



INTRODUCTION

Hi, My name is Memon Marshall and I am a student at the College of Southern Nevada. I majored in Computer Aided Design and Drafting or CAD for Short. I got into this program because I am very interested in science and engineering. I currently work at a non-profit organization called OROC Nevada. I get to work with a master carpenter who does happens to be a construction teacher. I am very lucky to be able to practice my designing and engineering skills on an daily basis. What I hope to gain from this experience is a better understanding of the scientific process and the process of designing and physical engineering. Having a major in the STEM field is both rewarding and challenging. I am very grateful to NASA and my professors for allowing me to participate in this amazing opportunity.

HOW I CHOSE MY PROJECT

I had my professor assist me with choosing this project. I wanted to do something that incorporated my CAD abilities and my professors knowledge of physics. I had no prior knowledge of planetary gear systems, however when my professor explained to me what it was, I was hooked on the idea. Planetary gear systems are used in a variety of different things. For example, transmissions for cars and planes. Another item that uses planetary gear systems is a power drill. This project challenges me and allows me to use different areas of STEM. Math is one of those areas as well as technology and engineering.

ADDITIONAL INFORMATION

The software I use for my project are the following; AutoCAD 2023, Solidworks, Windows 10, and QIDI 3D slicer. For the parts of the assembly, I use a 3D printer. The 3D printer uses PLA filament. I use a 3D printer because it gives me the opportunity to incorporate my CADD experience. The type of 3D printer is a QIDI Technology imates 3D printer.

MY DESIGNS



RING



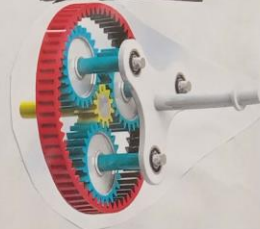
SUN

PLANETS

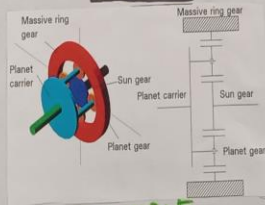


VISUAL

DEFINITION



An epicyclic gear train consists of two gears mounted so that the center of one gear revolves around the center of the other. A carrier connects the centers of the two gears and rotates the planet and sun gears mesh so that their pitch circles roll without slip.



EXAMPLE

$$\text{Ring Gear} = \text{Sun Gear} + 2 \times \text{Planet Gear}$$

TEETH FORMULA

PROFESSORS:

Dr. Stephanie Fiorenza PhD, MBA
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Professor of Physics and
Astronomy
Astronomy Lead Faculty Member

Dr. John Howard PH.D
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