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Overall, we also thank our instructor-in-charge and our tutor, Dr, Niraj Mohan Chawake, for providing us with this opportunity to learn, explore and make something valuable using the different manufacturing processes.

# **INTRODUCTION**

A charkha (spinning wheel) is a device for spinning thread or yarn from fibers.

The basic spinning of yarn involves taking a clump of fibers and teasing a bit of them out, then twisting it into a basic string shape. The spinner continues pulling and twisting to make it longer and longer, and to control the thickness. The actual wheel part of a spinning wheel does not take the place of the spindle, instead, it automates the twisting process, allowing one to "twist" the thread without having to constantly do so manually, and also the size of the wheel lets one more finely control the amount of twist. The thread still ends up on a spindle, just as it did before the invention of the wheel.

Mahatma Gandhi initiated the Swadeshi movement by taking up the charkha and encouraging the Indians to spin their own cloth. The Spinning Wheel or Charkha became not only a symbol of the revolution, but it now is a symbol synonymous with the power of self-reliance, perseverance, and determination. The Swadeshi movement increased the demand for Indian Cotton Textile and Indian Textile Industry grew by leaps and bounds. Indigenous Industries began to spring up and lay their stronghold in the global industry, now the country is the world's second-largest textile manufacturer.

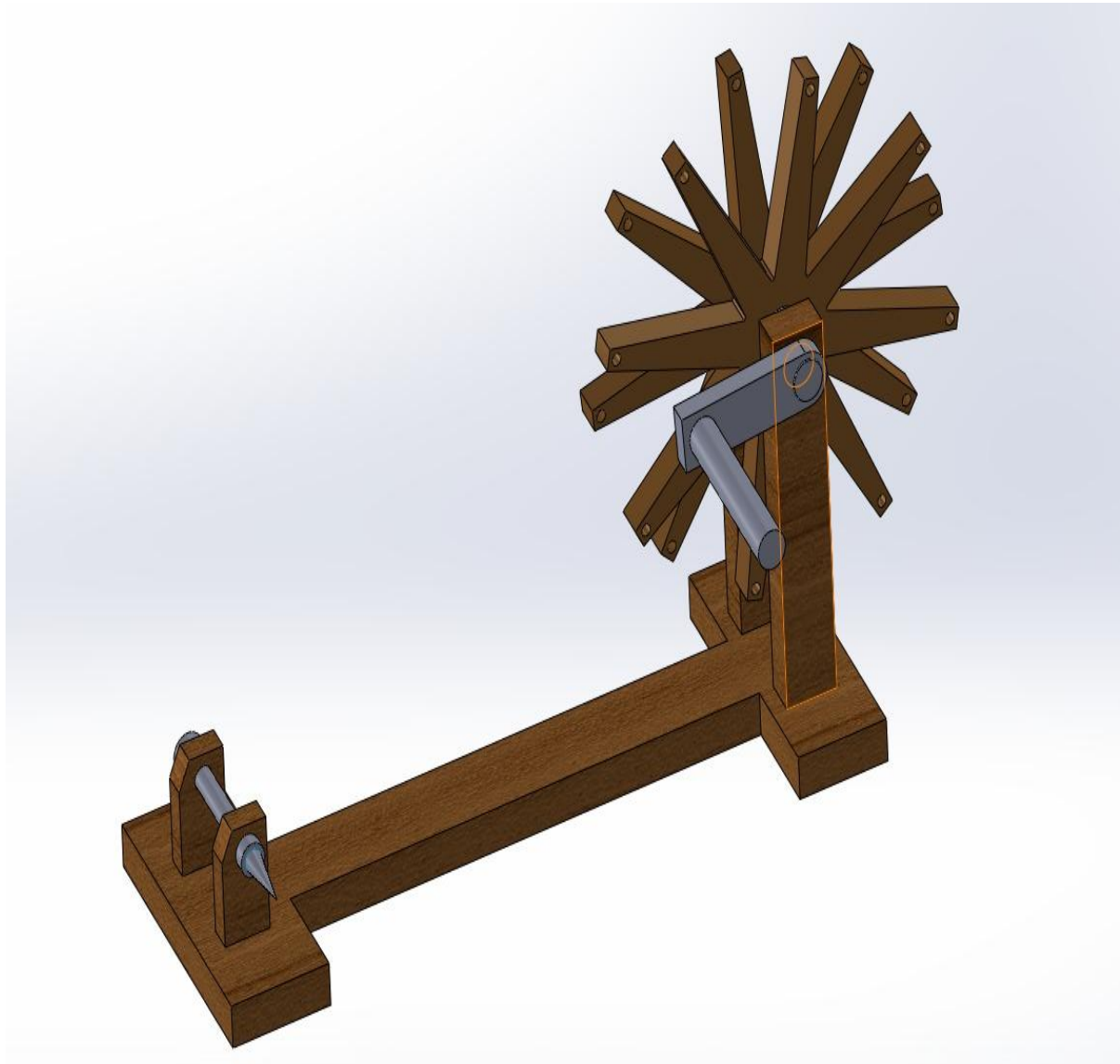
# **MOTIVATION**

The motivation behind our project, Charkha, is to understand the structural and functional aspects of it. We want to learn and apply the basic tools and techniques and the material used to build such complex-looking structures. The knowledge of manufacturing processes learned in TA201 applied to such large-scale engineering projects gives us the real feel of how processes work in real life systems.

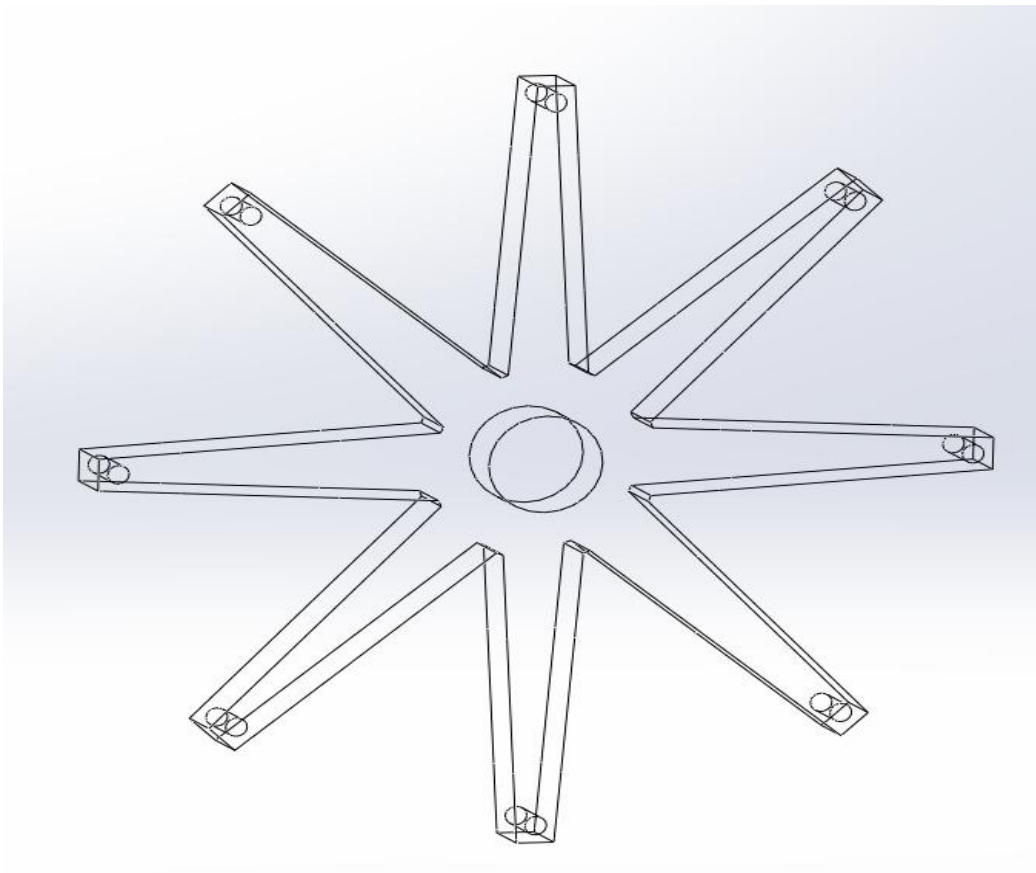
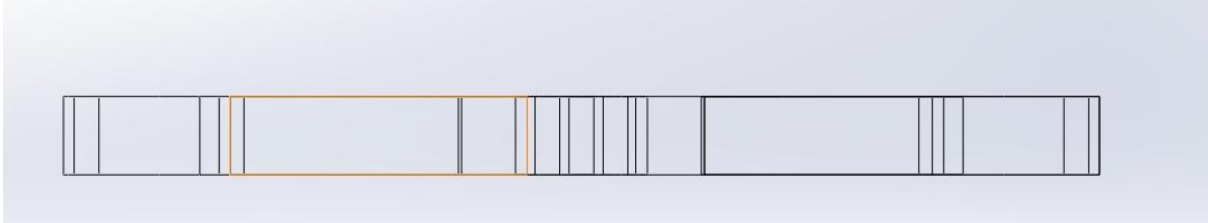
# WORK DISTRIBUTION

<i><b>Members</b></i>	<i><b>Week 1</b></i>	<i><b>Week 2</b></i>	<i><b>Week 3</b></i>	<i><b>Week 4</b></i>	<i><b>Week 5</b></i>	<i><b>Week 6</b></i>
<i>Aryan Srivastava</i>	Handle moulding(6)	Vertical stand(5)	Axle making(2)	Assembly	Assembly	Final check for faults + working model check
<i>Ashutosh Kumar</i>	Handle moulding(6)	Vertical stand(5)	Axle making(2)	Assembly	Assembly	Final check for faults + working model check
<i>Astha Tibrewal</i>	Base formation(7)	Vertical stand(3)	Spindle making(4)	Assembly	Assembly	Final check for faults + working model check
<i>Avinash Shukla</i>	Base formation(7)	Vertical stand(3)	Spindle making(4)	Assembly	Assembly	Final check for faults + working model check
<i>Ayush Himmatsinghka</i>	Base formation(7)	Vertical stand(3)	Spindle making(4)	Assembly	Assembly	Final check for faults + working model check
<i>Chetanya Goenka</i>	Wheels moulding(1)	Casting + shaping of wheel	Axle making(2)	Assembly	Assembly	Final check for faults + working model check
<i>Chirag Garg</i>	Wheels moulding(1)	Casting + shaping of wheel	Axle making(2)	Assembly	Assembly	Final check for faults + working model check
<i>Dasari Charithambika</i>	Wheels moulding(1)	Casting + shaping of handle	Spindle making(4)	Assembly	Assembly	Final check for faults + working model check

# COMPLETE MODEL



# WHEEL



Part no: 1

Quantity: 2

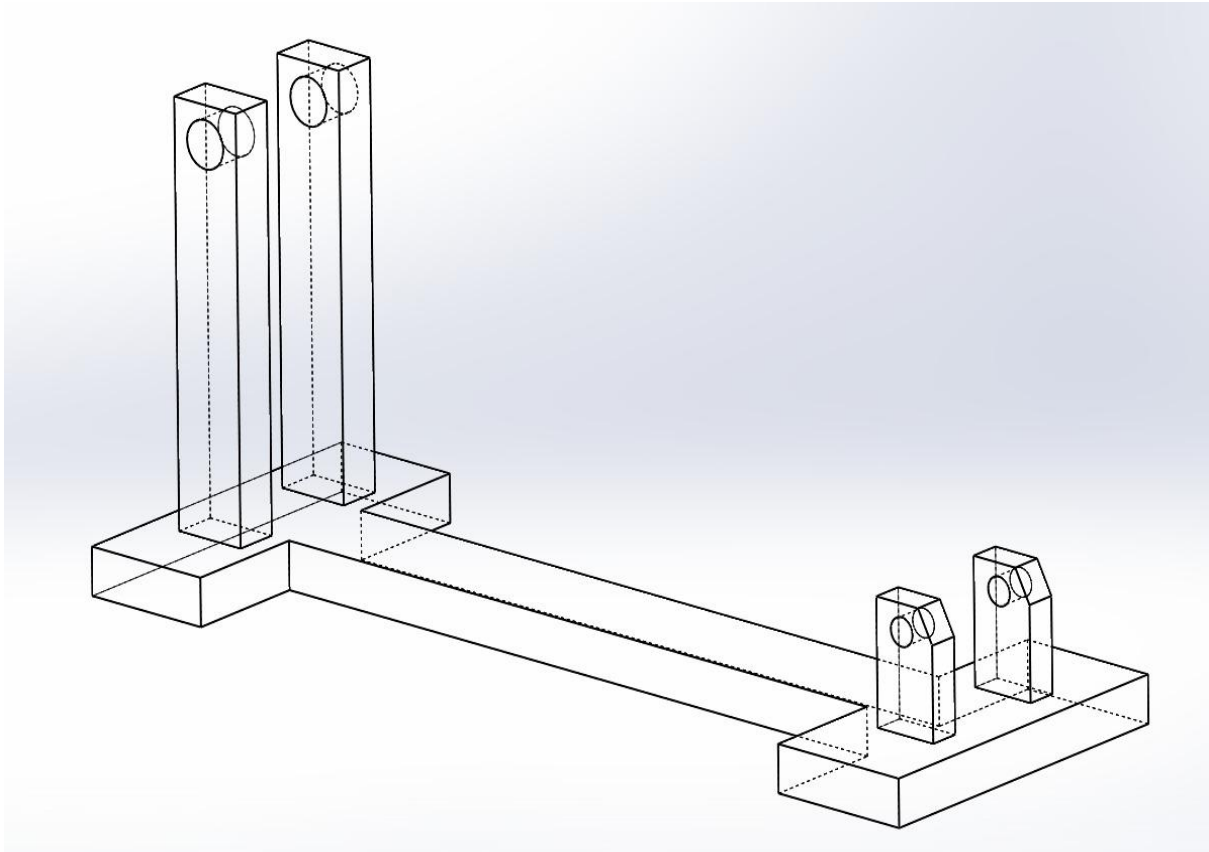
Material: Aluminium  
Thermocol

Process:

Green Sand moulding and casting

Drilling for holes

# **BASE WITH BASE** **STRUCTURE**



Part no. 3, 5, 7

## **Base with wheel stand**

Material: 2 mm mild steel sheet for base

Process: Sheet metal forming

Welding

## **Wheel stand**

Material: Thermocol

2 mild steel square pipe 25mmx25mm

Process: Drilling



Welding

**Needle stand**

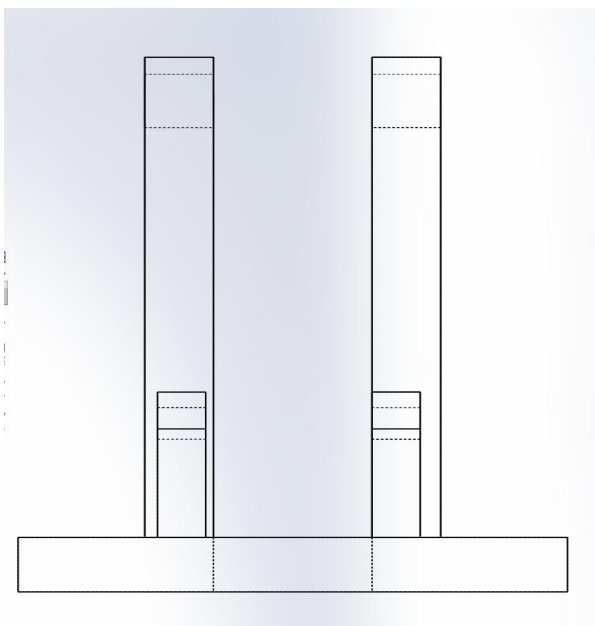
Material: 0.7mm mild steel sheet

Process: Metal sheet forming

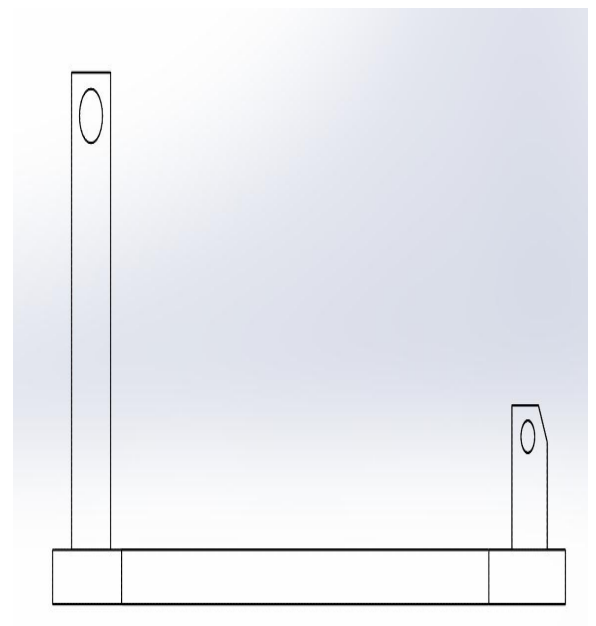
Drilling

Welding

**ORTHOGRAPHIC VIEWS OF BASE**

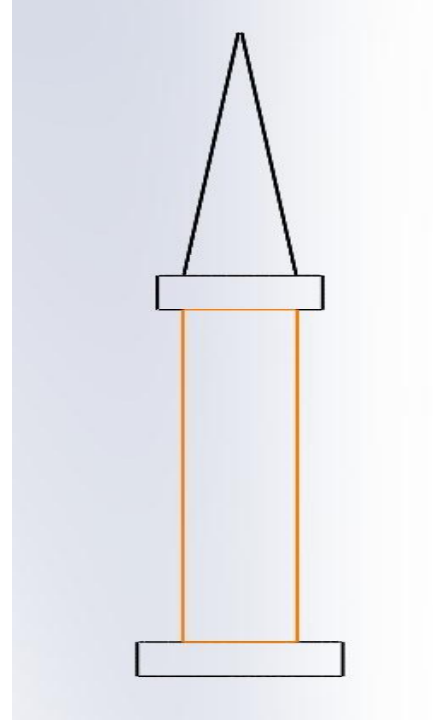
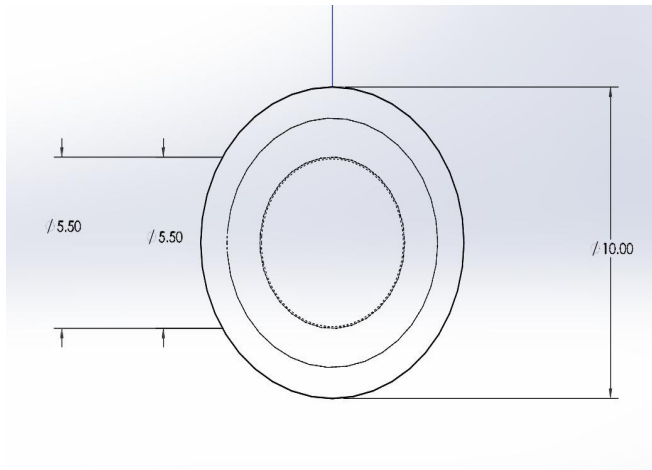


Right view



Front view

# SPINDLE

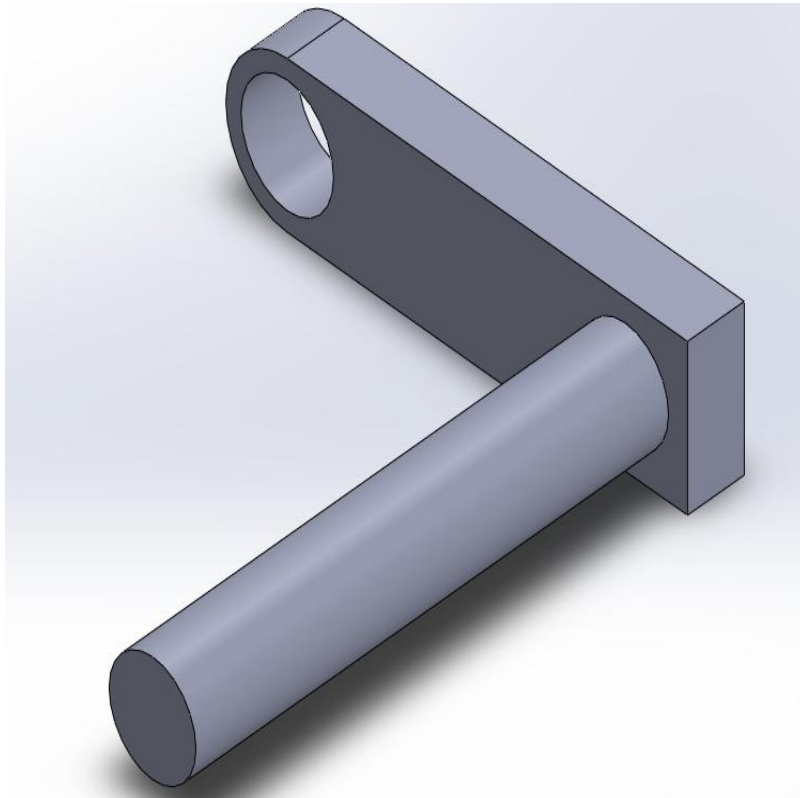


Part no. 4

Material: 3 mm mild steel rod

Process: Grinding

# **ROTATING HANDLE**



Part no. 6

Material: Aluminium

Thermocol

Process: Green Sand moulding and casting

Welding

# **ORTHOGRAPHIC VIEWS OF** **HANDLE**

