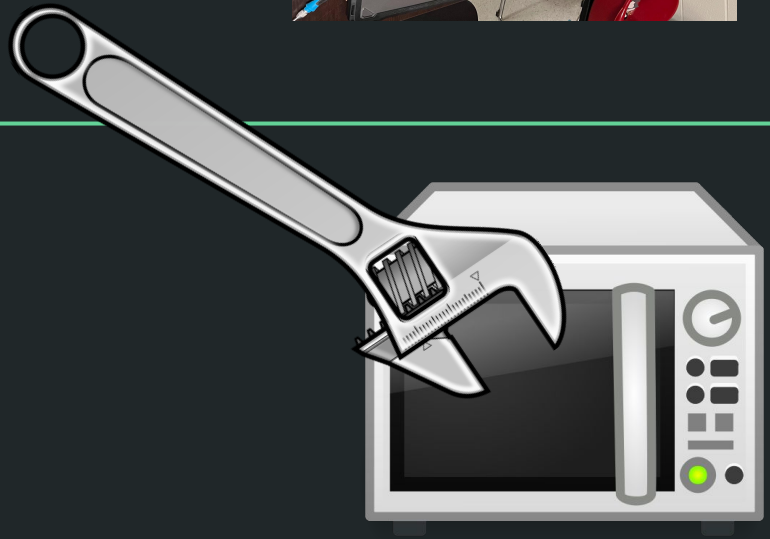
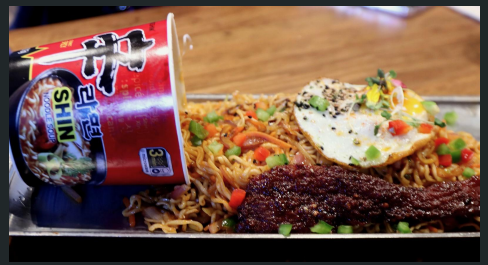
Reverse Engineering a Microwave

TEAM 93585A



The Process

We started by taking off the outer shell of the microwave. Then we proceeded to take apart the microwave and we got to the inner shell and the smaller mechanical parts. The second thing we did was take note of every part we had and spread it out, after that we researched what each thing was and what it did. For example there was one piece that was a electro magnet so we looked up the code on it and found the exact piece. And finally we put sticky notes naming each piece and labeling what it is.



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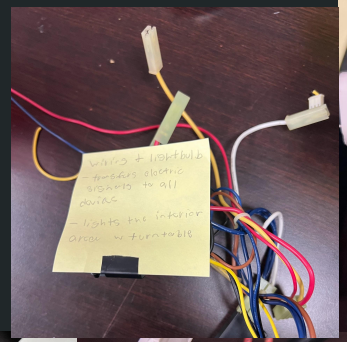
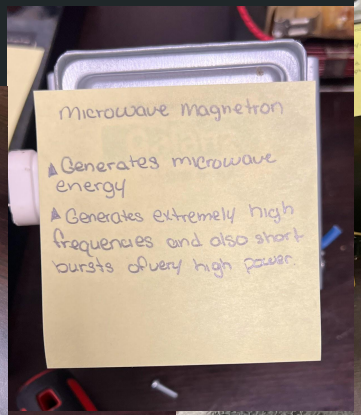
Inner Parts and findings

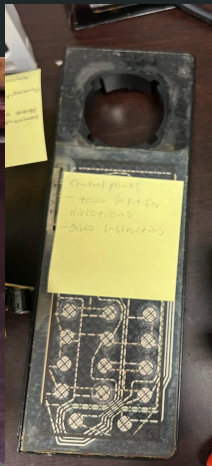
After removing the outer shells, we dissected the parts and researched them for their proper names and functions.

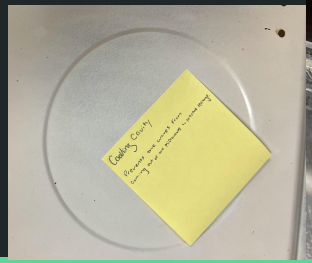
Items include:

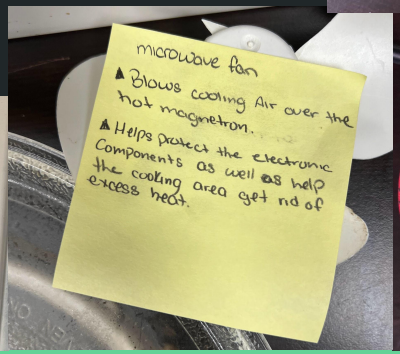
Wiring, turntable/fan motors,buttons, the magnetron and more.

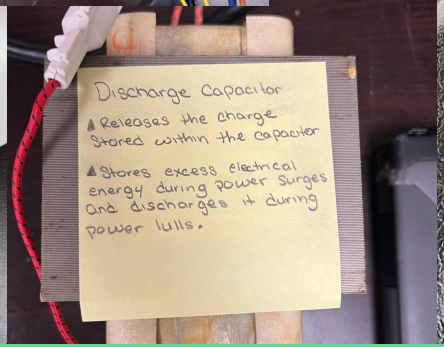


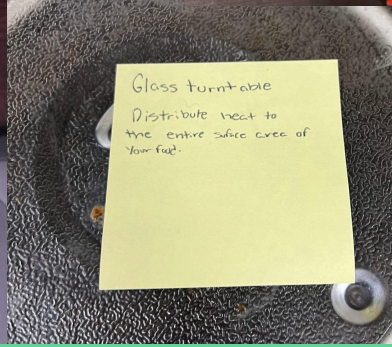




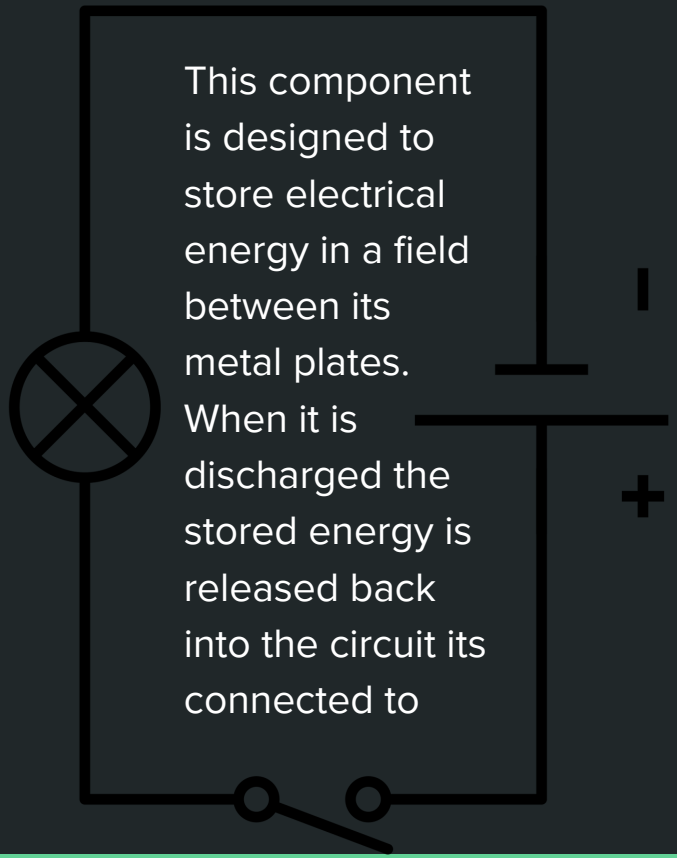




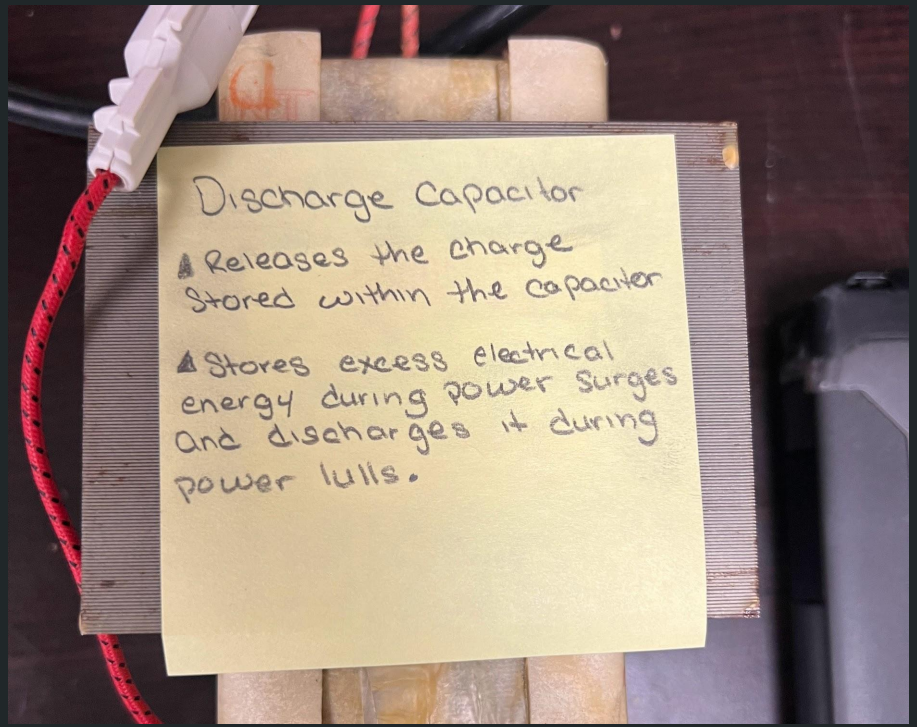




Discharge Capacitor

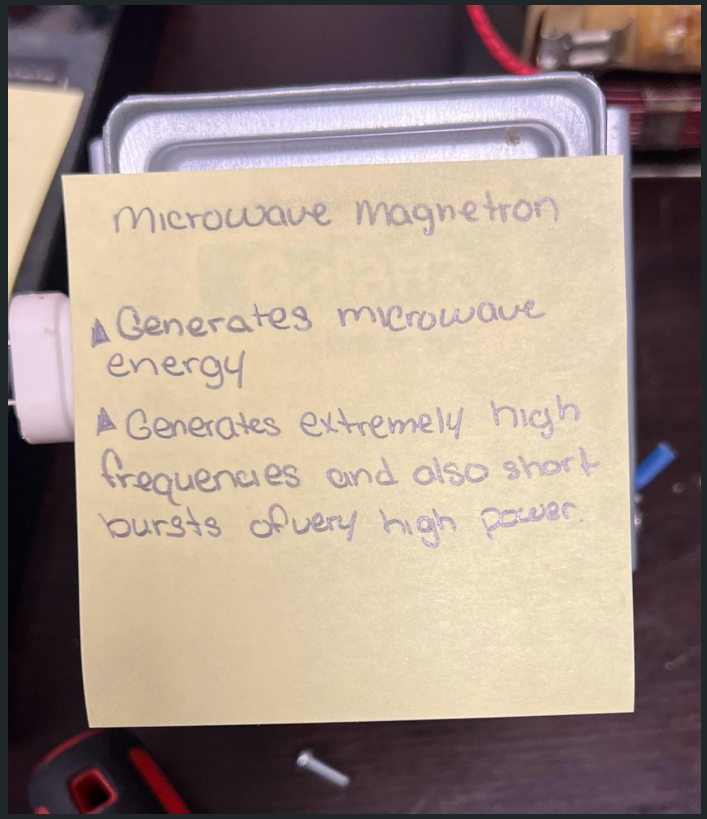


This component is designed to store electrical energy in a field between its metal plates. When it is discharged the stored energy is released back into the circuit its connected to



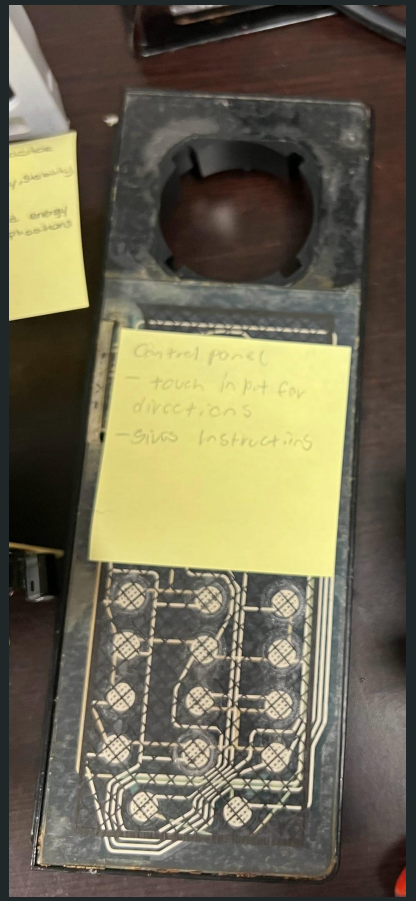
The Magnetron

Creates the microwave energy used to heat your food. A filament heats a magnet causing the electrons surrounding it to swirl and create the waves.



Buttons and Interface

The interface is comprised of 2 layers flexible layers,a bubble in between them as a button, and a conductive inner layer. When pressed, the button completes a circuit and sends a signal to its control board.



Interesting enough, I was looking for a heat sync since it was electronic, but there was none. I figured out, since the microwave was not on for long periods of time, it did not need one. Also the heaviest part of the microwave was the discharge capacitor, which had so much copper wire entwined around the magnets to create a super electromagnet. I knew magnetism was essential in electronics, but wow!