Disassembly and Study of a Kodak FunSaver
TEAM III
EDSGN 100: SECT. 018

Disassembly Procedure

Begin the disassembly procedure by removing the plastic packaging wrapped around the camera. Peel the decal off of the plastic camera shell. Gently pull the clips on the two sides and bottom of the camera shell upward. As you pull upward on each clip, pull the two halves of the casing apart. After opening the plastic shell, remove the battery from the circuit and immediately discharge the capacitor. Failure to discharge the capacitor may result in an unpleasant electrical shock. Next, remove the film from its housing. The remaining parts can be disassembled by gently pulling them apart. For some parts, a screwdriver must be used to remove the screws before the part can be removed. Consult the figure on the following page to see camera parts grouped by subsystem and function.

Functional Components

- **Internal Frame**: houses the shutter components and film; allows film to go through the system
- **Energy Cell**: single AA alkaline battery that charges the flash
- **House Shell**: Black plastic used to cover the inside of the camera.
- **Kodak Decal**: adhesive packaging that covers much of the house shell
- **Film Transport and Counter Mechanism**: A wheel with numbers used to identify how many frames of film remain
- **Electron Flash**: used to add more light to the pictures taken (powered by the battery)
- **Lens**: Plastic pieces used to bend and focus the light in the camera
- **Viewfinder**: allows the user to see what they will be looking at through a clear square plastic window
- **Shutter mechanism**: plastic component containing a metal spring that opens and closes very quickly, allowing light to project onto the film
- **Film**: captures the images, taken to Kodak or other certified photo developer once all film has been exhausted

Reassembly Procedure

Begin the reassembly procedure by placing parts back together in reverse order. For some parts, a screwdriver must be used to screw the parts together. Place the film and battery back into their respective housings. Once you replace the battery, be careful not to touch the circuit. Gently snap the plastic camera shell back together at the tabs. Replace the decal if desired.
Disassembled Parts

Parts grouped by subsystem and function

Operation

Before operating the camera, assess the background lighting. If the surroundings are not well lit, begin by pressing and holding the flash button for approximately five seconds. (The red indicator light on the top surface of the camera will illuminate when the capacitor has stored enough charge to provide a flash). If the surroundings are well lit, do not press and hold the flash button. Rotate/wind the film wheel until the wheel locks into place. If the wheel does not lock into place, all of the film has been used and the film must be removed and replaced by Kodak. Once the wheel locks into place, look through the viewfinder and reposition the camera, if necessary. Depress the gray shutter button on the top of the camera, holding the device as still as possible. If you charged the flashing device, you will see a quick, bright flash of light from the camera. After depressing the button, the shutter inside the camera will open and close very quickly, allowing light to project onto the film. After the shutter closes, the image has been captured! Repeat this process as desired, until all film has been exhausted. Finally, return the camera to Kodak and purchase the pictures.
Materials

Much of the Kodak FunSaver is made of plastic. The outer camera shell is composed of polycarbonate, a blend of plastic and glass fibers. Polycarbonate is lightweight and shock resistant, and can tolerate harsh climates. Polycarbonate can be easily molded into various shapes. It is important to note that the flash system and circuit contain many different materials, including plastic, glass, and metals.

Reused Materials

- Kodaks uses Alkaline batteries in their cameras which can last for approximately 300 flashes or 12 reuses.
- The camera body itself and the electronic flash system
- Thumb wheels and counter wheels
- The internal body of the camera. New film, outer covers and lenses are added to make the camera “new” again

Recycled Components

- Lenses
- Viewfinder- used in new camera parts
- The covers- (packaging, shells and labels) of the camera

To see the energy, material, and signal processing in the FunSaver, consult the Functional Decomposition Diagram and Process Flow Diagram on the following two pages.

Proposed Redesign

Many parts of Kodak’s single-use camera are already reused or recycled, and the product itself is engineered well. Instead of modifying something that already works well, Team III proposes that the packaging of the camera be redesigned. The current packaging is made from non-recyclable materials that protect the camera and film from physical damage. Special precautions must be taken to protect the film from exposure to debris and radiation, or else the film will be damaged. Team III proposes that the film itself be packaged in a reusable canister that protects it from these hazards. The existing packaging should be replaced with recyclable paperboard. The current non-recyclable decal should be replaced with a recyclable paperboard sleeve. If these modifications are made, Kodak could produce a more sustainable single-use camera.
Bibliography
