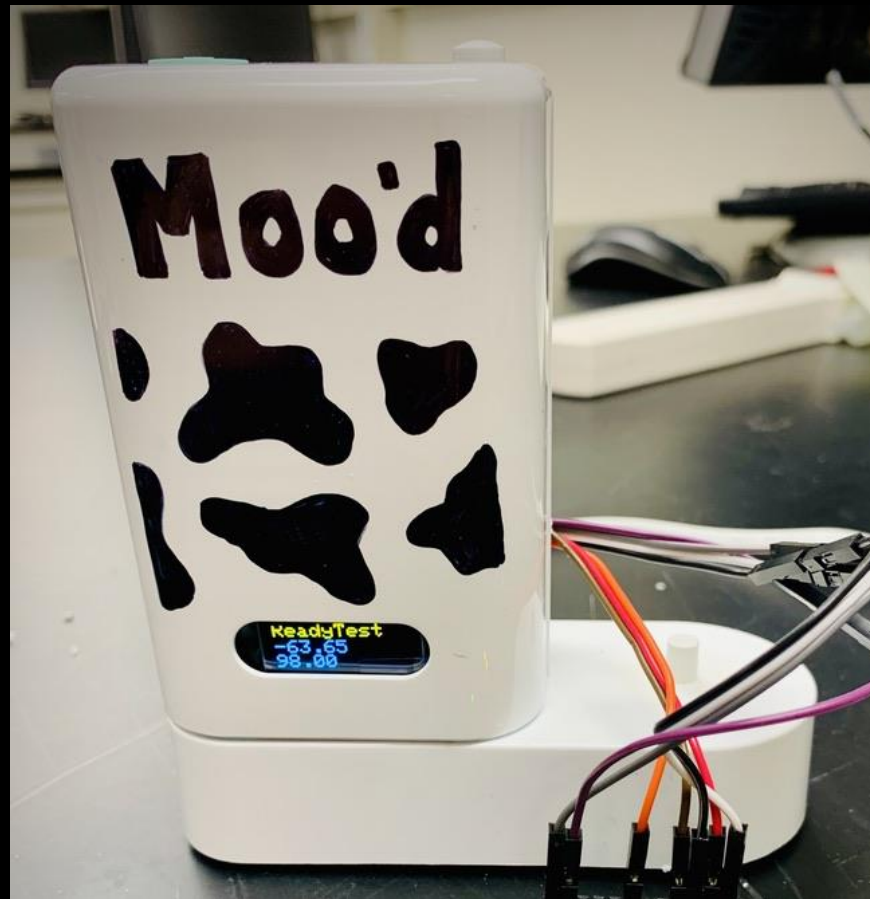
Display

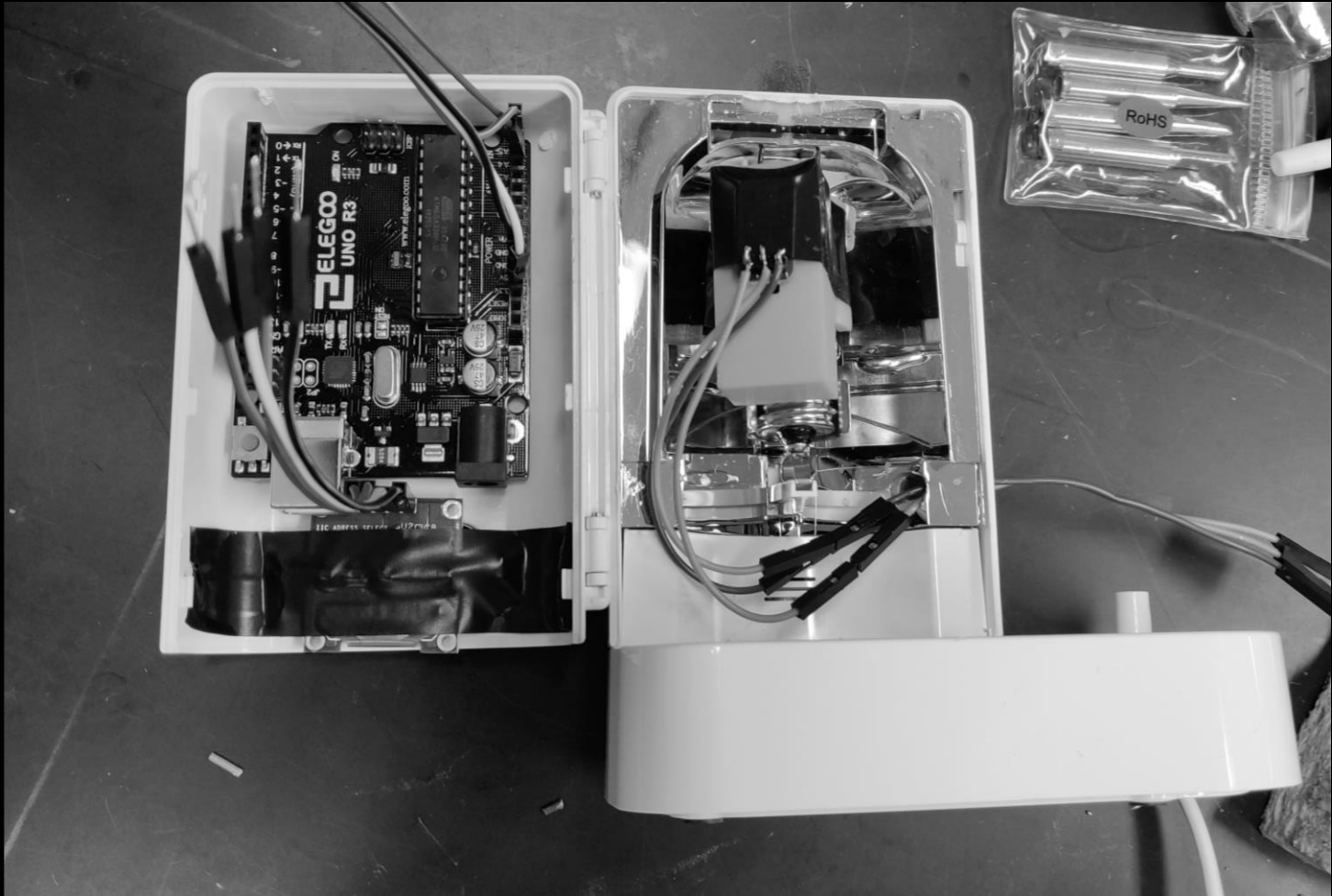


Selective Detection Method

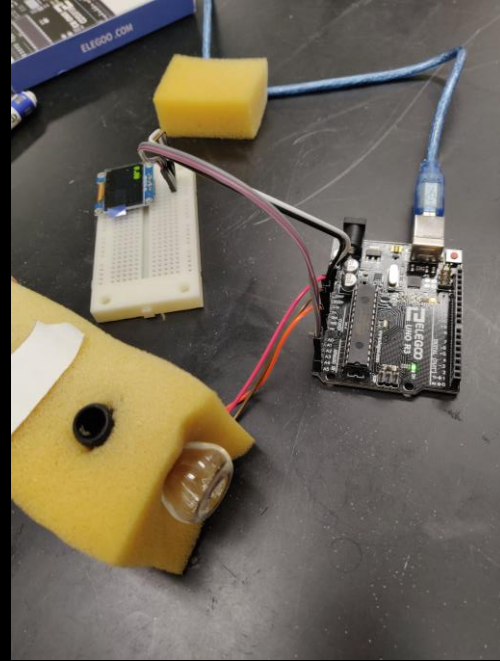
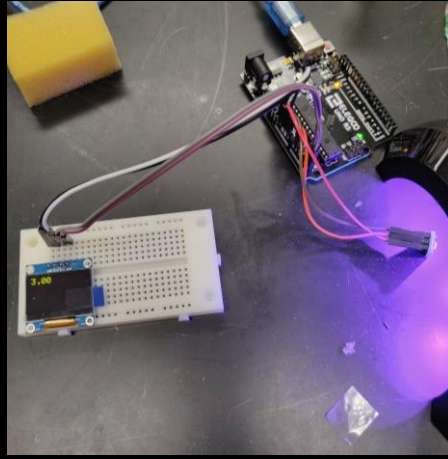
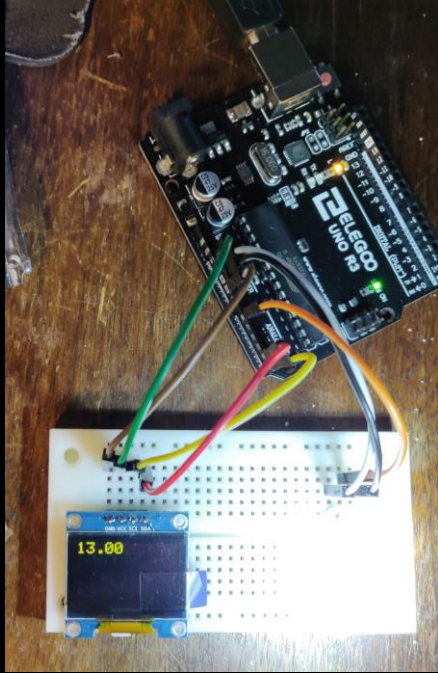
Introducing...



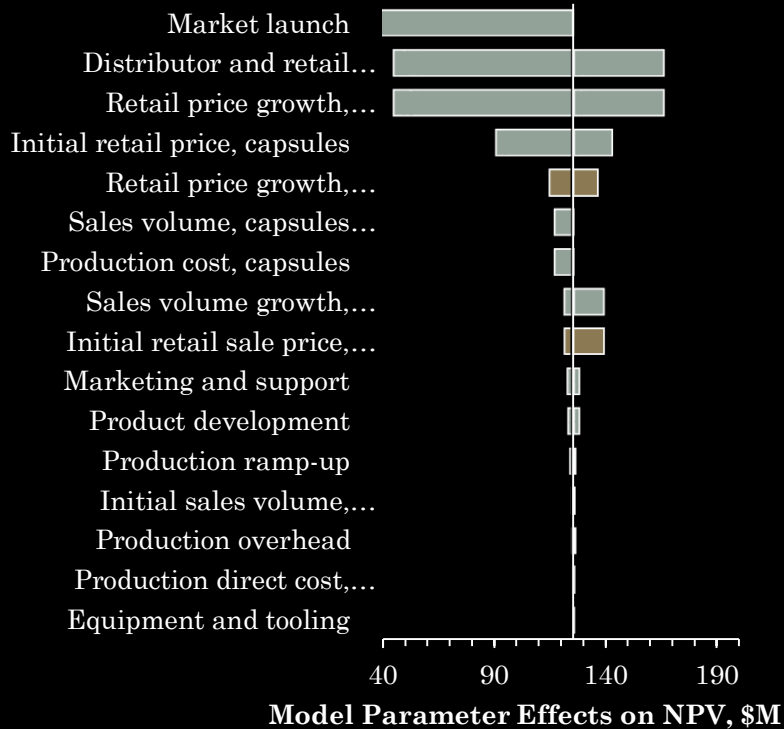








Time	Wk 1	Wk 2	Wk 3	Wk 4	Wk 5	Wk 6	Wk 7	Wk 8	Wk 9	Wk 10	Wk 11
Acquire casein isolation chemicals(1L acetic acid, 1L diethylether, 1L ethanol), Casein isolate powder(amazon)	█										
Develop safety protocol (Hood for acids)		█									
Test casein isolation & resuspension w/o bioconjugation		█	█	█							
Identify buffers to test for dissolving food and food samples to dissolve					█						
Test casein isolation w/ food				█	█	█					
Acquire/Order materials for arduino	█										
Build arduino		█									
Program arduino software		█	█	█							
Use test apparatus to verify arduino works					█	█					
Make standard curve with casein							█	█	█		
Test arduino with isolated casein solution									█	█	
Obtain UV cuvette									█		
Complete solidworks model of device									█	█	
Design rudimentary testing apparatus							█	█	█		
3D print/build testing apparatus									█	█	
Print 3D model of physical product									█	█	
Test physical product with relevant solutions									█	█	█

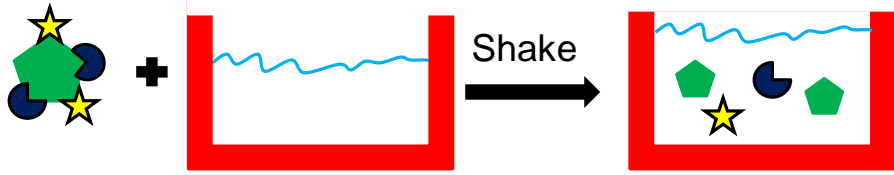


Item Bought	Budget Spent	Budget Left
Ethanol	\$5.23	\$194.77
Acetic Acid	\$13.79	\$180.98
Toothbrush	\$10.99	\$169.99
Arduino	\$10.99	\$159
Wires	\$7.8	\$151.2
Sensor	\$6.5	\$144.7
Power Adaptor	\$8.99	\$135.71
Screen	\$6.99	\$128.72
Total	\$71.28	\$128.72





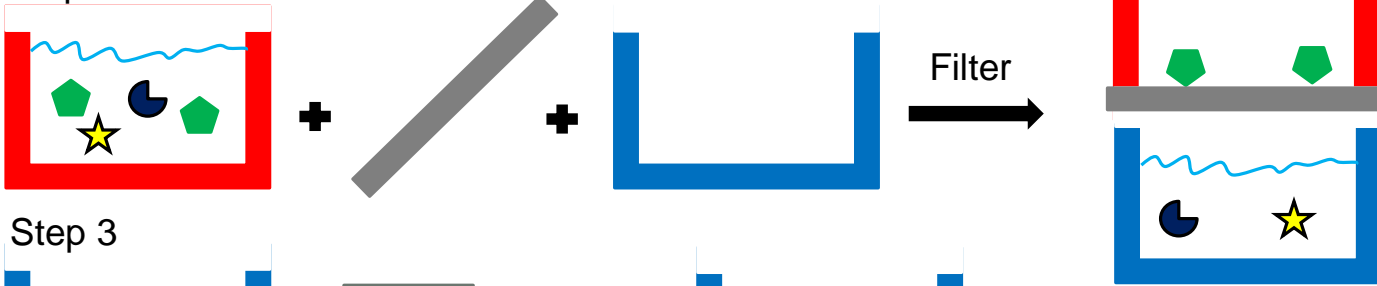
Step 1



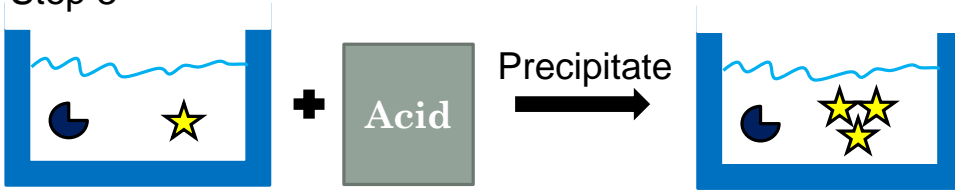
Legend

- Large Food Sample
- Casein
- Precipitated Casein
- Other Proteins

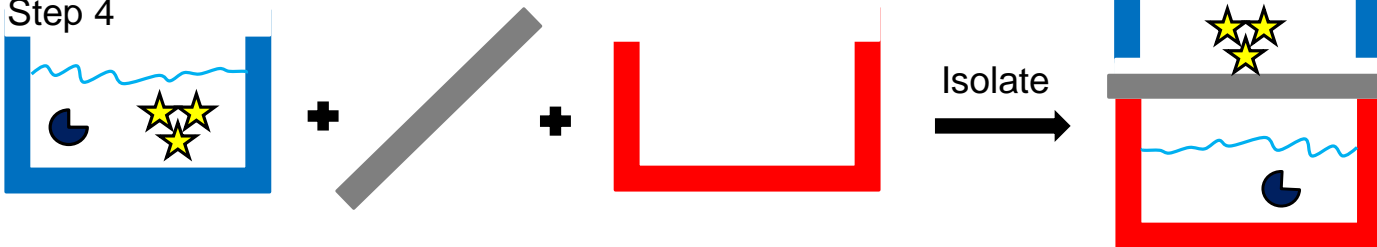
Step 2



Step 3

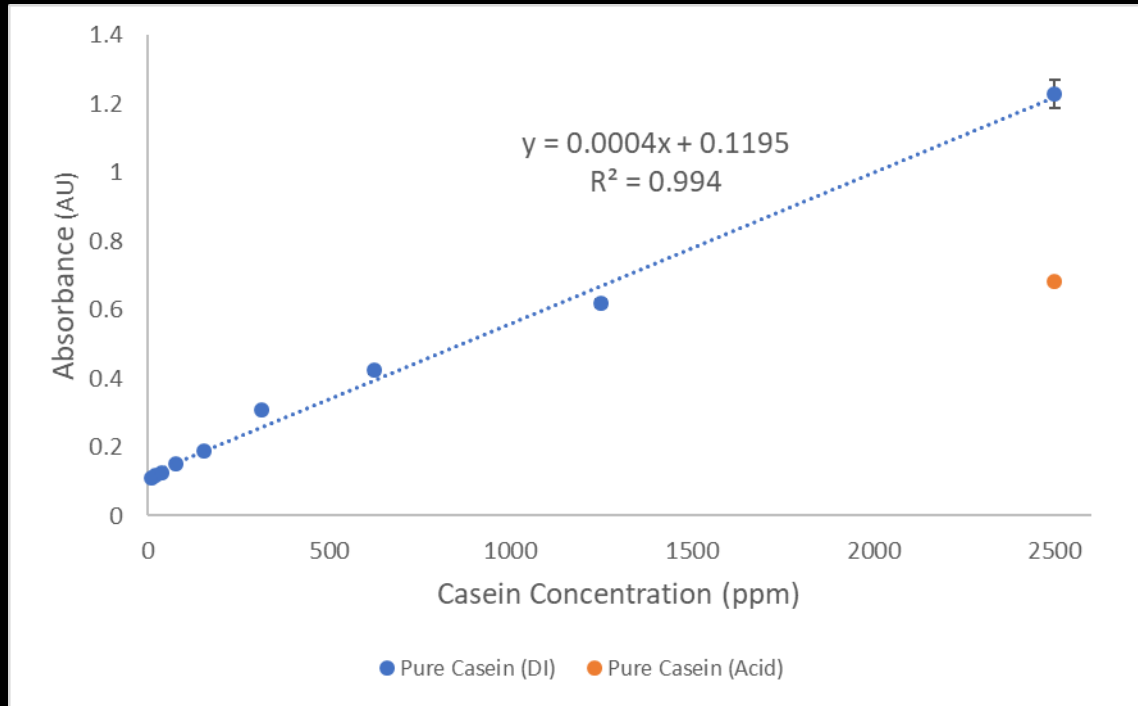


Step 4



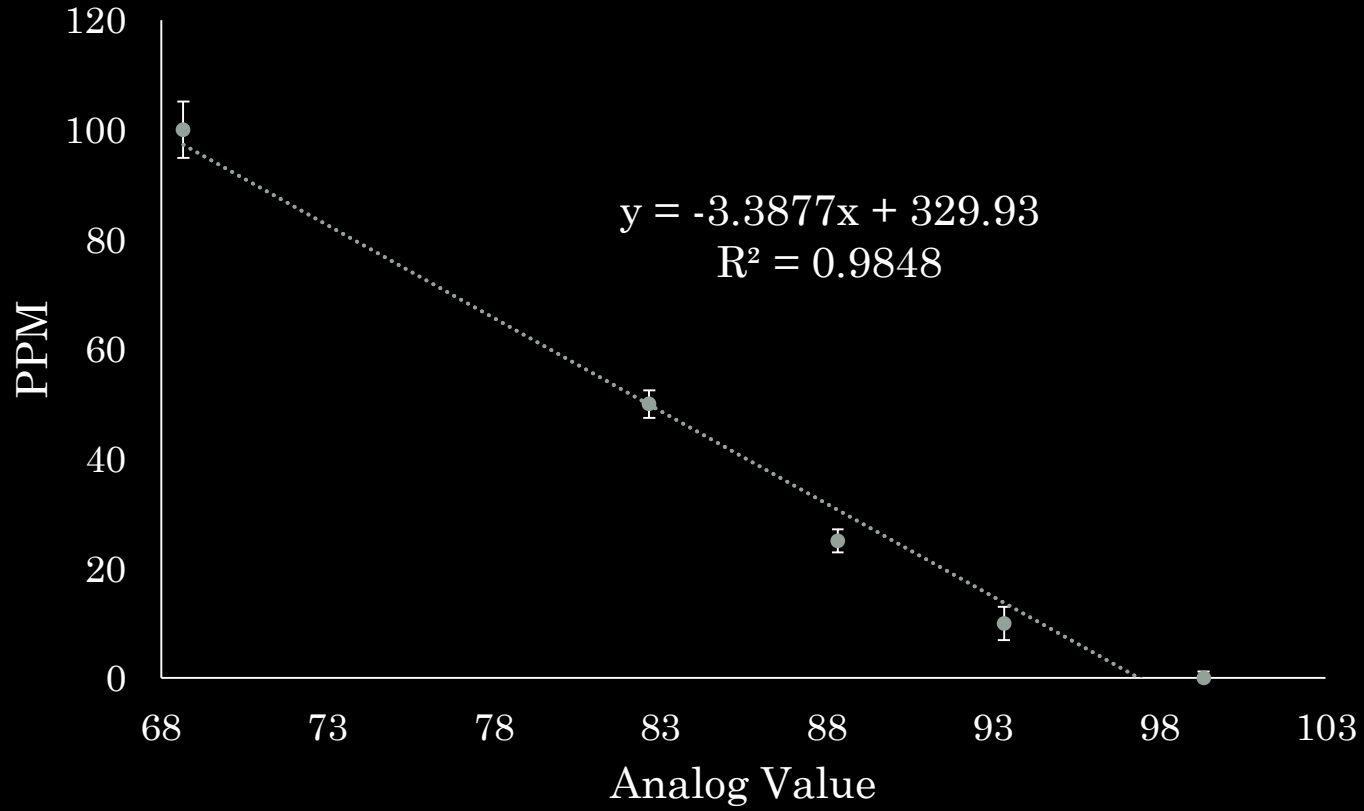


Spectrophotometer Standard Curve



Conc (ppm)	Absorbance
5000	2.084
2500	1.213
1250	0.618
625	0.423
312.5	0.307
156.25	0.187
78.13	0.150
39.06	0.125
19.53	0.117
9.77	0.110
DI	0.091

Moo'D Sensor Standard Curve



Acknowledgements

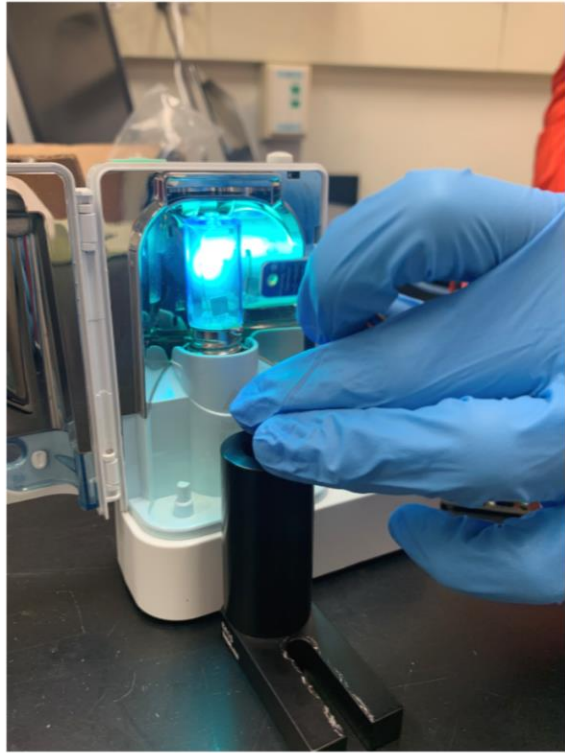
Joe Baio

Madeleine Hummel
Jaturavit Pantakitcharoenkul

Special thanks to Christine Kelly for her donation of UV cuvettes and Andrey Kornilovich for help with 3D printing!



Output Testing



Max UV Output

4cm - 163/1023

2cm - 260/1023

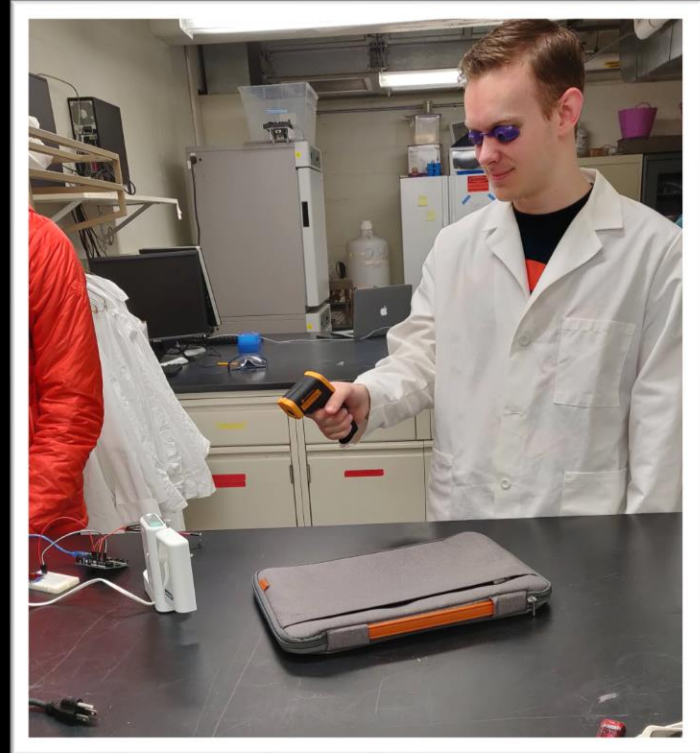
1cm - 300/1023

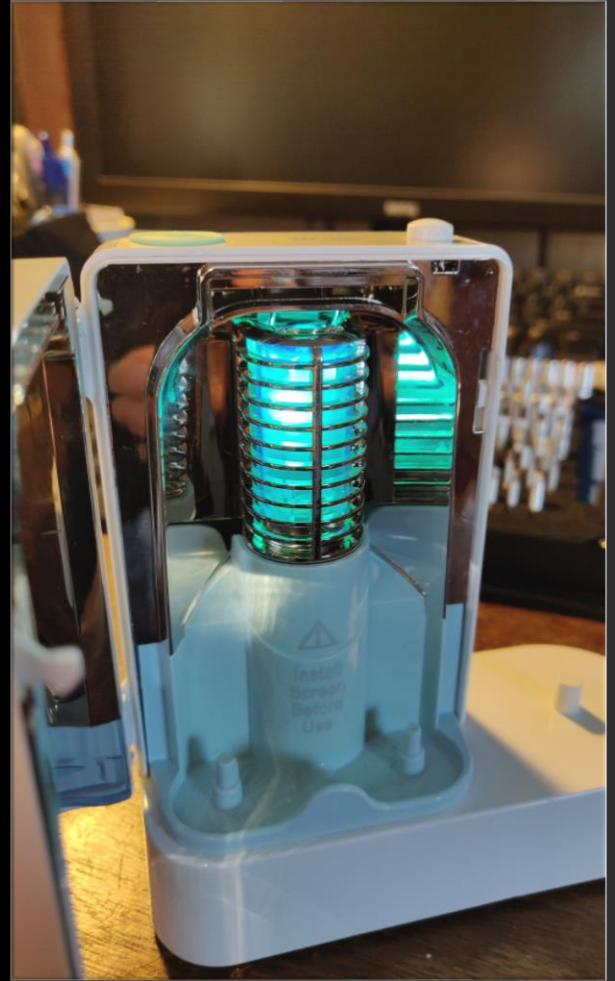
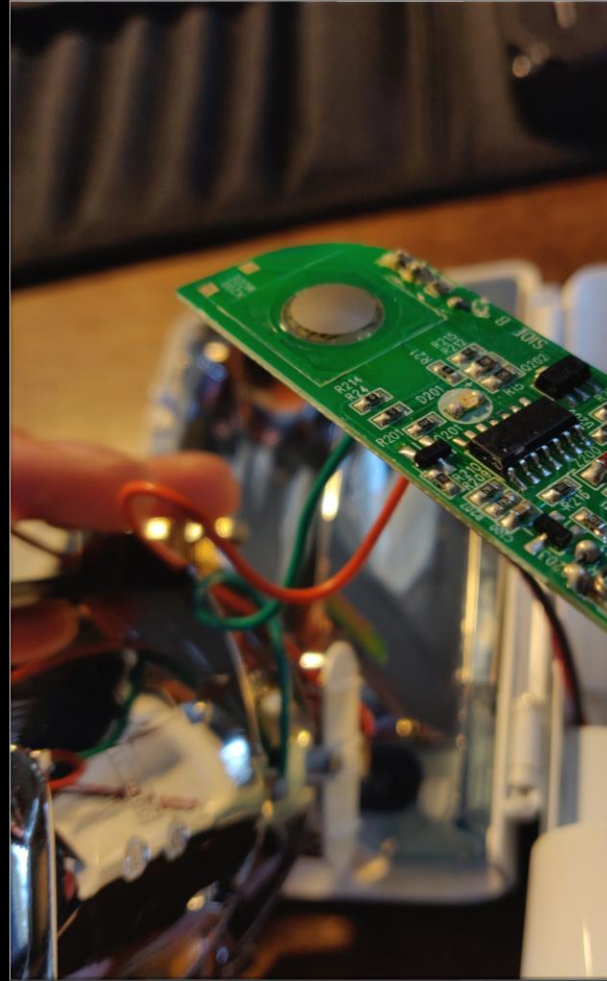
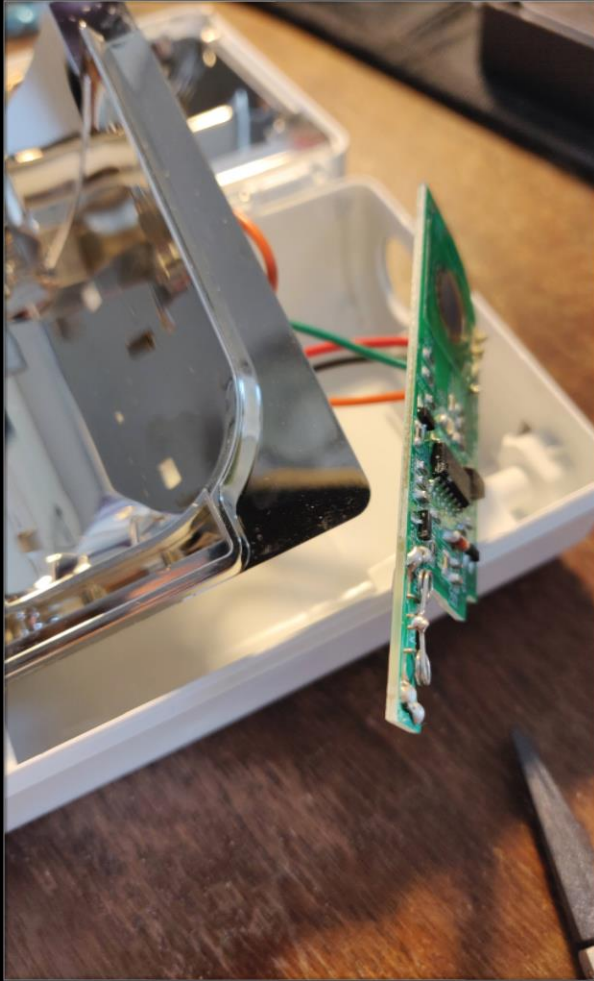
With Lens:

15mm - 6/1023

Max Temp.

Bulb - 80F



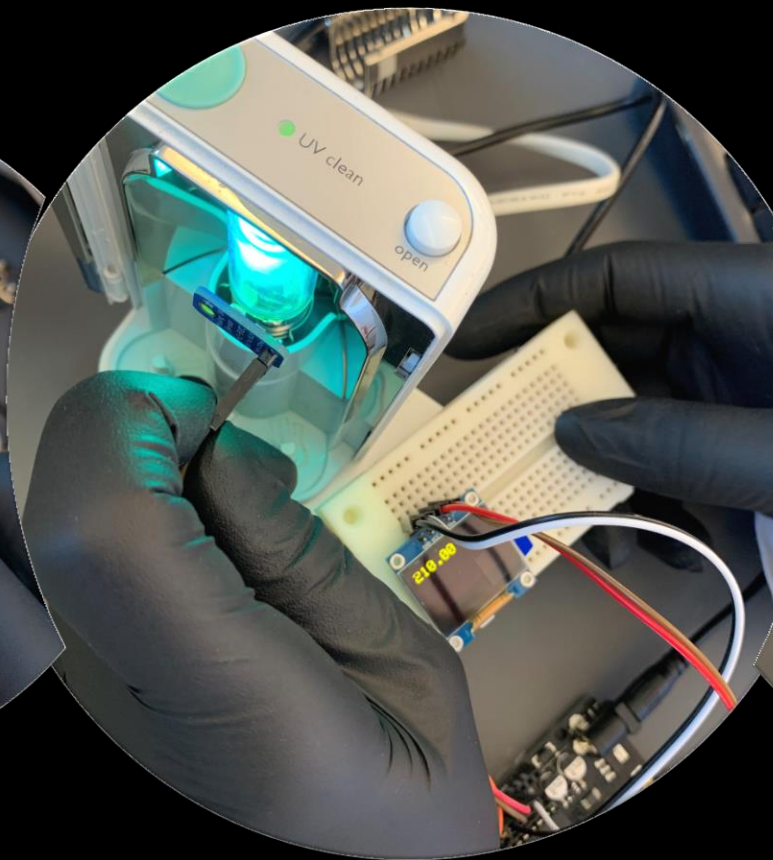


None

~230-300/1023



Vis-Spec Cuvette~21/1023



Microtiter UVT

~230/1023

