

Design and build of a motor driven broadcast spreader

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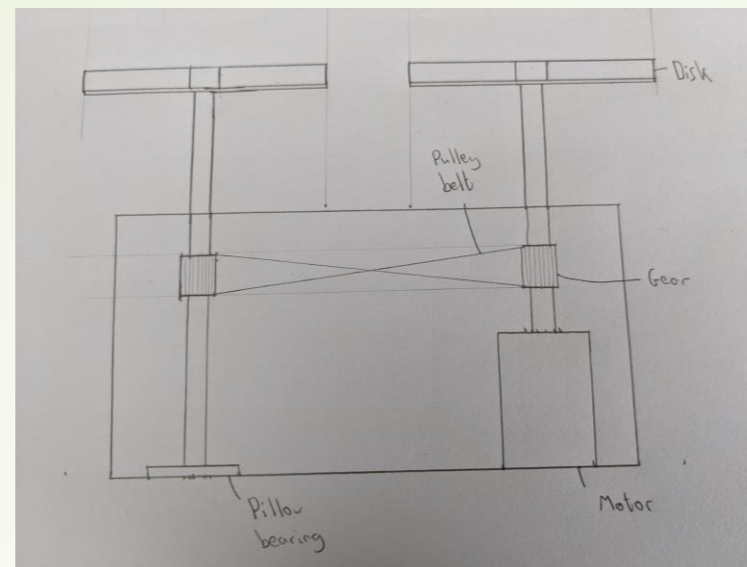
Introduction

- The goal of this project was to design and build a grass seed spreader that can be pulled by a slow moving vehicle.
- Most domestic spreaders on the market have the spreading disk connected to the wheels axle, which can lead to the spreading rate being inconsistent.
- To remedy this, the spreading disks are connected to an independent motor.
- This keeps the seeding rate steady and consistent. This wastes less seed and saves money.

Aims & Objectives

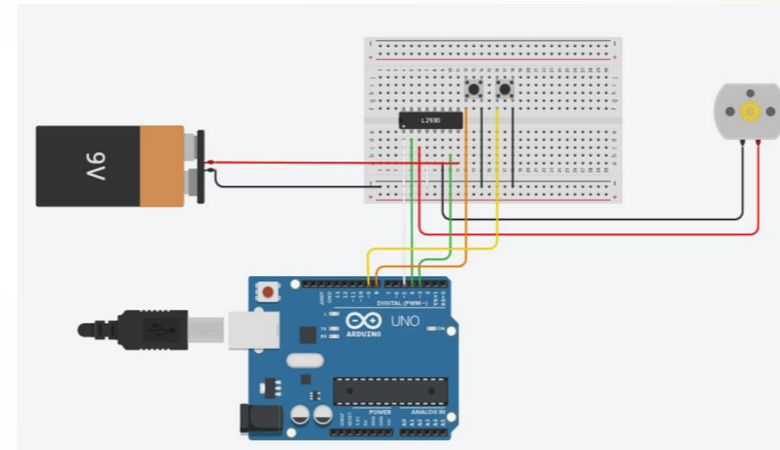
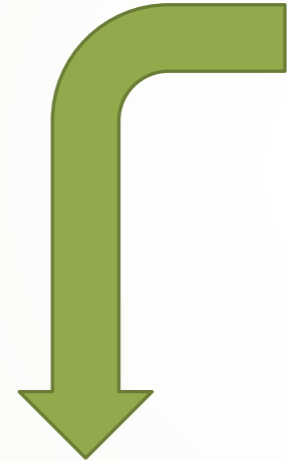
- Research current seed spreaders on the market
- Create a product design specification
- Create multiple concepts and select the most suitable
- Design the chosen concept using CAD software
- Carry out relevant hand calculations
- Manufacture a prototype of the selected concept
- Carry out tests on the prototype to ensure it can perform reliably

Final motor pattern concept

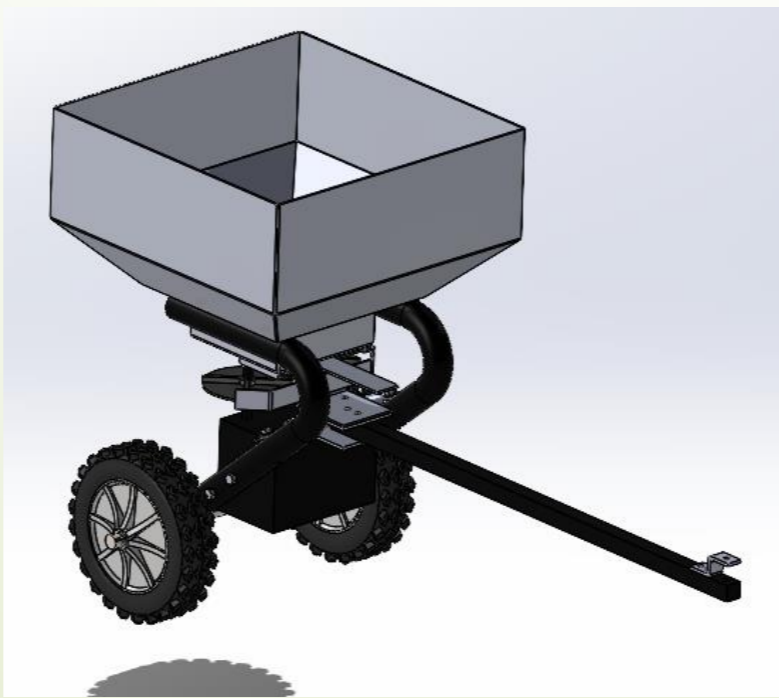


Creation of motor circuit

The spreader has three speed settings using pushbuttons to move up to the maximum speed and back down to a full stop.



Final CAD model



Prototype



Testing and evaluation

- The flow rate through the orifices in the hopper was tested.
- The goal seed rate was 25- 30 grams per square metre.
- Results showed an average of 21.8 g/m²
- The spreading distance was tested on all three speeds three times each.
- The spreader threw seeds slightly more to the sides than directly behind the spreader.
- This warrants some changes to the position of the orifices in the bottom of the hopper.