

The Zoeprojectotrope

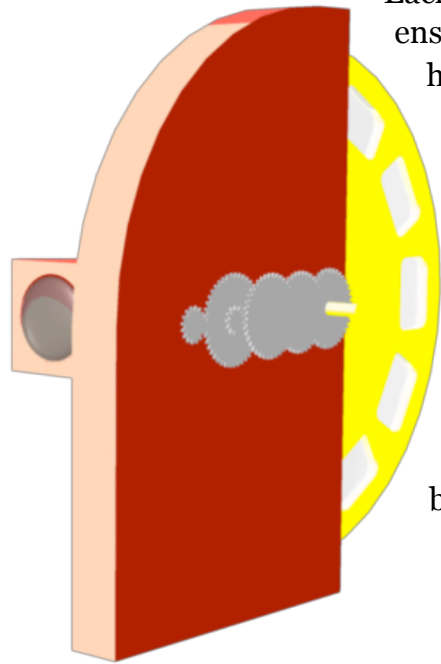
The **Zoeprojectotrope** is a hybrid between a projector and a zoetrope. It is a toy designed to teach kids the main concepts of animation.

Each frame is a piece of acetate which is drawn on. A recession in the frame of the device can be used to position two frames on top of one another, to ensure that the movement between them is fluid. The acetate is then sandwiched between two clear pieces of acrylic and placed in the wheel, which holds slots for 12 frames. To animate the drawings, the user turns the crank, which makes the wheel turn, and places the frames in front of the optics in the right order.

The optics at the front follow the same principle as an overhead projector. A light will shine through the frame, and the image will reflect off a mirror on the other side, get enlarged through the lens, and finally get displayed on the wall.

The light will be powered using the energy generated by turning the crank. A system of gears attached to the crank will spin a motor at high speed, generating enough electricity to power a set of LEDs. A set of contact switched will be positioned around the wheel so that the light is only turned on when each frame is perfectly aligned with the optics. This will simulate the shutter from a real projector.

The **Zoeprojectotrope** will be entirely made out of acrylic sheets. The sheets will be laser cut because of the complexity of the shapes and because of the high level of precision required for the gear system and the optics. The lens and the mirror in the optics will be made out of glass.



Schedule

Task	Date
Parts Ordering	04/05
Object Design	04/09
Laser Cutting	04/14
Parts Assembly	04/16
Light Circuit	04/16
Testing	04/30

Materials and Budget

Qty	Component	Dimensions	Price
1	Red Acrylic Sheet	1/4" x 24" x 24"	\$23.99
2	Yellow Acrylic Sheet	1/4" x 18" x 24"	\$36.98
1	Clear Acrylic Sheet	1/8" x 12" x 24"	\$6.35
1	Clear Acrylic Rod	1/2" x 12"	\$1.19
1	Red Acrylic Sheet	1/8" x 12" x 24"	\$7.39
2	Lens	3.5"	\$0
1	Mirror	4.5" x 3"	\$0
TOTAL			\$75.90

