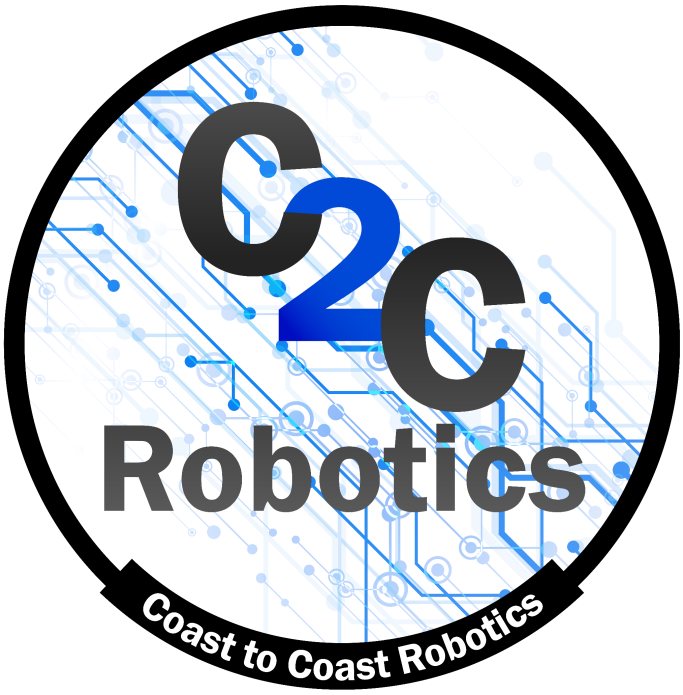
Crumbling Down a Powershot Canon Camera



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REVERSE ENGINEERING CHALLENGE

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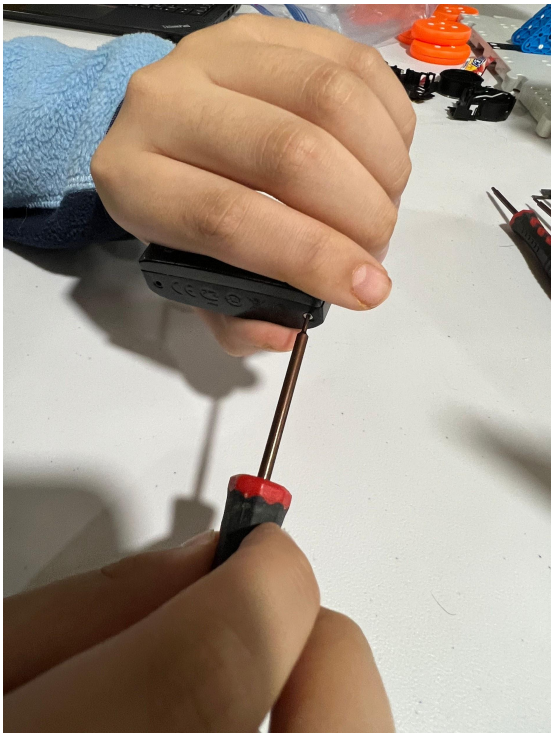
Introduction.

We wanted to take apart something that would be slightly challenging to complete while still remaining somewhat straightforward when selecting the material to use. The camera that we were working on was decently challenging and easy to put back so we chose it. Luckily, the camera was already at a state where we can't use them anymore so breaking it apart wouldn't be a problem. This camera is the PowerShot A2300 HD Canon camera.

The process.

Step 1

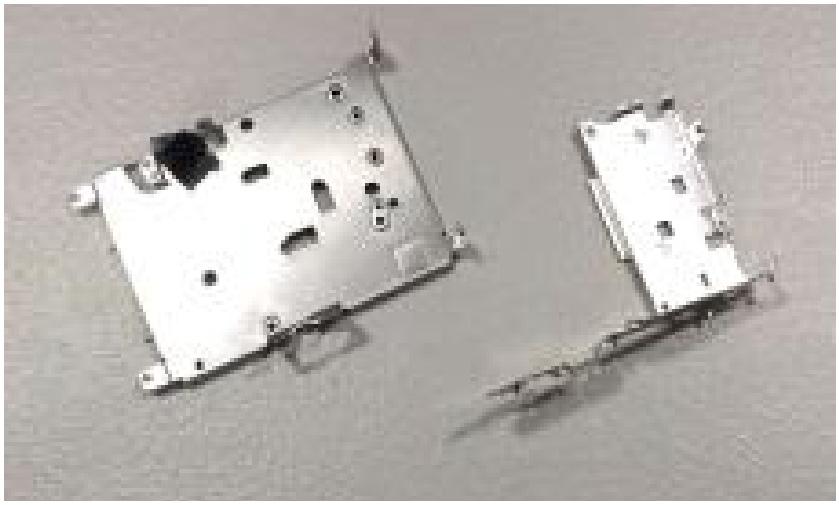
First, we took off the things on the outside first. This included the case, battery, and graphic card to avoid electrical shock. This step was probably the easiest out of all of



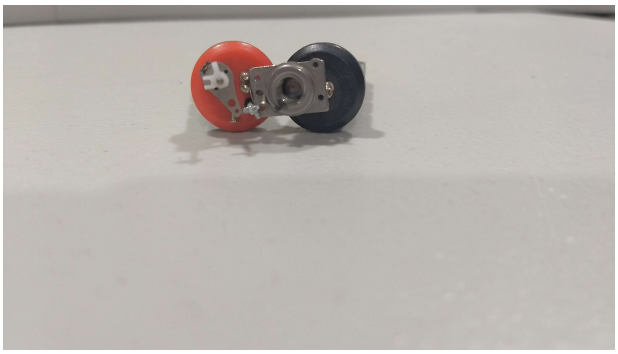
them. There were a few screws to take off but after all of the screws were taken off the case fell off immediately. Sometimes the screws got damaged if we put too much force into unscrewing it so we took the screws off the hard way by yanking the case off.

Step 2

We took the lens and motherboard out of its spot and took them apart. The pieces were very thin and some of them broke. The metal plates covering the rest of the camera had a lot of delicate screws, so it was a struggle to get them all out. Proper tools were needed, like screwdrivers for tiny plus screws. The screws had to be kept later so we used a magnetic tool to get all the screws and other iron pieces together.



metal frames



screws

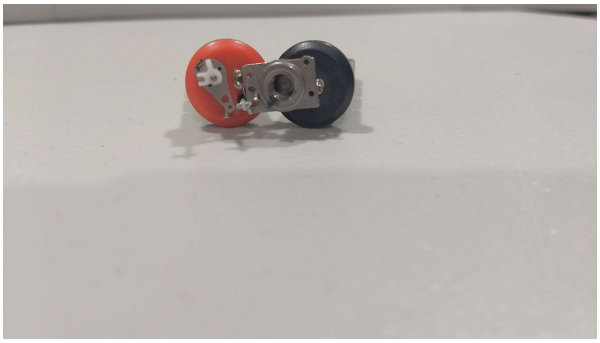
motherboard

Step 3

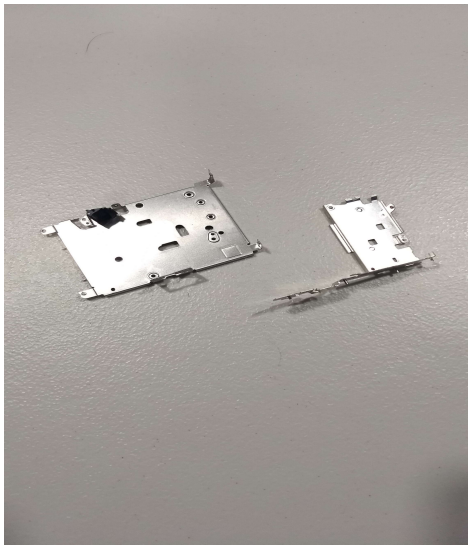
Lastly, we took the lens apart. We didn’t know that there were going to be so many parts in just one lens.

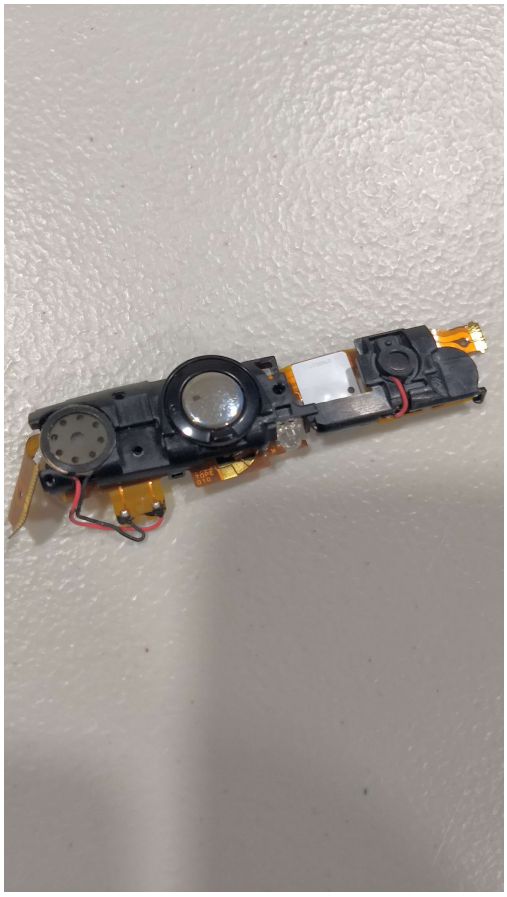
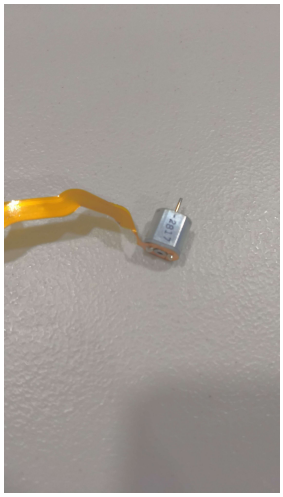
The camera lens

The Pieces

	This is the screen, all the input from the microchips in the camera is all displayed on the screen as output. When a person points the camera lens at something, the screen shows where the camera is pointing at so they can take a shot at the place they want to take it at.
	These are all the screws and springs that keep things together. Screws have a purpose of tightening two pieces together so they don't fall apart. As you unscrew them, you can see how the camera will loosen up, revealing the insides.
	This is a memory card, it stores all the photos you take (works like a brain) and you can access the photos anytime, though there is a limited amount of storage space.

	This is the motherboard. All of the settings and the literal reason why the camera even does anything is because of this. Many little chips and tiny wires are in here containing complex code for the camera to work.
	These are the lens pieces and when all put together, it is the second most important part of the camera. The lens is used to “look” at what it is facing and send the vision to the camera.
	This is a flash battery, and it needs its own battery because it needs some energy to take a photo and then send it to the storage card. The battery and the chip are connected to the flash button.

	These are the metal plates and they are used to protect and cover the motherboard and the lens part.
	This is the front frame, it has all the buttons on it and frames the screen. The top has an opening for the flash button.

	This is the flash button part, it includes the button and when you press it, a picture would be taken. It is connected to its own battery.
	This is the motor for zooming into a picture.

	This is the back frame, the circle is for the lens and is connected to the front frame.
	This is the battery, it is what powers up the whole camera so it can operate. Sometimes the battery can “expire” and even if you charge it, it wouldn’t function.

Summary

This challenge taught us a lot about electronics since we have never opened anything like this before. We also learned that we need to be very careful when taking electronics apart because we broke one of the cables that was used to connect the screen to the motherboard. One other thing we learned is that something that we take for granted like a digital camera is actually very complicated and made up of many different parts.