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SYNOPSIS

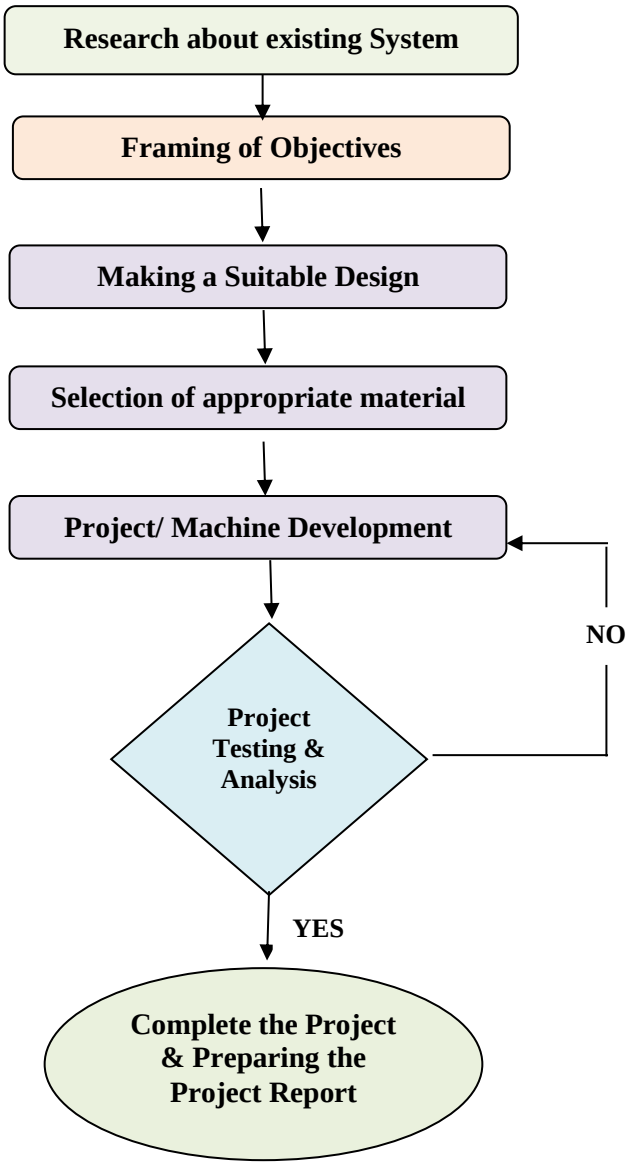
1.	**Reference no: 45S_BE_2241**
2.	**Project Title: "RUBBER LATEX SUCTION MACHINE FOR RUBBER TREE"**
3.	**Name of the college: VIVEKANANDA COLLEGE OF ENGINEERING AND TECHNOLOGY, PUTTUR**
4.	**Department: Mechanical Engineering**
5.	**Name of project guide:** **1. Dr. DEEPAK K B**
6.	**Name of the Team Members:** **1. GANESH GOWDA S** (4VP20ME401) **2. K S BHARADWAJA** (4VP20ME402) **3. KEERTHAN RAI M** (4VP20ME403) **4. SHIVAPRASAD M** (4VP20ME407)
7.	**Team Leader of the Project:** **1. K S BHARADWAJA**
8.	**Keywords:** **Agriculture, Innovation, Creativity Technique.**
9.	**Introduction:** The majority of the rubber trees are in tropical areas like Southeast Asia, Amazon region of South America. In the recent years labour scarcity has emerged as one of the foremost challenges in farming. Rubber plantation has also affected by this issue. Traditionally the rubber latex collected in a cup is manually removed by labour by bare hands. This process is difficult terrain it will take more time for collecting process due to such drawbacks the tapping of tree is limited and farmers are not able to reach their full potential hence profit margin is reduced. The project is mainly designed to help farmers to reduce time consumption of rubber latex collecting process and also for shortage of labour availability. This innovation leads to profit

	for farmers and also decrease overall process time. The machine is designed in such a way that it can be carried like backpack or trolley depending upon the plantation, and is compact and portable as it uses dc motor to generate suction and gets power from 12 volts battery or engine.

10. **Objectives of the project:**

- Design in low cost
- Compact design
- Easy operation and reliable performance
- Reduced overall processing time
- Reduced human effort and labour
- Increased profit

11. **Methodology:**



Materials selection:

S.NO.	Component	Material selected	Reasons
1	Pump	Aluminum and plastic	Light in weight and plastics are less reactive to chemical.
2	Collect tank	Plastic	High resistance for corrosion, durable and light in weight.
3	Battery	Lead acid	Low cost, readily available and better service facilitiy.
4	Pipes and hoses	Plastics and rubber	Flexible, Durable, low cost and light in weight.
5	Bag	Polyester	Economical and easily customizable.
6	Wires	Copper	Connecting battery and pumps
7	Switch	Plastic	Connecting battery and pumps

12. **Results:**

Assuming,

Average collection of latex from each rubber tree will be 120 ml.

For 100 trees = 120 x100

=12000 ml.

Time required for collection of rubber latex manually from each tree = 45 seconds

Time required for 100 trees = 45 x 100

= 4500 sec

= 4500/60

= 1.25 hours.

Time required for collection of rubber latex through rubber latex suction machine = 25 seconds

For, 100 trees = 100 x 25

= 2500 sec

= 2500/60

= 41.66 = 45 mins

Therefore time saved = 1.25 – 45

= 40 mins

13.	**Conclusion:** Rubber Latex Suction Machines play a crucial role in the rubber industry by facilitating the extraction of latex from rubber trees. Through their efficient and productive operation, they have significantly reduced labor costs and increased yields for rubber farmers. Ultimately, the responsible and sustainable implementation of rubber latex suction machines is essential for maintaining the long-term viability of rubber farming. To summarize, rubber latex suction machines will become an indispensable tool for the rubber industry, enabling quick and efficient extraction of latex from rubber trees. These machines have revolutionized latex collection and reduced the labor-intensive traditional methods of latex extraction. However, it is important to use them responsibly while observing proper maintenance practices and attaching the cups correctly to prevent damage to the trees. Through responsible implementation and management, rubber latex suction machines have the potential to sustainably improve rubber farming and maintain the industry's economic viability.

14.	**Scope for future work:** Rubber latex suction machines are devices used to extract latex from rubber trees. The machines use vacuum pressure to suck the latex from the trees, and the extracted latex is then collected in a container. These machines have been in use for several decades and have undergone various advancements in technology. There are several areas where further development could be explored for rubber latex suction machines: Efficiency: There is a scope for improving the efficiency of rubber latex suction machines. Innovations such as the use of sensors and automation could improve the accuracy and speed of the process, leading to increased efficiency. Sustainability: The rubber industry is increasingly focusing on sustainability, and there is a need for rubber latex suction machines that are environmentally friendly. Developing machines that use renewable energy sources such as solar or wind power could be a step towards achieving sustainability. Cost-effectiveness: Rubber latex suction machines can be expensive to purchase and maintain, making them unaffordable for small-scale farmers. Developing low-cost machines that are affordable for small-scale farmers could help improve the accessibility of the technology. Ease of use: Rubber latex suction machines require skilled operators to operate effectively. Developing machines that are easy to use and require minimal training could help increase their adoption by small-scale farmers. Durability: Rubber latex suction machines need to be durable to withstand the harsh conditions of rubber plantations. Developing machines that are built to last and require minimal maintenance could help reduce the cost of ownership and improve their overall effectiveness.