

# Internship 2022

## Progress report on E-tricycle

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# Tasks completed last week

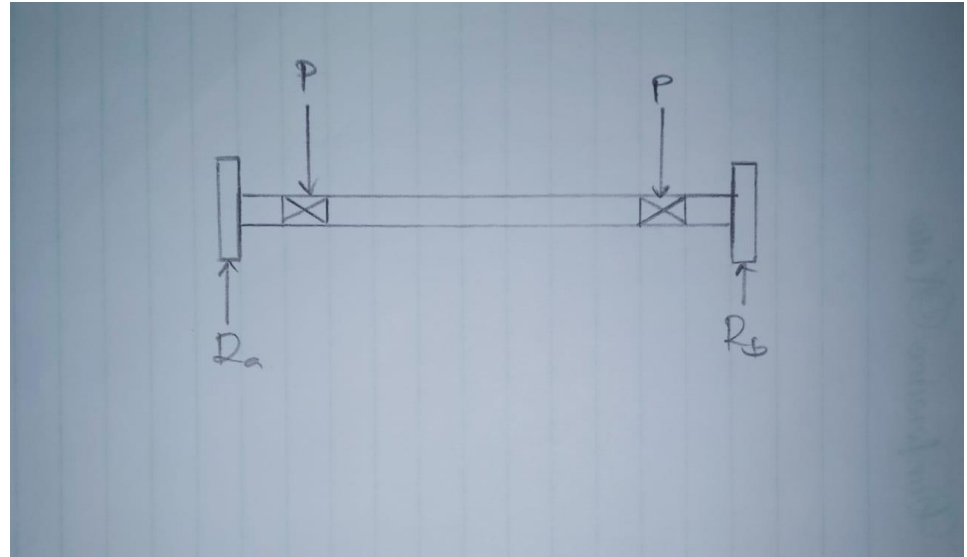
- [#20] **Design of shaft**

At 600rpm for the 1200W ,  $T_{max}=19.10\text{Nm}$

Using the maximum shear stress theory (Guest's theory)

$$\sqrt{M^2 + T^2} = \frac{\pi}{16} \times \tau_{max} \times d^3$$

Diameter= 15.62mm



- [#21] **Chain drive design**

- Design for the sprockets

Speed ratio=3.5

The larger sprocket=47T

Smaller sprocket = 15T

- Design for the chain

D=180mm

d=70mm

Center distance , $x$ = 170mm

Chain length= $\pi(R + r) + 2x + \left(\frac{R-r}{x}\right)^2$

L=760mm



# Disassembly of the tricycle



# Tasks in this week

- [#31]Fabrication and assembly of the tricycle
- [#32]Acquistion of parts
- [#33]Calculation of power requirements for the shujaa tractor

# 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