Functional Components

The functional components of the camera are the shutter mechanism, the flash, the film, the lens, the viewfinder, and the internal frame. The shutter mechanism opens and closes to allow light to reach the film to form an image while also blocking light to protect the film. The flash gives extra light so that a picture can be taken when there is inadequate lighting. The film is what is used to capture the image that the camera is taking. The lens forms the image by focusing the light through it and transferred to the film. The viewfinder allows the operator to see what they are taking a picture of. The energy cell contains the battery, the capacitor, transistor, flash tube and other electrical components that allow the camera to produce a flash of light. Finally, the outer shell protects the internal parts of the camera and the inner shell holds all of the functioning parts together.

Parts and Components

Parts are arranged in the fashion that they are easy to assemble along an assembly line. They fit together in layers one after another until the frame is snapped on both the front and the back of the mechanism. The camera shell uses snaps for an easy assembly and disassembly of the camera. Anything that has a screw in it is kept in place during disassembly and reuse in order to make the process quicker. The camera is tightly and perfectly packed so that space is used efficiently. The components are arranged like a puzzle. The camera works in series of steps that once carried out it is set into a chain reaction that leads to the end product of capturing a picture. The film is first moved into position and then the flash is charged. After the flash is charged, the button is ready to be pushed. Upon pushing the button, the flash goes off, the shutter mechanism springs open and closed very quickly, and the picture is embedded onto the film.

Disassembly

The first step in disassembly was to discharge the capacitor (flash) and take out the battery. After that the outer shell was taken off by popping it apart at both ends of the shell. Next, the film was pulled out of the camera and rolled up. Following this step, we took apart the screws to pull off the shutter mechanism and the circuitry. Preceding this, the top part of the
camera was taken off to expose the viewfinder and counter mechanism. Overall the disassembly was not very hard. It was interesting to find out how the camera was put together and analyze how it was made for an easy assembly and disassembly.

Assembly
After taking the camera apart, our group started to reassemble the device. The first steps were to put the counter mechanism, viewfinder, and circuitry back in place. After that the shutter mechanism was positioned over the rectangle that it covers and the spring reattached. Once this is done the lens can be placed over the shutter mechanism and locked back in. The final steps of assembly were replacing the film, inserting the battery, and snapping the outer housing back onto the device.

Materials Used
Materials used for the camera include plastics, metals, circuitry, and wires.
The purpose of making a camera as simple as Kodak’s reusable camera is to ultimately make recycling and reusing the components of these cameras very easy. According to Kodak, since the year 1990, they have recycled over 1.5 billion of these small devices. Kodak engineered their camera to maximize the recycling rate of every part of the camera. The current recycling rate of these disposable cameras is 84% which is a big step up from the previous rate of 75% in 2004. This increase in recycling rate shows that Kodak is very efficient in recycling their product and that many of the new products released are made from recycled parts.

Recycling parts of these cameras is very beneficial to companies that make products such as Kodak’s reusable camera. One benefit of recycling things like this is that it keeps production costs low. The cameras that are coming in from recycling centers are a source of plastic. Reusable parts lower the need for production of new parts which also lowers costs. If parts do need to be made, the plastic from the recycled parts is used to construct new parts. This is less expensive than using new raw materials. The second way recycling keeps costs low is reusing the circuit board. The circuit board is made of many metals that cost a lot of money including precious metals. By being able to reuse this part, the company effectively lowers their cost of production.
The recycling process is very simple once it gets to the manufacturer. It is first taken apart and each part is tested for quality and integrity of that part. If the certain part passes these tests it is able to be reused in a new camera. Things such as the inner frame, film advance wheel, trigger, picture counter, lens and viewfinder are often reused and implemented into new cameras. The average camera is reused a total of three times and the circuit is designed to be reused in excess of ten times. This is very beneficial to not only the company and their costs, but also the environment. Plastics that do not check out on the quality tests are melted down and formed into pellets that will be later used in the injection molding process of new camera frames.

The battery is one item in the camera that can be analyzed in its life cycle right now. The battery in the camera is in the middle of its life cycle. Before being put into the camera it was manufactured and distributed. After the camera is used and recycled, the battery is also recycled. It is sent off to be either disposed of or reused in another form.