Aim of the Project

The aim of this project is to design, manufacture and test a sterling engine.

Background

Each Group was given three different design configurations of the sterling engine (Gamma, Beta and Alpha). We were Also given Design constraints like a single cylinder and maximum sizes.

We broke the project into a series of phases:

- I. Research Phase
- 2. Design Phase
- 3. Feedback Phase
- 4. Redesign Phase
- 5. Manufacture Phase
- 6.Assembly / Operation Phase

This allowed us to manage our time and equally divide up the jobs.

Sterling Engine Project 2024-2025 (P2) Shane Hogan, Conor Higgins, Ethan Sibanda

Research

We done some research into the different configurations to see what one was best for us.



Figure 1. Sterling Engine Design Configuration

We wanted to make this as simple and as effective as possible, So we went for the Gamma configuration of the engine.

Design And Feedback

Our first design lacked some of the design constraints and we weren't sure if it would work or not so we had to make some changes by continuously fixing things as we go and eventually were happy with the final design

Manufacture

The manufacture phase was the longest and most important phase as we are putting all our research and design to the test. The first step was to make working drawings and divide the work evenly between the group. Most of our parts were made in the workshop by us, bust some were made on the CNC and done the programming ourselves as these parts would have been too complex to make in the workshop



Figure 2. First Cad model of Engine





Figure 3. Fly Wheel

Manufacturing on CNC



Figure 4 Final Cad Model Of Engine

Conclusion

This Project has thought us a lot about the difficulties and issues that come with designing and manufacturing a project like,

- Teamwork and communication
- Organising
- Designing and redesigning

• Working within design constraints If we were to do this project again we would work on all of the above. But overall it has been a positive experience and learned a lot in the Process.

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