

Kodak Funsaver Re-Design



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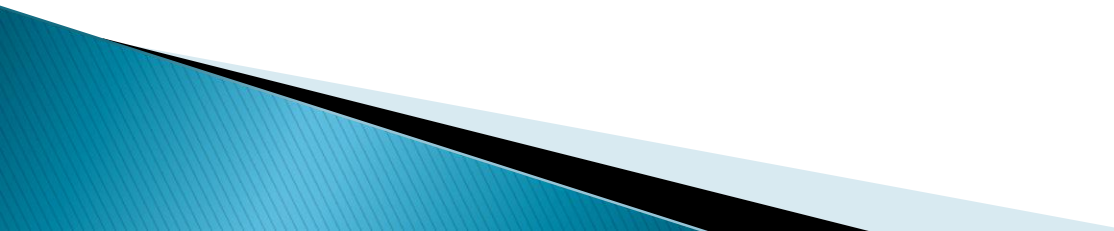
The Funsaver

- ▶ The Funsaver was first introduced in 1989 as Kodak's second generation of One-Time Use Cameras (OTUCs).
- ▶ In 1990 Kodak introduced recycling program for OTUCs.

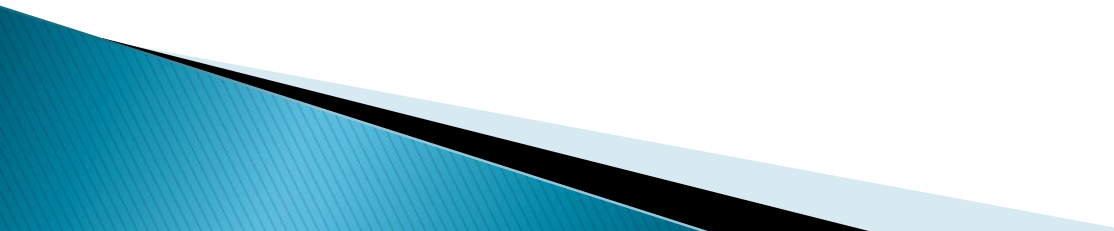
The Kodak logo is centered on the slide, featuring the word "Kodak" in its signature red, bold, sans-serif font. It is flanked by two horizontal yellow bars, one above and one below the text. The bottom left corner of the slide features a decorative graphic with overlapping blue and black diagonal stripes.

Kodak

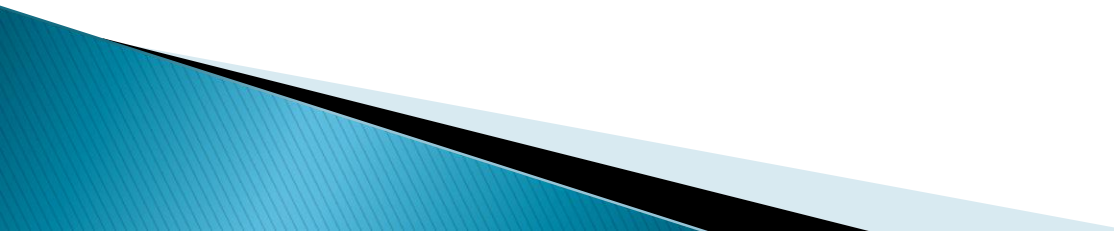
The Funsaver

- ▶ The program was a success, reducing environmental impact and manufacturing cost.
 - ▶ It also enabled Kodak to sell the Funsaver at a low price.
 - ▶ Today at 84% recycling rate, over 1 billion units of Kodak have been recycled.
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Introduction and Mission Statement

- ▶ Our assignment was to re-design the Kodak FunSaver disposable camera.
 - ▶ Purpose: To reduce the manufacturing cost of the camera
 - ▶ How to redesign an already highly successful product?
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Manufacturer Needs Analysis

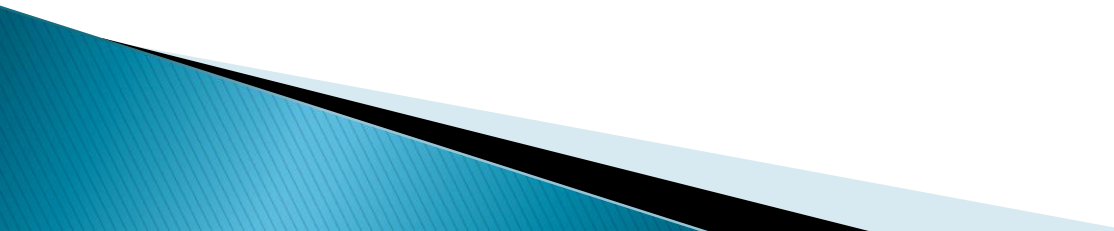
- ▶ Low material cost
 - ▶ Ease of assembly
 - ▶ Ability to re-use
 - ▶ Maintain current model's functionality
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Product Dissection

Part number	Part name	Part material	Part cost (\$)
1	Front cover	Plastic	0.05
2	Rear cover	Plastic	0.05
3	800 Speed film	Film	0.70
4	AA Battery	Battery	0.25
5	Film spool	Plastic	0.10
6	Viewfinder	Clear plastic	0.10
7	Button assembly	Plastic	0.05
8	Film counter	Clear plastic	0.10
9	Film scroll wheel	Plastic	0.10
10	Reset lever	Plastic	0.05
11	Lever spring	Steel	0.05
12	Arming mechanism	Plastic	0.05
13	Arming gear	Plastic	0.08
14	Shutter lever	Plastic	0.05
15	Shutter control spring	Copper	0.01
16	Lens fastener	Plastic	0.05
17	Lens	Plastic	0.15
18	Shutter assembly	Plastic	0.10
19	Shutter	Steel	0.10
20	Flash assembly	Silicon, copper, plastic	1.80
21	Inner housing	Plastic	0.15
22	Internal frame	Plastic	0.20
			4.34 Total Cost



Concept Generation

- ▶ ~~Alternate batteries~~
 - ▶ Alternate flash assembly
 - ▶ Housing size
 - ▶ ~~Alternate materials~~
 - ▶ Film Quality
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Concept Selection

- ▶ Smaller flash assembly
- ▶ Reduced housing size
- ▶ Reduce film speed

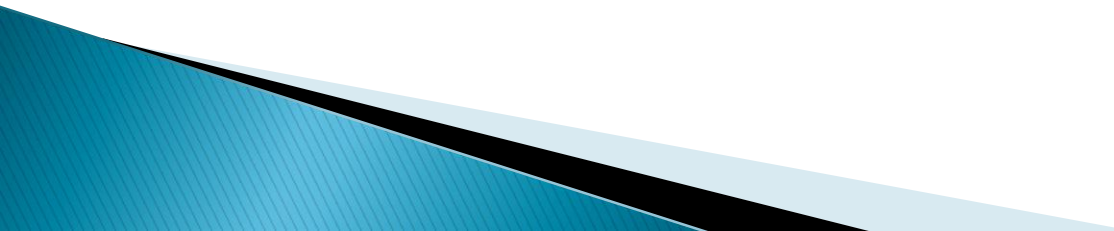
Smaller Flash Assembly

- ▶ Circuit board has a lot of unused space
- ▶ Connections are spread apart
- ▶ The battery and the flash could be shifted to overlap other components

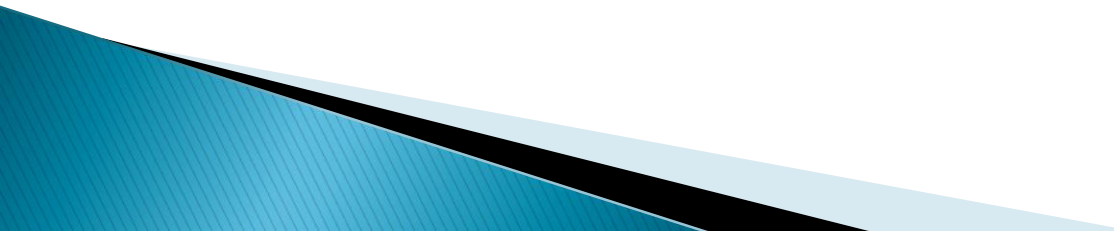
Reduced Housing Size

- ▶ The smaller flash assembly will take up less space, reducing the amount of space needed in the housing
- ▶ Less plastic will be needed to make the product

Reduce Film Speed to 400

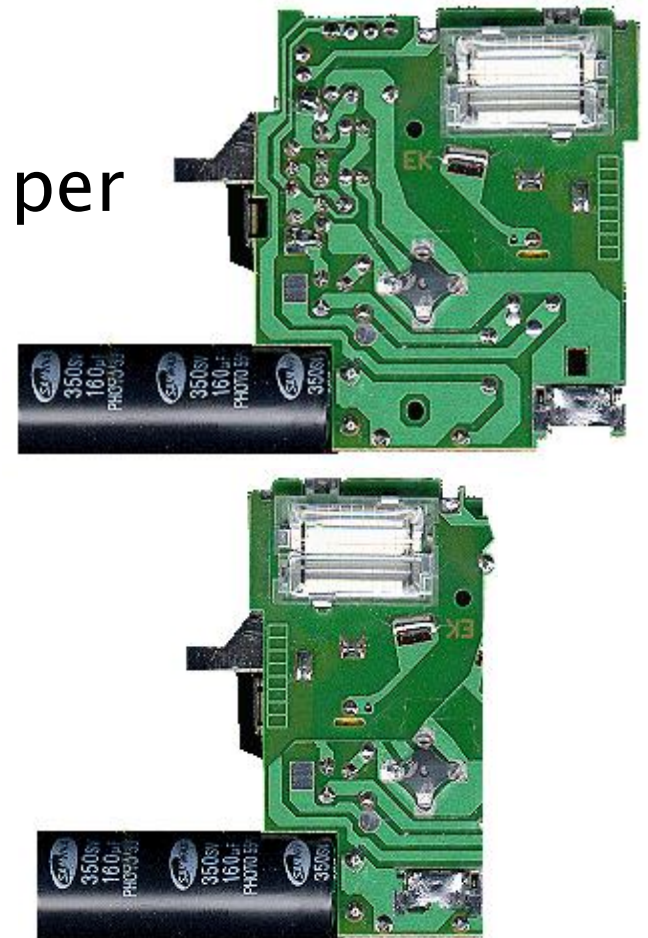
- ▶ 400 films are highly versatile
 - ▶ Good for indoor, outdoor, action shots and landscape.
 - ▶ Good close-up night shots with flash.
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Reduce Film Speed to 400

- ▶ 800 produces better night time shots with flash.
 - ▶ However, the flash unit in the Funsaver only works in close-up shots (5 to 8 feet).
 - ▶ Nearly the same picture quality produced.
 - ▶ Reduces cost per film by 43%.
 - ▶ Reduces manufacturing cost per camera by 7%
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Final Specifications: Flash Assembly

- ▶ Cut down size of circuit board by 40% (rough estimate)
- ▶ Saving approximately \$0.20 per unit produced



Final Specifications: Housing

- ▶ Reduced housing enables a more compact design.
- ▶ Saving plastic during molding process.



Final Specifications: Film Speed

- ▶ Virtually no difference between film quality.

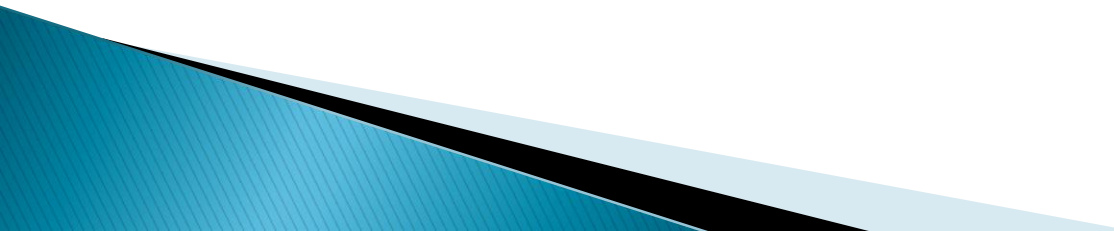
800



400



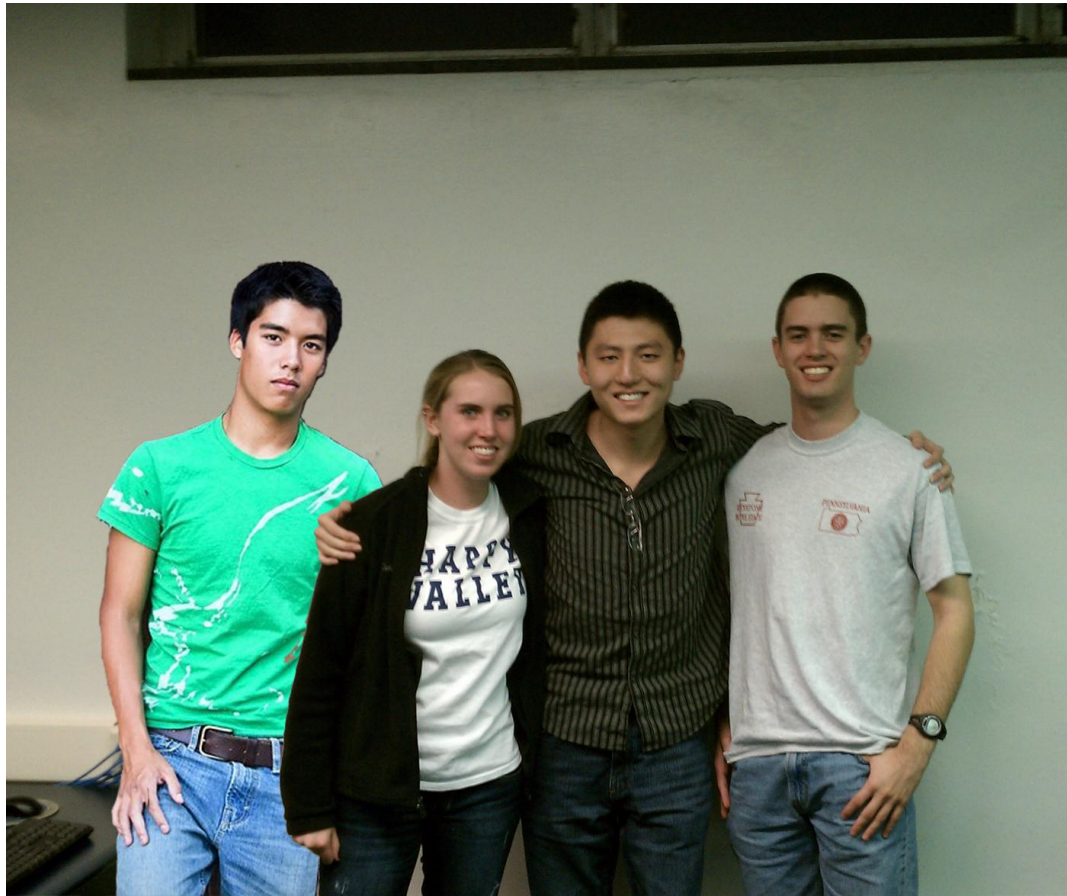
Final Design Description

- ▶ The camera will be smaller in overall size and will require fewer materials to produce.
 - ▶ The camera retains full functionality.
 - ▶ Manufacturing cost reduced. Potentially a cheaper price for customers or more profit for Kodak.
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Conclusions

Part number	Part name	Part material	Part cost (\$)
1	Front cover	Plastic	0.05
2	Rear cover	Plastic	0.05
3	800 Speed film	Film	0.40
4	AA Battery	Battery	0.25
5	Film spool	Plastic	0.10
6	Viewfinder	Clear plastic	0.10
7	Button assembly	Plastic	0.05
8	Film counter	Clear plastic	0.10
9	Film scroll wheel	Plastic	0.10
10	Reset lever	Plastic	0.05
11	Lever spring	Steel	0.05
12	Arming mechanism	Plastic	0.05
13	Arming gear	Plastic	0.08
14	Shutter lever	Plastic	0.05
15	Shutter control spring	Copper	0.01
16	Lens fastener	Plastic	0.05
17	Lens	Plastic	0.15
18	Shutter assembly	Plastic	0.10
19	Shutter	Steel	0.10
20	Flash assembly	Silicon, copper, plastic	1.60
21	Inner housing	Plastic	0.15
22	Internal frame	Plastic	0.20
			3.74 Total Cost

Any Questions?



References

- ▶ http://store.kodak.com/store/ekconsus/en_US/pd/T-MAX_400_Film__135__36_exp/baseProductID.188419400/productID.188419500
- ▶ http://store.kodak.com/store/ekconsus/en_US/pd/PORTRA_800_Film__135__36_exp/baseProductID.188422600/productID.188422700
- ▶ http://www.essortment.com/all/camerafilmflas_rork.htm
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- ▶ http://gicl.cs.drexel.edu/wiki/Group_32_-_Kodak_Funsaver_Camera
- ▶ http://www.kodak.com/country/US/en/corp/kodakHistory/1990_1999.shtml
- ▶ <http://neilvn.com/tangents/2010/08/02/high-speed-flash-sync/>