

Improving Friction Clutch Experiment

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Abstract

“The clutch experiment is a simple piece of apparatus that usually gives reasonable ball-park figures. This project improves the data collection and regulates the application of torque so that the results can be refined and the experiment duration can be shortened.” Rob Benham. Report the primary purpose is to improve the time it takes to complete the clutch experiment. The author was carrying research and experiment to achieve.

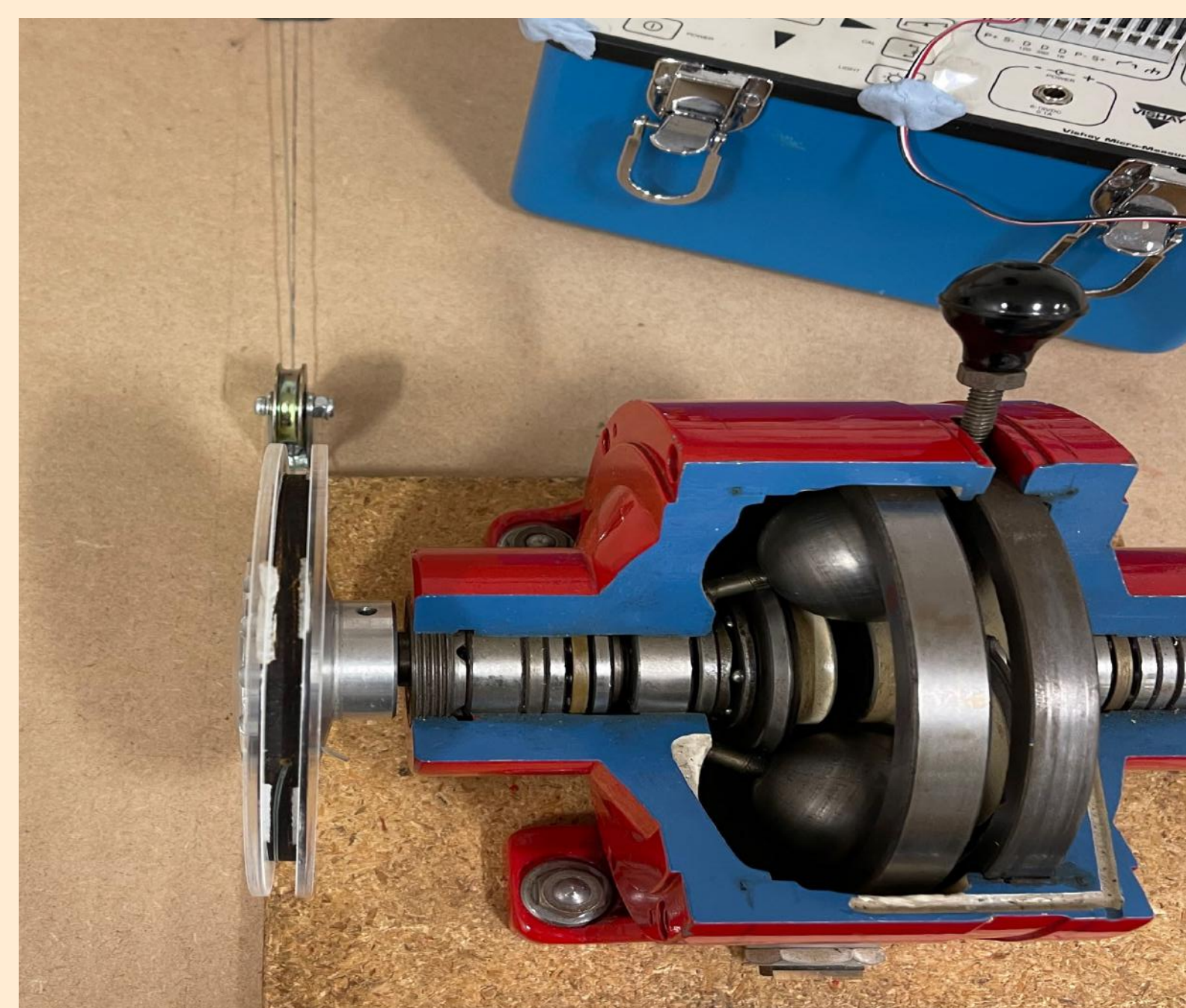
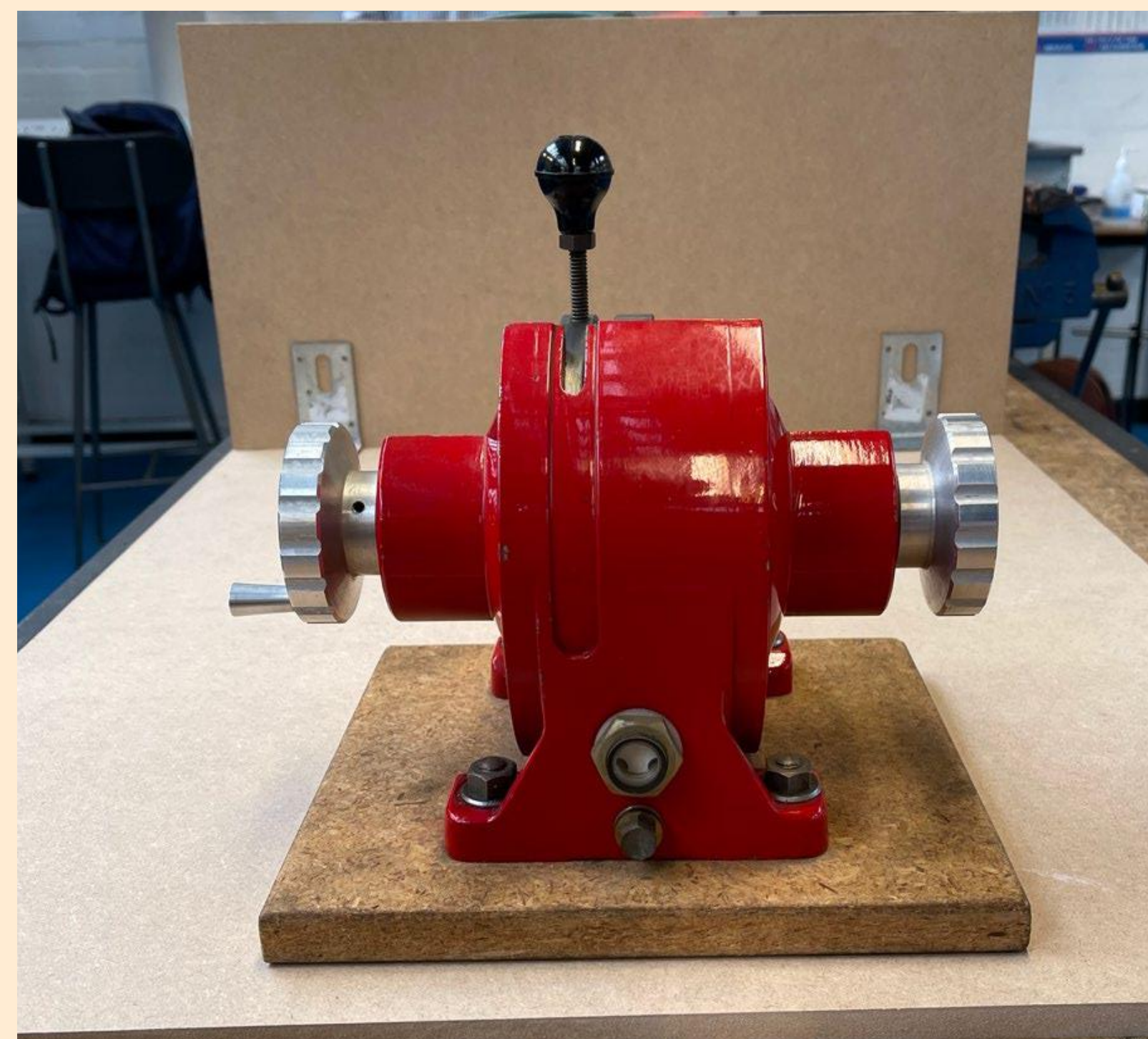


Introduction/Background

During the second year, we were required to take a range of experiments in the Application Mechanics Laboratory. One is the simply friction clutch. The project intends to improve the data collection and regulate applied torque to produce more reliable. The Mecholic Webpage provides details of applications for friction clutches. (Mecholic 2021). Peter The book mechanical design talks about how a clutch works (Childs 2003). Over time the experiments produced less reliable results could be the method or deterioration of materials used. Research ranging was conducted to find the appreciated material using material selection.

Aims /Objectives

- Improve data collection
- Regulate the application of torque
- Speed up time duration of project
- Use or multiple mechanical techniques
- Pulley system implemented



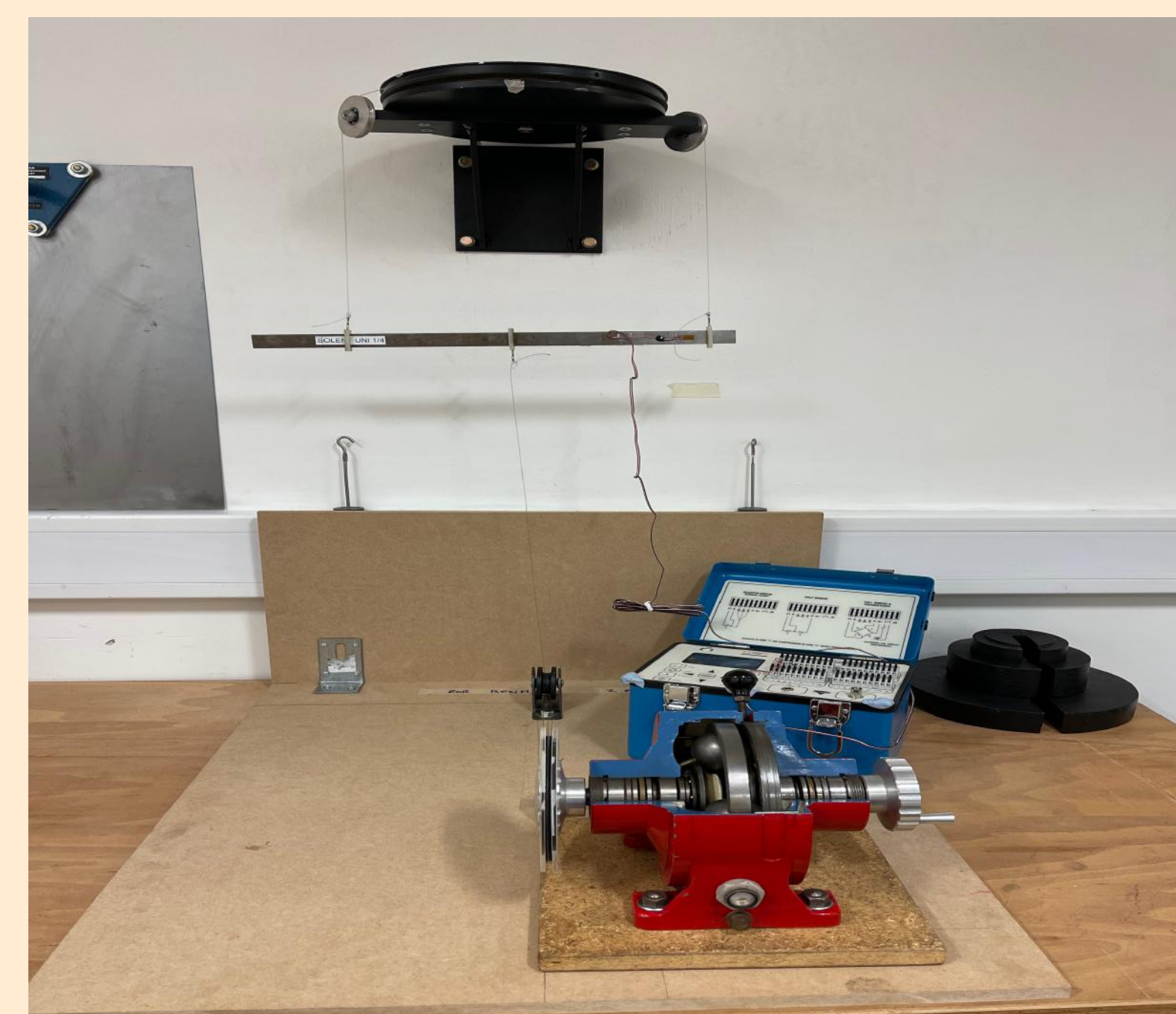
Methodology

- Looking at a range of Candidates solutions
- Implementing the solution on the project experiment
- Time the experiment
- Testing of the experiment
- Compare results

Since the strain gauges could not read of the strain on the beam a secondary experiment was implemented and is listed below. Pulley system was implemented by designing a cutting for the CVT that would rotate with the CVT.



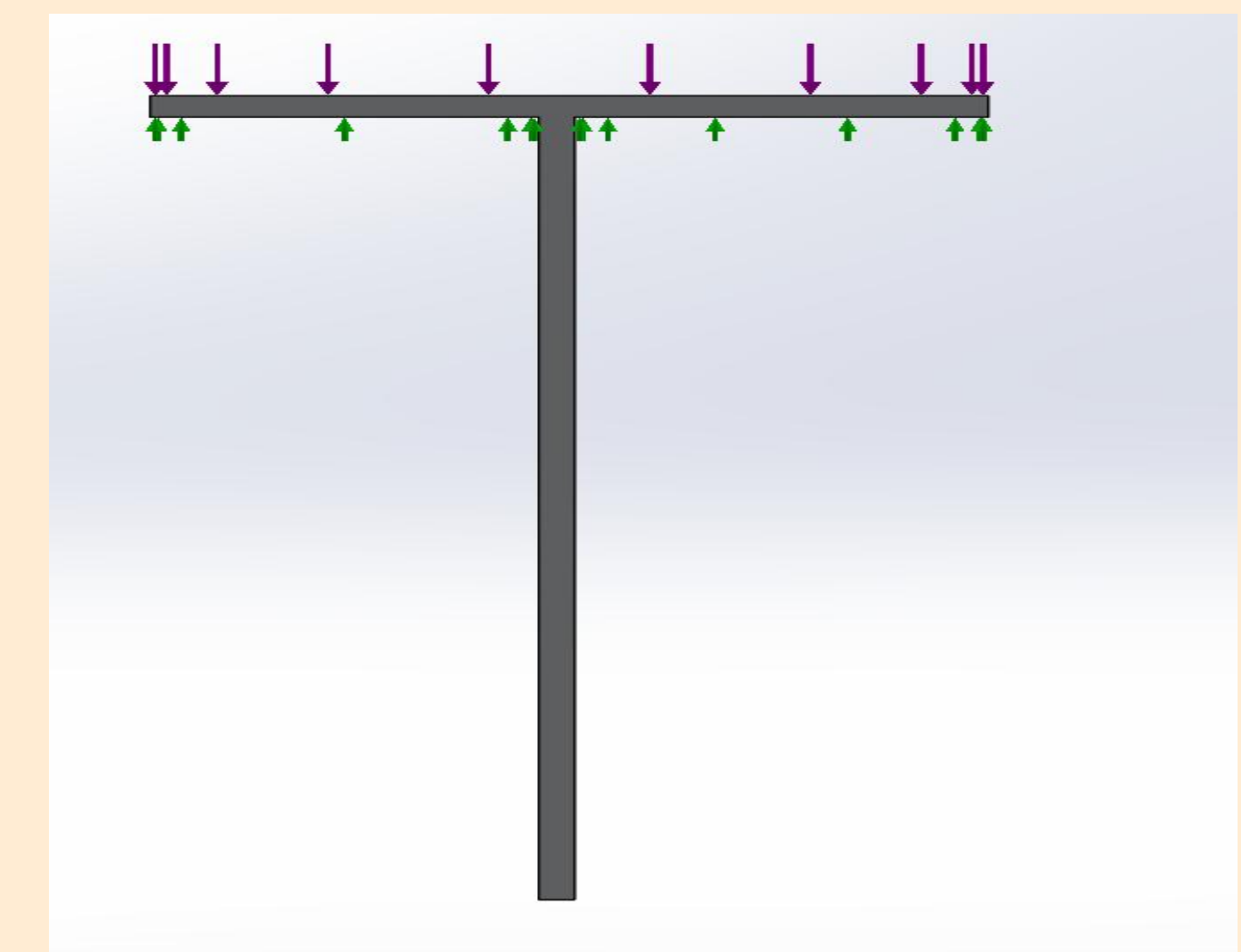
Results



Conclusion

The project was successful and shows the principal functions in the video of the project. The main issue was the thickness of the beam. Strain gauges only being able to read Lateral and not longitudinal. Data collection was improved due to no longer need to add weight each time. Rotating the CVT transmission reading can be obtained given the appropriate material attached to the strain for best results. Time is improved as this process requires less time and effort.

Future Recommendations



- A T-bar would need to be designed and constructed
- The thickness of the beam would be small to allow strain gauges to work
- Aluminum alloy with high yield strength is the best material
- Adding strain gauges on either side close to the clutch to compare readings