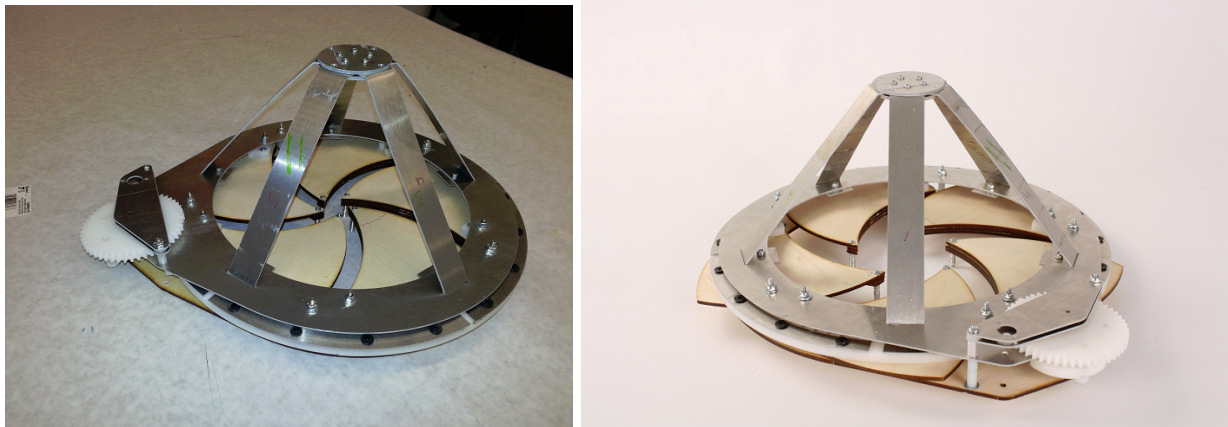


Taking Pictures for ENGR 2330 - Introduction to Mechanical Prototyping

In this course you will be designing and fabricating physical projects using various prototyping techniques. If you take great photos of these projects, you can use them in an engineering portfolio when applying for jobs and internships later. Your photos from MechProto are intended to show off the interesting mechanical properties of the project you are working on. Therefore, photos will most often showcase your object with full product shots and hone in on specific parts in close-up, detail shots.

Product Shot



Comparison between a poor product photo and a good product photo

For this type of shot, you want to encapsulate the whole of your subject. Use a high F-stop to create a large depth of field to ensure that everything is in focus. Because a high F-stop means a very small aperture, the strobes must be intense in order to light the photo adequately.

Subject and Light Setup

- Place subject in center of table
- Point all lights toward the subject
 - Diffusers light the front of the subject at the same angle and intensity , to avoid casting shadows
 - Start with $\frac{1}{2}$ intensity each
 - Modelling light on Intermittent (setting with striped bulb on strobe side)
 - Modelling light is the light inside of the strobe, controlled using the button on the side of the light.

- Softbox will fill the space behind the subject with light
 - Start with full intensity
 - Modelling light on Intermittent (setting with striped bulb on strobe side)
- Dissipate the strobe capacitors by pressing the button on the side of the lights. This makes sure that the light is at the desired intensity. This step must be completed at the start of every session and whenever the light intensity is changed.

Camera Setup

- Mount camera on tripod and adjust as desired
- Slide strobe transmitter into hot shoe on top of camera and screw into place
 - Turn on both the transmitter and the receiver. Receiver should be plugged into the “Sync” port on the back of one of the strobes.
- Turn on the camera and start with the following settings:
 - Camera in manual mode (M)
 - ISO 100
 - F-stop at F22
 - Shutter speed: 1/125
 - White balance on flash (lightning bolt)

Taking the Shot

- Turn off overhead room lights to eliminate extra shadows
- Focus on the subject and take a picture
 - Tip: You can press the shutter release button down halfway to focus on one spot then reframe the shot before pressing all the way to actually take the picture.

Detail Shot



Comparison between a poor detail photo and a good detail photo

For this type of shot, you want to hone in on a portion of your subject. Use a macro lens and small F-stop (large aperture) to create a small depth of field to ensure that only the important details are in focus. Because the aperture will be so large, the strobe must be low in order to not overexpose the photo.

Subject and Light Setup

- Place subject in center of table
- Point all lights toward the area of interest
 - Diffusers light the front of the subject at the same angle and intensity , to avoid casting shadows
 - Softbox will fill the space behind the subject with light
 - Start with all strobes to
 - 1/32 intensity
 - Modelling light on Intermittent (setting with striped bulb on strobe side)

Camera Setup

- Switch normal camera lens for a macro lens (in grey cabinet)
 - Remove lens by pressing the semi-circular button on right of lens
- Mount camera on tripod and adjust as desired
- Slide strobe transmitter into hot shoe on top of camera
 - Turn on both the transmitter and the receiver. Receiver should be plugged into the "Sync" port on the back of one of the strobes.
- Turn on the camera and start with the following settings:
 - Camera in manual mode (M)
 - ISO 100

- F-stop at F2.8
- Shutter speed: 1/125
- White balance on flash (lightning bolt)

Taking the Shot

- Turn off overhead room lights to eliminate extra shadows
- Focus on the subject and take a picture
 - Tip: You can press the shutter release button down halfway to focus on one spot then reframe the shot before pressing all the way.
 - Tip: Having trouble getting the part you want in focus? Try switching to manual focus by sliding the switch on the lens itself from AF to MF. Then you control the way the camera focuses on your object; adjust the focus by twisting the very tip of the lens until the desired part is in focus.
 - Not enough in focus? Increase the F-stop

Troubleshooting

If your photo is:

- Out of focus: Try holding down the shutter button halfway before taking a picture
- Washed out: Use lower light intensities (keep the ratio between the diffusers and the softbox about 1:2)
- Dark: Increase the intensity of the strobes, If at their maximum, decrease the shutter speed
- Shadowed strangely: Use a reflector to direct light to the shadowed area.
- Orange-tinted: play with the White Balance (WB) settings on the camera (by pressing the WB button and using the arrows to switch settings) until a natural-looking color is achieved. "Tungsten" is usually a good guess.