

**VEX**<sup>®</sup>

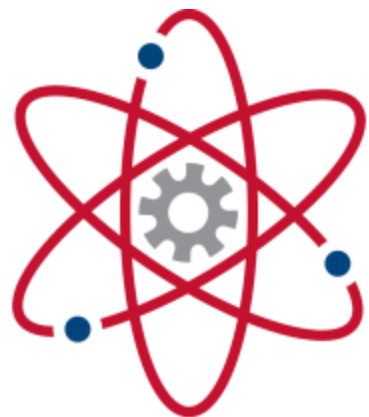
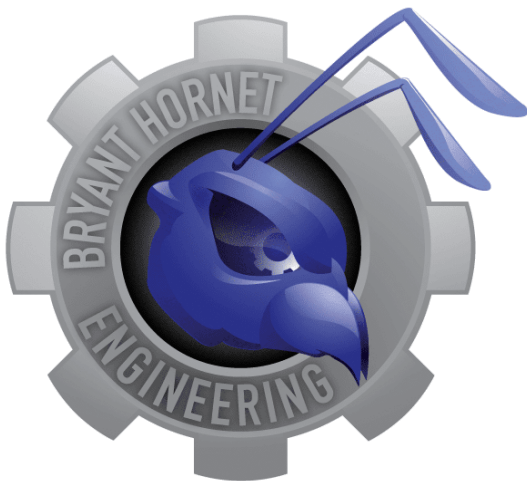
ROBOTICS

**COMPETITION**



**AUTODESK**<sup>®</sup>

**INVENTOR**<sup>®</sup>



PROJECT LEAD THE WAY

**PLTW**

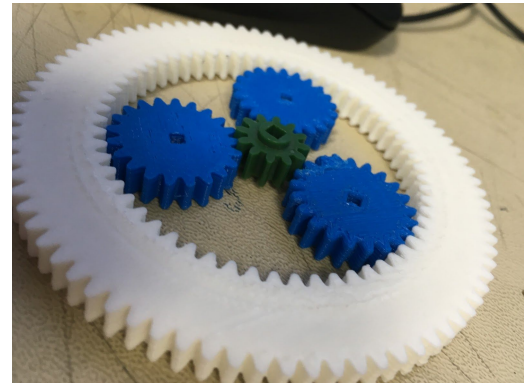
## Planetary Gear Set (specifically the ring gear)

### Introduction

Bryant Hornet Engineering decided that a planetary gear would be a useful tool in consolidating gear trains as a more effective way of utilizing the concept of power transmission. The main problem we are solving is a space issue. A standard gear train can take up an endless amount of space in a robot, by allowing the gears to be integrated within another gear it eliminates the space lost to long complicated gear trains with a sole gear ratio. The planetary gear system allows for multiple gear ratios to be used as a result of the unique ability to drive more than one gear set in the system.

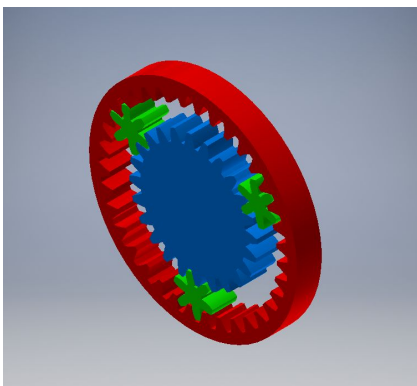
### Explanation of Implementation

The gear system is to be used in places where space is especially limited and a large step in gear ratio is needed. Instead of meshing gears together externally, we made a gear that allows a gear to be embedded inside of another to save space. The amount of additional gears required for installation is between 2 - 4 gears.



### Explanation of Platform

Using Autodesk Inventor, our team was able to accurately create and scale our new part with the integration of pre-designed Vex gears. Through Autodesk Inventor we were able to design, assemble and animate the planetary gear set.



### Conclusion

From this project we now understand the importance of the engineering process as a way of innovation and integration into a larger design. From this project we now understand several more complex commands and tools in Autodesk Inventor that could help us in future careers such as those including digital design.