

Vex robotics

Online

Challenge

Sponsored by Texas Instruments

## Introduction

I evaluated an Olympus Camedia e-10 camera for the Vex Robotics electronic online challenge sponsored by Texas Instruments. This camera was made in 2000, and was the 20th model of camera made by the Olympus company. The camera is a single lens reflex (SLR) digital camera. The camera speed is 3 frames per second (fps). This camera has many interesting features and components such as zoom, a pop up flash and night vision mode. I chose this camera because:

- a lack of common knowledge of what components are in a digital camera
- the availability of an inexpensive digital camera to take apart. I found this at a yard sale.

## Summary of chips and components

We first took apart the small viewing screen, inside, was the circuit board which was connected to the viewing screen by a small ribbon cable. Second, we took the top half of the camera apart which is where the “on” button and the mode switch were located. I took the screws out around the flash fixture and found a mechanical switch that makes the flash pop out. From the flash, there was a ribbon cable that ran to the button that snaps the picture. This cable signals the camera flash to light up when the picture button is pressed. I took off the camera back and found the motherboard. All components were attached to the motherboard. Above the motherboard was the night vision sensor. The lens/zoom components were located in the front left quadrant of the camera. There were no Texas Instruments components or chips located in this camera.

## Camera components

- The motherboard is the brain of the camera and holds the basic parts to make the camera run.
- The lens makes the image either chemically or electronically and also helps store the image
- There are many ribbon cables in the camera. Ribbon cables are thin cables made of many flat conductive wires that connect two circuit boards.
- The battery pack takes the charge from the batteries and transmits power to the rest of the camera and helps it run.
- Night vision works by blasting infrared light out as fast as it can and records that. This helps the camera take pictures in the dark

## Lessons learned from the Olympus camera

In the project we learned what the components of a camera are and how each one works. We learned that the digital sensor and lens are quite small even for such a large camera. We have also learned that cameras have become quite a bit smaller over the years to get the same picture. We also learned about the layout of the components in a camera. Lastly we learned that what you see through the lens bounces off many mirrors before hitting your eye.

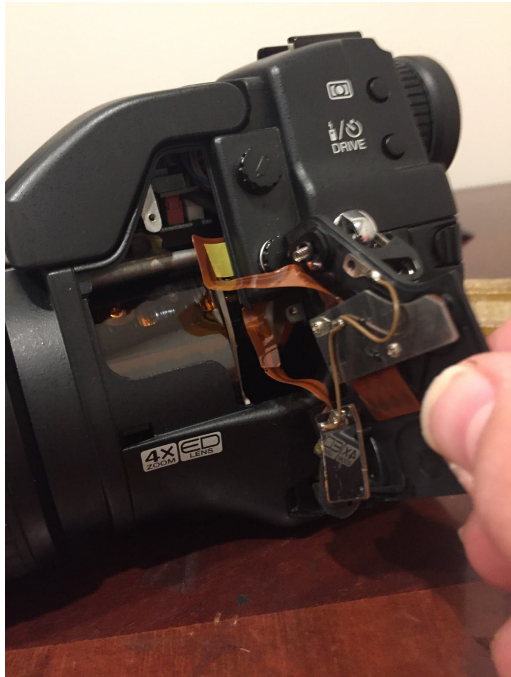
Back of original camera



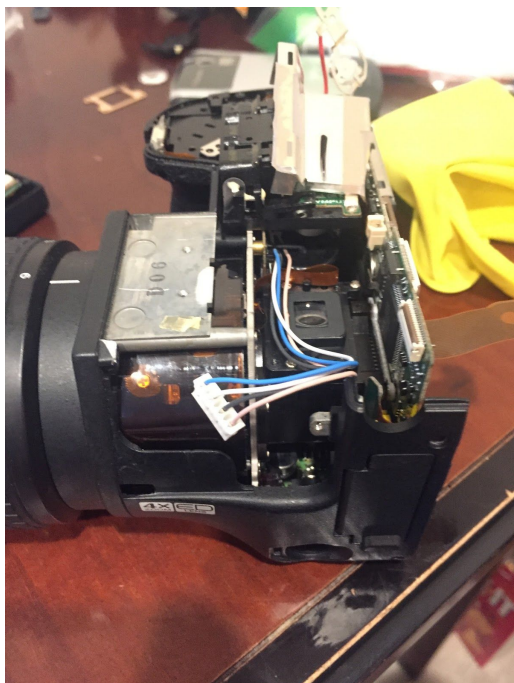
Left side of original camera



Left side door view

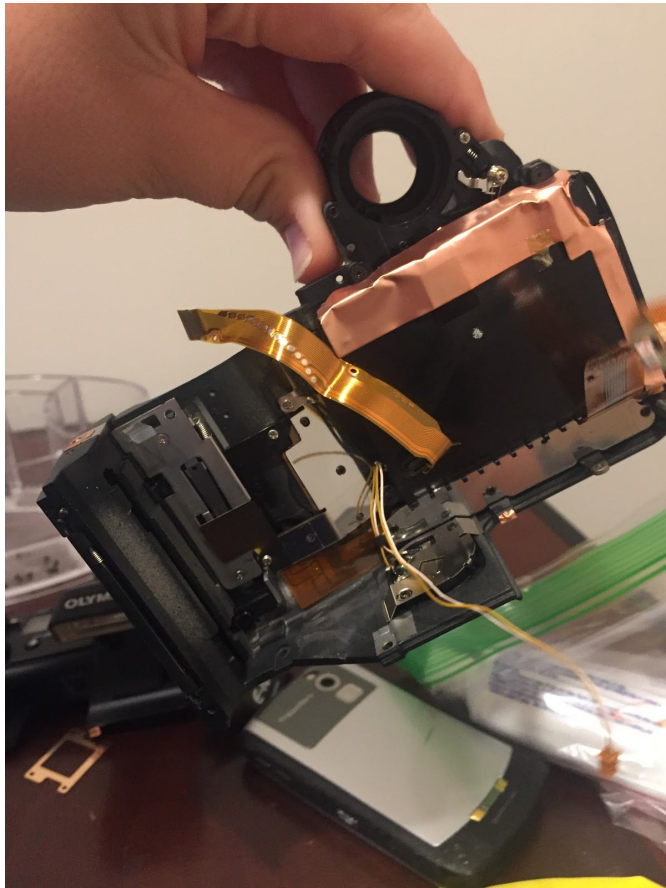


Top housing of the camera removed



Flash mechanism removed from the main body of the camera

This is the back of the camera and the shell for the motherboard



This is the motherboard were all the button connect





This is the mechanical mechanism that makes the flash pop out



## Sources

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