Project Name – Baobab Seed Oil Extraction Team

Overview
The project that has been presented to our team has been the Baobab seed which is found in Africa. The people in Africa crush this seed and obtain the oil in order to sell it to the cosmetic industry. The problem with this is the process is that it requires excessive amounts of manual labour. This is due to the fact that the outer shell of the Baobab seed is exceptionally hard.

Objectives
The objective of our team was to build a prototype that could be used as a press for the Baobab seeds in order to relieve the manual labour in this process.

Approach
- Initially we started, by taking the requirements given to our team and started to generate concepts.
- Patent searches, external research and even the customer needs analysis helped in forming some concepts.
- From there we narrowed down our concepts to the ones we felt would best suit our requirements from the sponsor.
- We then narrowed down to one concept (the hydraulic press) using a concept selection matrix.
- From there we began to create CAD models in order to come up with a design.
- We went through many models but then came to conclusive decision on one model.
- We then went on to do some calculations in order to find out the material specifications that could withstand the force we would be applying.
- After material was ordered and arrived we began construction on the press.
- Once construction was complete we arrived at the testing phase of our project.
- To test if our press would work we had to add the Baobab seeds to a canister.
- This canister is then placed right underneath the press.
- The hydraulic press then comes down, and in theory would crush the seeds, squeezing the oil out of the seeds and out through holes in the bottom of the canister.

Outcomes
- In the end we were able to crush the seeds and obtain oil from them.
- This process would reduce the manual labour substantially.
- Now the only manual labour that would need to be performed would be to crank the jack in order to press down on the seeds and then to lift the jack back up.
- With this process there would have training associated with using our machine, however it would be minimal.