Single Use Camera

The camera used was the Kodak Single Use FunSaver. The camera is composed of different mechanical, electrical, and structural parts. This single use camera costs about $7.00. The primary functional parts of the camera are the lens, shutter mechanism, and film. Additional parts also include the following: viewfinder, film transport & counter mechanism, electronic flash, energy cell, outer housing shell, and internal frame.

How does it work?

First, the photographer looks through the viewfinder which shows what will be captured. Next, the film is moved to position by rotating the film advance knob. If flash is desired, it can be charged by holding down the front flash button. Then, press the plastic trigger to capture picture. The image will be projected into the film to be stored. The frame counter displays the remaining amount of photos that can be taken.

Film: When the film advance knob is used, the film is positioned so that a new image frame is in front of the projection plane. The shutter spring stretches out and the frame counter moves by one frame. This allows that camera to be able to capture another picture.

Shutter Mechanism: A copper rod allows the shutter mechanism to be opened and closed. The spring is then released and the shutter moves. Its movement enables the film to become exposed to light. The image that was seen through the viewfinder is now located on the image projection plane. The flash is activated when the shutter/flash board spring trips the circuit.
Reuse and Recycling

Kodak has a recycling program for the single use cameras. Over 1.5 billion of them have been reclaimed for recycling and they continue to recycle more each day. First, the film is processed and the camera is sent to the Kodak factory to be analyzed and sorted. The internal parts of the camera that have been determined to be in good condition and unharmed are reused in new single use cameras until they are damaged. Then the outer plastic casing and other remaining parts of the camera are ground, melted down, recycled, and can be formed into new parts for a camera. The packaging and film of the camera are not be reused or recycled. Once the film is exposed to light, it is no longer reusable.

Camera Parts
1. Front and Back Casing
   - Holds the camera's internal components and holds everything together.
2. Flash Component/Electronic Flash
   - Provides the flash for the picture
3. AA Battery
   - Gives power/energy to the camera to allow it to work
4. Film
5. Central Casing
   - Holds the inside parts of the camera together including the circuit board, lens, and flash component.
6. Circuit Board/Energy Cell
   - Wiring for the camera to allow it to work
7. Magnifier & Lens Holder
   - Magnifies frame count and holds the lens together
8. Lens & Shutter Mechanism
   - Image forming function. Has shutter mechanism which is opening and closing of light path.
9. Frame Counter
   - Counts how many remaining pictures can be taken
10. Spring
    - Turns gears and pulls the shutter to allow light to enter.
11. Film Advance Knob
    - Advances film and moves it into cartridge
12. Plastic Parts
    - A variety of parts that go together to form camera. One has the button to click which takes the picture.

**Part Functions**

**Disassembly Procedure**

1. The Kodak camera is a one time use camera and costs around $7.00.
2. The packaging and cardboard were removed to get to the actual Kodak camera. The packaging is all necessary because the metal inside coating protects the film during shipping.
3. Next a screwdriver was used to pry off the front and back outer housing to get to the inside of the camera.
4. The AA Battery/energy cell was removed from the camera.
5. The shutter was wound up and pressed to discharge the remaining power in the flash circuit.
6. Additional parts were removed from the inside of the camera including the film, various magnifiers and lens holders, plastic parts, the frame counter, and the film advance knob. The shutter is first wound up until a click is heard. When the button on top of the camera is pressed it activates an internal mechanism which exposes the film to the image seen through the lens. The image is stored on the films and the winding mechanism moves the film away from the lens and shifts blank film into place.

7. Screws are used to hold some of the parts together. Others snap into place and are held together by small tabs. This is used so the camera can easily be taken apart and put back together.

8. We attempted to put the camera back together but were not able to fit all of the parts back into place.

9. The cameras are designed for a one time use only. Once they are dropped off the film is taken out for processing. Once the film is removed and exposed to light, you can no longer take any pictures. The rest of the parts are then disposed of properly where they will be shipped off to be recycled and reused. It differs from a multiple use camera system where you are able to put new film in, once you run out.

10. The design is very eco-friendly and is made to be reused and recycled. It is very cheap and easy to take apart and put back together. The user is happy with a one-time use and can get the most out of their

**Camera System’s Life Cycle**

One aspect that we choose to investigate is the transportation part. It is pretty far off in the lifecycle and is being shipped to the stores, ready to be sold to the customers. They are packaged very small and in rectangles, which makes packaging them easier. They are able to stack many of them together and on top of each other. The design would not need to be changed to ship it any better.
Functional Decomposition of a Single Use Camera

- **Material Processing**
  - Advance film and wind up shutter
  - Frame counting

- **Signal Processing**
  - Trigger shutter open
  - Trigger flash discharge
  - Flash ready signal

- **Energy Processing**
  - Turn on flash charging
  - Light
    - Image projected on film plane
    - Light sensitive film
    - Image stored
  - Lens
  - Viewfinder
  - Battery
    - Flash charging
    - Flash discharge
  - Cock shutter

- **Mechanical**
  - Advance film by one frame
  - Open shutter
Resources

http://www.kodak.com/eknc/PageQuerier.jhtml?pq-path=4213&pq-locale=it_US