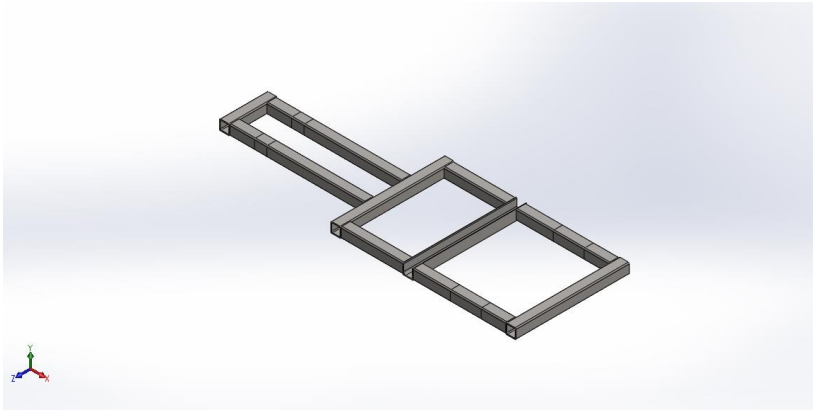
Internship 2022

Name: Njenga Emmanuel

Tasks completed last week

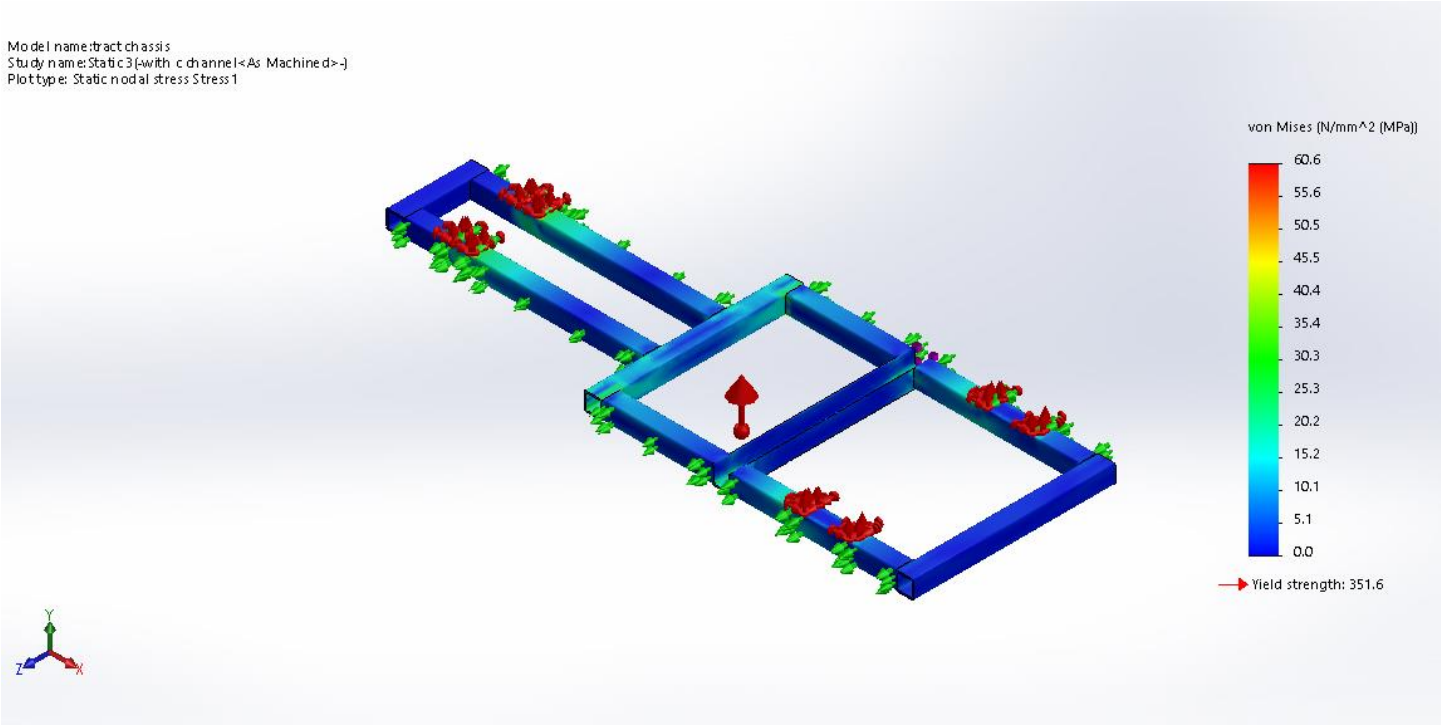
- [#42] 3D modelling of the tractor chassis



Engine area
Height=55cm
Length=70cm

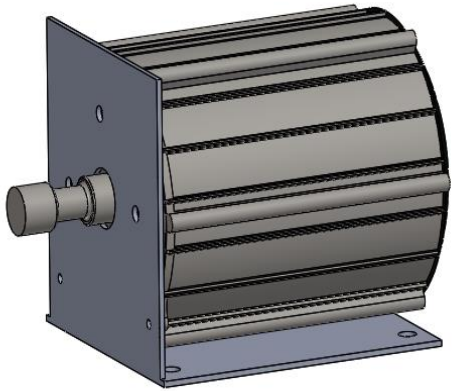
Stress analysis of the chasis

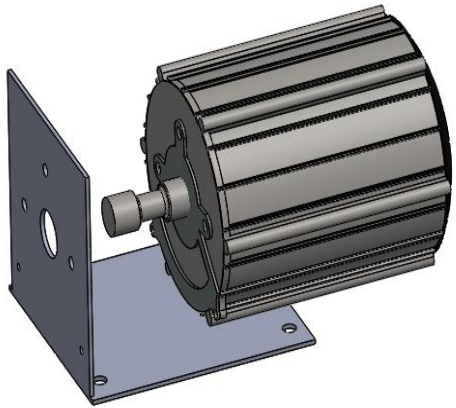
The chassis design is safe to work with the current dimensions and geometry



[#48]Design of motor mounting and placement on the E-tricycle

Length of the motor=170mm
Height of the motor=150mm





[#33]Calculation of the power requirements for the shujaa tractor

To acquire the power required we considered two case

1. Power required when the tractor is accelerating and ploughing
   During ploughing, the tractor first has to accelerate from 0km/h to 11km/h. At this stage, this is when the motor is most loaded and hence highest power drawn from it. We found this value to be 6.7923 kw

2. The power required when the tractor is accelerating and not ploughing

For this case we considered a scenario where the tractor is moving from the workshop to the farm whilst drawing the implement and accelerating from 0km/h to a constant speed of 30km/h. e found the value to be 6.855kw

Tasks in this week

- [#56]Design of the transmission system
- [#54] Fabrication of motor shaft attachment
- [#55] Fabrication of motor housing

Timeline

Month	Intern week	Tasks
Jan	Week 1	Taking measurements and 3D modeling of the tricycle Identification of parts
	Week 2	Design of chain drive, Shaft design Disassembly of the tricycle
Feb	Week 3	Acquisition of parts Fabrication and assembly of the tricycle Literature review on e-tractors
	Week 4	Identification of parts to be replaced Calculation of power requirements for the shujaa tractor Measurement of chassis
	Week 5	Design of various transmission components 3D modeling of the Shujaa tractor
	Week 6	Vibration and stress analysis Acquisition of parts
March	Week 7	Fabrication and assembly of Shujaa tractor
	Week 8	Testing and performance analysis