Overview
Moringa is highly valued plant that grows widely in tropical environments. The seeds provide a highly valued oil. Traditionally Moringa oil is extracted by smashing the seeds in a large wooden bowl. This is a very inefficient and labor extensive method of doing it. Our challenge is design a machine that can extract the oil without any need of assistance.

Objectives
Our objective is build a seed press that is:
● Easy enough to operate that even a child could use
● Produces a good yield (~20%) as well as maintaining the quality of the oil
● Easy to maintain and repair using hand tools
● Safe

Approach
● Gathered customer needs from our sponsor Mike Erdman and Papa Fall, who has a lot of experience of what is required.
● After extensive research and concept scoring we found that cold press is the best way to extract oil from Moringa seeds.
● Our design included the Piteba, which is the most popular and reliable hand seed press, for extracting the oil from the seeds.
● Next thing was to somehow motorize the Piteba. This was achieved by using a motor that is connected to the shaft of the Piteba.
● One concern was that the motor used was running at 1750 RPM but only 30 RPM is required. So we had to design a system of gears to step the motor down.
● Using Solidworks we designed the prototype and based on the design we built the final prototype.
● The machine was tested by adding one seed at a time and calculated the yield at the end of 200 seeds. The temperature was also monitored as the oil tends to lose its quality at 140 F.

Outcomes
● The machine is producing a yield of 20 % +/- 5 %.
● It produces a good quality of oil because the temperature never exceeded 115 F.
● The machine is safe to operate.