Single Use Camera Redesign

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Mission Statement

To meet customer needs while still maintaining an attractive design, adequate price, and efficient assembly process.

Survey

Brand	How Often	Why Buy	Price ($)	Quality to Look For
Kodak	Once A Year	Spontaneous	8	Cheap
Kodak	Never	Spontaneous	8	Flash
Kodak	Never	Traveling	5	Cheap
Kodak	Never	Sports	7.5	Cheap
Kodak	Never	Vacation	5	Flash
Cannon	Never	Wedding	5	Attractive Design
Kodak	Never	Price	5	Flash
Kodak	Never	Digital Broke	5	Waterproof
Cannon	Everyday	Porno	5	Picture Quality
Nikon	Never	Vacation	15	Flash
Kodak	Never	Don’t Want To Lose	6	Cheap, Easy
Fiji	Never	Camera Broke	5	Durability
Kodak	Once A Year	Dances	10	Flash
Kodak	Never	Don’t Want To Break	10	Cheap
Kodak	Never	Take Pictures Underwater	20	Waterproof
Kodak	Never	Don't Want To Break	3	Amount of Pictures
Kodak	Never	Don't Want To Break	5	Nothing
StoreBrand	Never	Don't Want To Break	5	Cheap
Kodak	Never	Dances	8	Flash
StoreBrand	Never	Forgot Camera	10	Easy To Use
Kodak	Never	Forgot Camera	10	High Speed
Kodak	Never	Forgot Camera	5	Flash
Kodak	Never	Forgot Camera	8	Cheap
Kodak	Never	Don't Want To Lose	7	Flash

Survey Evaluation

- Most Common Brand is Kodak
- Most Often People Buy is Less Than Once A Year
- Most Common Reasons to Buy:
  - Special Events
  - Lost/Don't Want To Lose Or Damage Digital
- Average Price is $8.00
- Most Common Quality To Look For is Inexpensive

Additional Research

- Patents:
  - United States Patent 3650194 - 1972
    - Combination of a box camera with roll-film
  - United States Patent 5045871 - 1991
    - First disposable camera component with flash
  - United States Patent 5576781 - 1996
    - Disinfected still frame camera housing
    - Impervious to outside contaminants

ALL INCLUDE BATTERY OPERATION

Kodak Funsaver

- Back Then:
  - Invented in 1989
  - Uses 110mm Film
  - Cost $1.90 to Make
- Today
  - Ergonomic Changes to Design
  - Improved Flash System
  - Viewfinder/Lens Modifications
  - Cost ~$3.80 to Produce

ALMOST FLAWLESS IN EVERY WAY

Packaging

Product Dissection

Product Dissection (Parts 1-10)

Product Dissection (Parts 11-19)

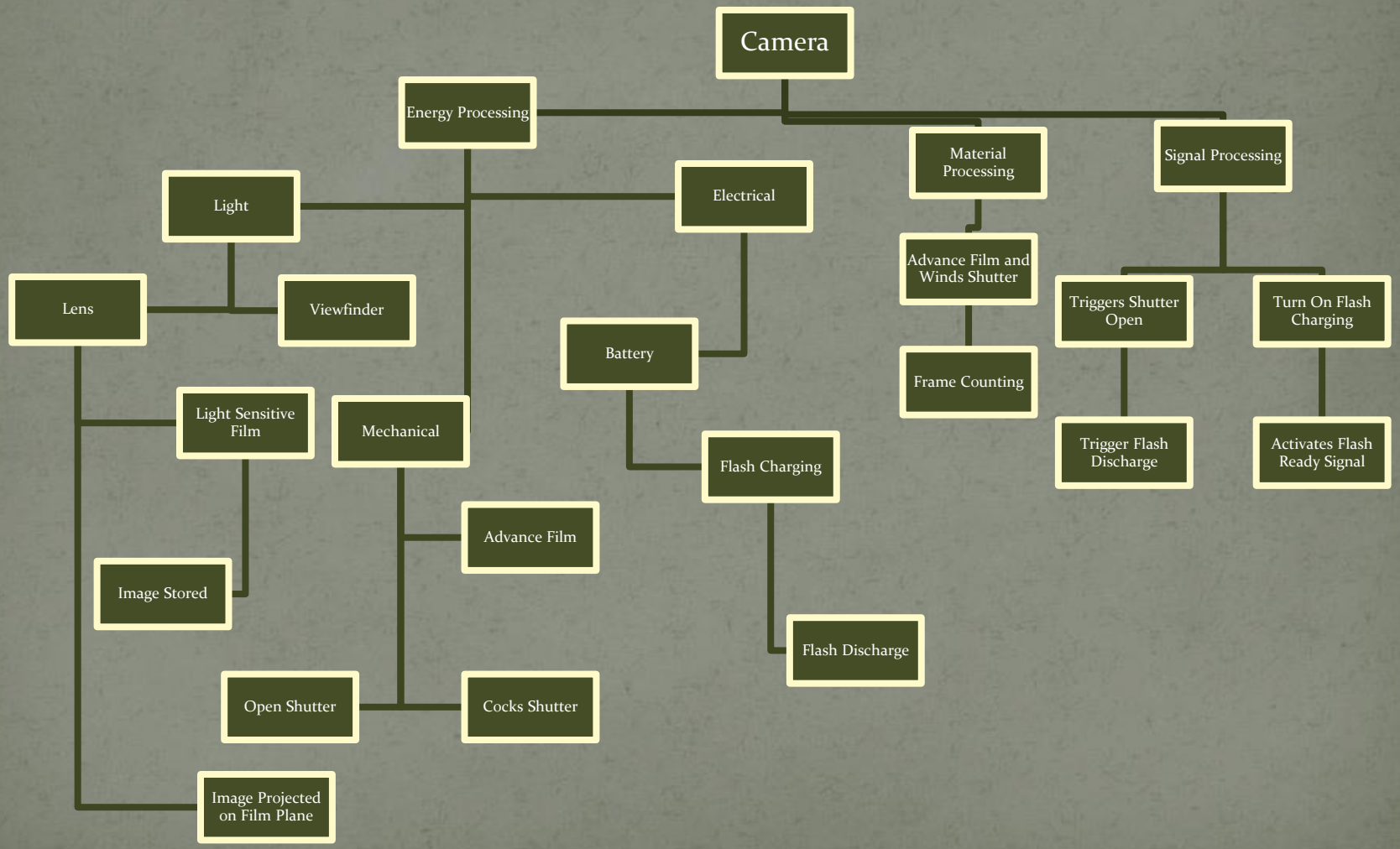
Product Dissection (Parts 20-25)

Bill of Materials									
Product Manufacturer/Model Number: Kodak Funsaver									
Date: October 6, 2010									
Subtract & Operate Procedure (SOP) Yes or No.					Force (Energy) Flow Diagram: Yes or No.				
Part#	Part Name	QTY	SOP Effect	Function	Mass (lbs)	Material	Manuf. Process	Dimensions	
1	Button	1	Yes	User input. Actuates components for one picture.	.004	ABS Plastic	Injection Molding	Undeterminable	
2	Film Advance Lock	1	Yes	Ensures no more than one cycle is advanced.	0	ABS Plastic	Injection Molding	Undeterminable	
3	Shutter Spring	1	Yes	Pulls shutter into place.	0	1040 Steel	Extrusion	Undeterminable	
4	Actuating Spring	1	Yes	Provides force for one advancement..	0	1040 Steel	Forming	Undeterminable	
5	Shutter	1	Yes	Opens to let light in for image capture.	0	1040 Steel	Stamping	Undeterminable	
6	Camshaft	1	Yes	Allows parts to advance one cycle.	0	ABS Plastic	Injection Molding	Undeterminable	
7	Sprocket	1	Yes	Pulls film ahead as film advance wheel is turned.	0	ABS Plastic	Injection Molding	Undeterminable	
8	Number Labeled Gear	1	No	Lets the user know how many pictures they have taken.	0	ABS Plastic	Injection Molding	Undeterminable	

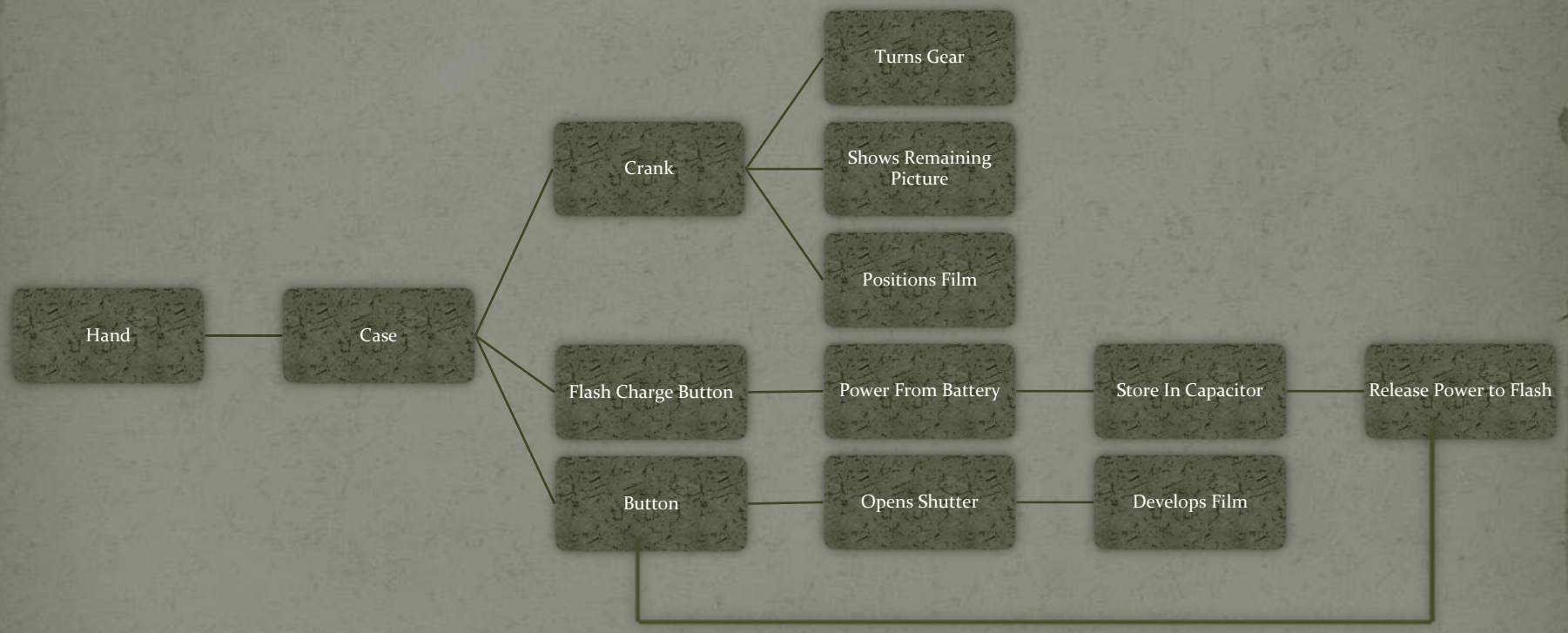
9	Advance Gear	1	Yes	Allows user to advance film after a piture has been taken.	.003	ABS Plastic	Injection Molding	Undeterminable	
10	Film Rotating Gear	1	Yes	Advances the film after a picture	0	ABS Plastic	Injection Molding	Undeterminable	
11	Viewfinder	1	Yes	Allows user to see image that will be captured.	.004	ABS Plastic	Injection Molding	Undeterminable	
12	Lens	1	Yes	Focuses light on the film.	0	Acrylic	Injection Molding	Undeterminable	
13	Lens Lock	1	Yes	Connects lens to lens holder	0	ABS Plastic	Injection Molding	Undeterminable	
14	Lens Holder	1	Yes	Holds lens in place.	.002	ABS Plastic	Injection Molding	Undeterminable	
15	Receiving Film Shaft	1	Yes	Receives the advanced film	.006	ABS Plastic	Injection Molding	Undeterminable	
16	Battery	1	Yes	Provides energy for the flash	.05	AA Alkaline Battery	Varied	Undeterminable	
17	Film	1	Yes	Provides medium for capturing the image.	.042	Film	Varied	Undeterminable	

18	Circuit-board	1	Yes	Provides flash of light.	.032	Flash Unit Circuit-board	Varied	Undeterminable	
19	Flash Bulb	1	Yes	Produces light of flash	0	Flash Unit Circuit-board	Injection Molding	Undeterminable	
20	Flash Contact	1	Yes	Provides connection between bulb and circuit-board	.002	1040 Steel	Injection Molding	Undeterminable	
21	Inner Lens Chassis	2	Yes	Holds the lens in place	0	ABS Plastic	Injection Molding	Undeterminable	
22	Central Frame Chassis	1	Yes	Holds components of camera in contact with each other.	.04	ABS Plastic	Injection Molding	Undeterminable	
23	Back Cover	1	Yes	Protects and houses the mechanical and chemical components of the camera.	.032	ABS Plastic	Injection Molding	Undeterminable	
24	Front Cover	1	No	Protects and houses the mechanical and chemical components of the camera.	.03	ABS Plastic	Injection Molding	Undeterminable	

Product Functional Model



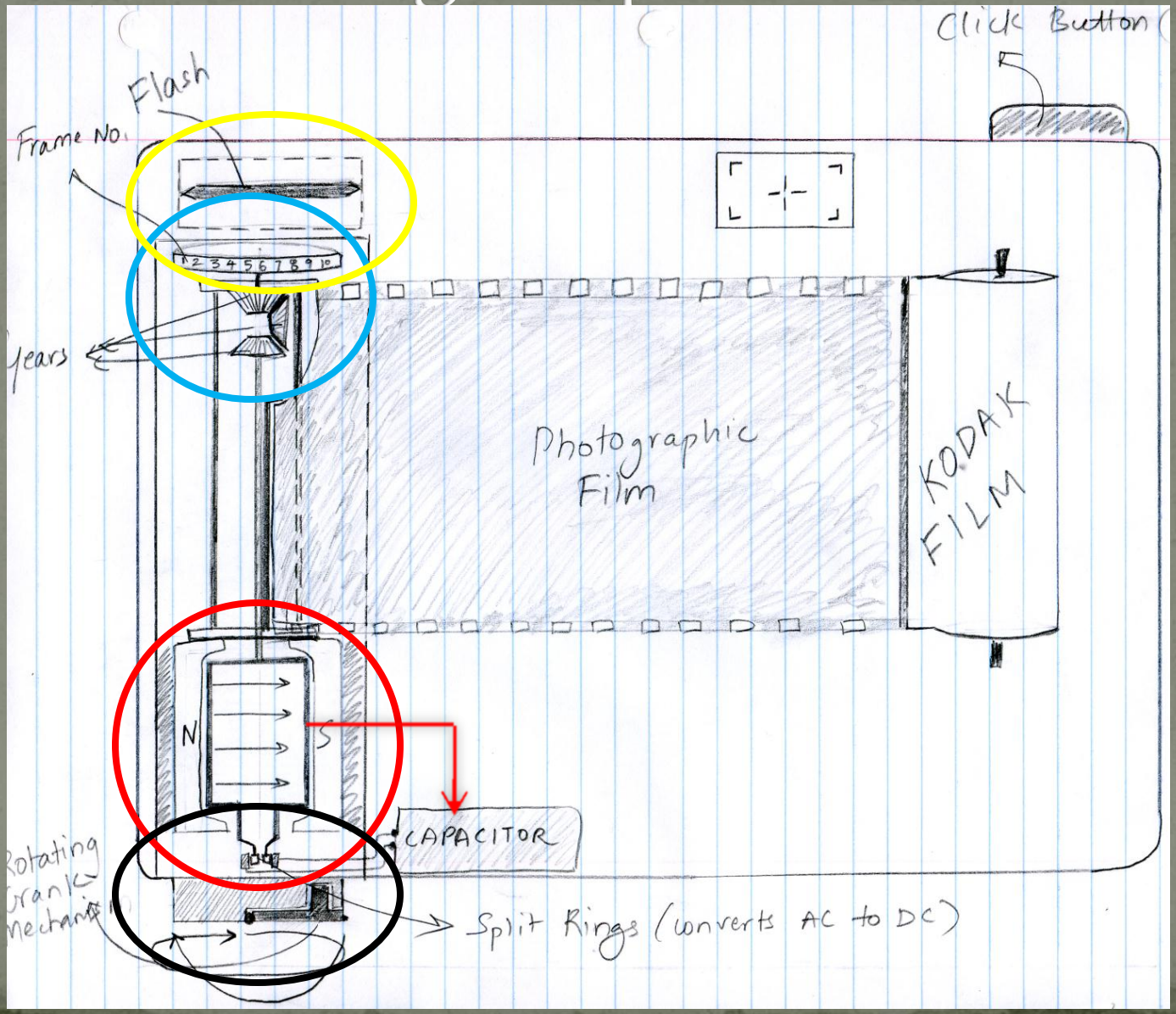
Force Flow Diagram



Redesign Proposal

- Remove Battery & Mechanical Gears
- Install A Dynamo Generator & New Set of Gears
  - All Controlled By A Single Crankshaft
- Resulting With:
  - Charge and Store Electrical Energy
  - Turns All New Gears
    - Counting Display
    - Advances Film Frames
- Flash On/Off Switch
  - Remove Flash Indicator Light
  - Install Switch on Motherboard

Redesign Explanation



Conclusion

- Manufacturers' Aspect
  - Reduce Costs
    - Loss of Battery
    - Removes Unnecessary Mechanical Components
  - Minimizes Waste
    - Eliminates Use of Battery
    - Combines Mechanical and Electrical Components Into One
      - Removes Unnecessary Gears and Mechanisms
  - Eco-Friendly
    - Powered By You!
  - Recyclable

Questions?