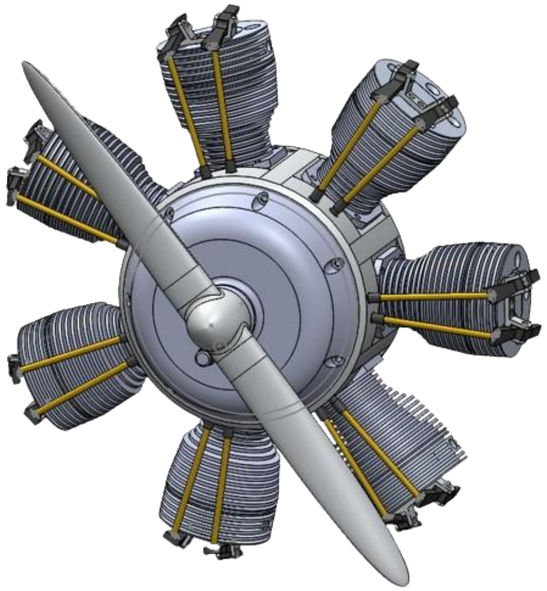
RADIAL ENGINE - PROPELLER
Niall Dalton – K00270477

Aim of the Project

The aim of this project is to manufacture a suitable model propeller to be fixed to the previously designed and manufactured Radial Engine.

Background

The inspiration for this project was sparked by a previously designed project. A Radial Engine was designed by a student a number of years ago but due certain circumstances the final model never reached the manufacturing stage.



Background

As part of the Semester 1 Group Project Module, two groups were put together to complete the design and manufacture of the Engine.

Once again, due to time restrictions and other complications, the model was not assembled in Semester 1. Therefore, a group of 3 were left to complete the assembly of the Engine at the beginning of Semester 2.

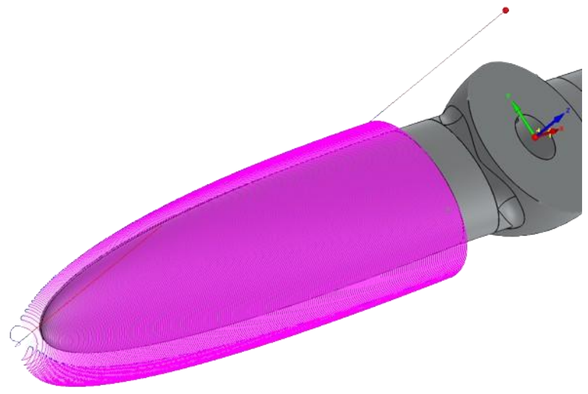
The plan was to assemble two engines; therefore, a significant quantity of some components were required. From Sem. 1, several parts were never manufactured and some parts that were partially complete. This meant that the group assigned to the final assembly had to ensure that these components completed the manufacture stage.

Shown above is a Cam Follower which is an example of a component that had not been started until Semester 2.

Manufacture

There was no design process involved in the manufacture of the propeller as the student who previously designed the Radial Engine had also designed a propeller along with it.

The main objective of this project is to machine a propeller in the most efficient way using the SolidCam software. Two propellers had to be manufactured. Therefore, two different types of roughing methods were used, and two different types of finishing processes were used. The different methods were then compared to one another and determined which was more suitable for the manufacturing process if the propeller had to be machined again.



Shown above is the SolidCam toolpath of a HSS finishing pass operation that was done on the blade of one of the propellers.

Conclusion

In conclusion, this project furthered my knowledge in effectively using correct machining methods. If I had the opportunity to manufacture the propeller again, I would have a more informed base of knowledge to choose from and, therefore, the component could be produced to a higher standard.

This project, as a whole, was a great experience in learning to work as part of a team. Working on a project of this size involves a high level of communication between team members so everyone is on the same page. I thoroughly enjoyed being involved in the production of this project.

Acknowledgments

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