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DESIGN AND FABRICATION OF INBUILT CONVEYOR AT AUTOMOTIVE VEHICLES

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A B S T R A C T

In automobiles of the old designs, it is observed that there is a problem in loading and unloading in the form of more man power and more time for the unloading and loading. By given a design alternation to the trailer can reduce the wastage of time and work with comfort. Mostly, the major issue on loading and unloading of materials on domestic automobiles.

They need of separate man power and more time in order to avoid that try to fabricate an inbuilt con09veyor. In this inbuilt conveyor using the belt drive motor to *built* in the type of tread mill which is placed on trailer of automobile.

By this no need of separate man power of the material comes to end of the trailer of automobile. By the help of belt conveyor where one no need of to the end of the trailer for loading and unloading as the belt works instead of man power, by this it is to be justified that which takes less time for loading and unloading so that it will reduce man power.

It can be used in mini automobile transport like auto, van, mini truck etc. Can be loaded it is used instead of hydraulic for heavy loads.

Keywords*: Inbuilt trailer, automated trailer, tread mill*

1. INTRODUCTION

Introduction of Inbuilt Conveyor

A Conveyor belt is the carrying medium of belt conveyor system. This system is often called as belt conveyor. A belt conveyor system has many types of conveyor systems. A belt conveyor system consists of two or more pulleys are called as loop or carrying medium. The conveyor belt that rotates about them is called loop system. One or both pulleys are usually powered driven. i.e., moving them or what they are holding. The powered pulley is called the drive pulley and the non powered pulley is called the idler pulley.

Types of conveyors:

1. The basic belt, snake sandwich belt and long belt
2. A basic belt conveyor consists of two or more pulleys that hold one continuous length of material
3. These types of belts can be motorized or require manual effort.

The belt conveyor consists of two and more pulleys to hold one continuous material of length. These type belt can be requiring manual effort.

There are two types of industrial classes of belt conveyors. Those in general material handling such as those moving boxes along the factory and bulk moving material handling such as those used for transporting of large volumes of resources and agricultural material, such as grain, salt, rice, ore, sand, wheat or any agricultural products.

Trailer:

1. The trailer is a unpowered vehicle move by power vehicle
2. It is used to transport the good and services.

Loading and Unloading Process:

It consists of moment of received goods from the container like trailer, lifts, carriers, etc.

COMPONENTS

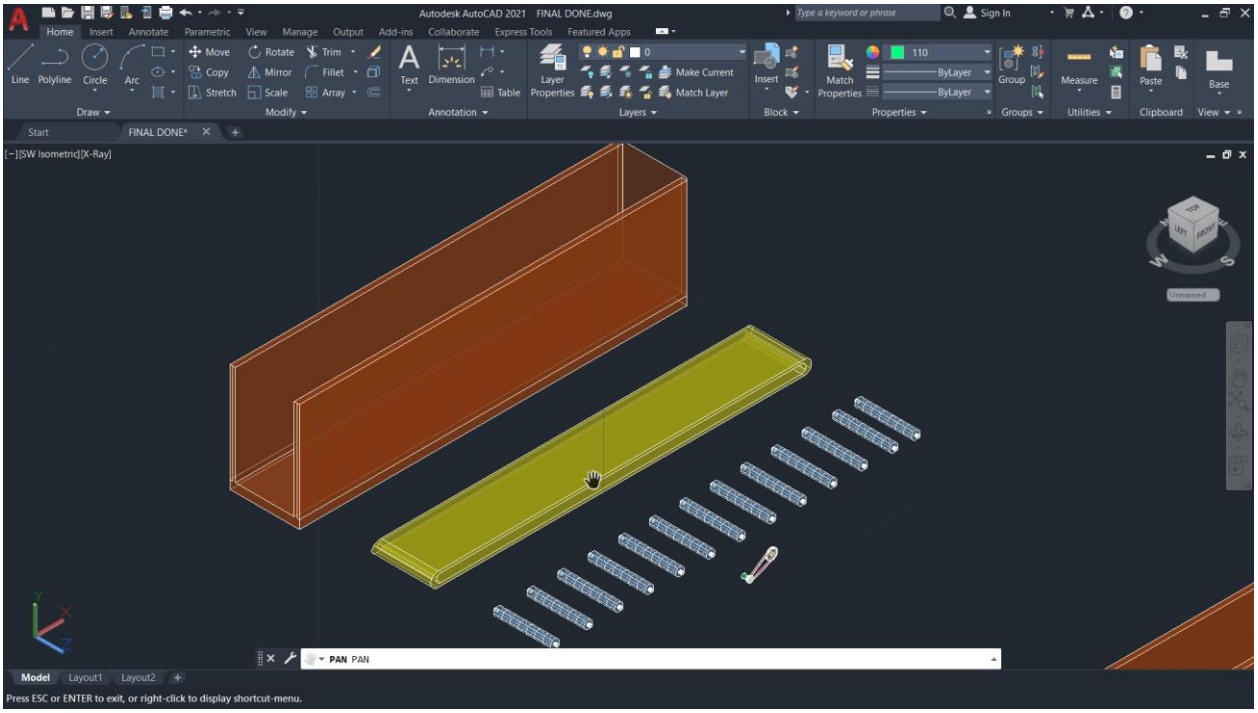
1.	Chassis	6.	Frame
2.	Bearings	7.	Plywood
3.	PVC Pipes	8.	Glue gun and sticks
4.	Bolts and Nuts	9.	Battery
5.	Conveyor Belt	10.	DC motor 12v

2. WORKING PROCEDURE

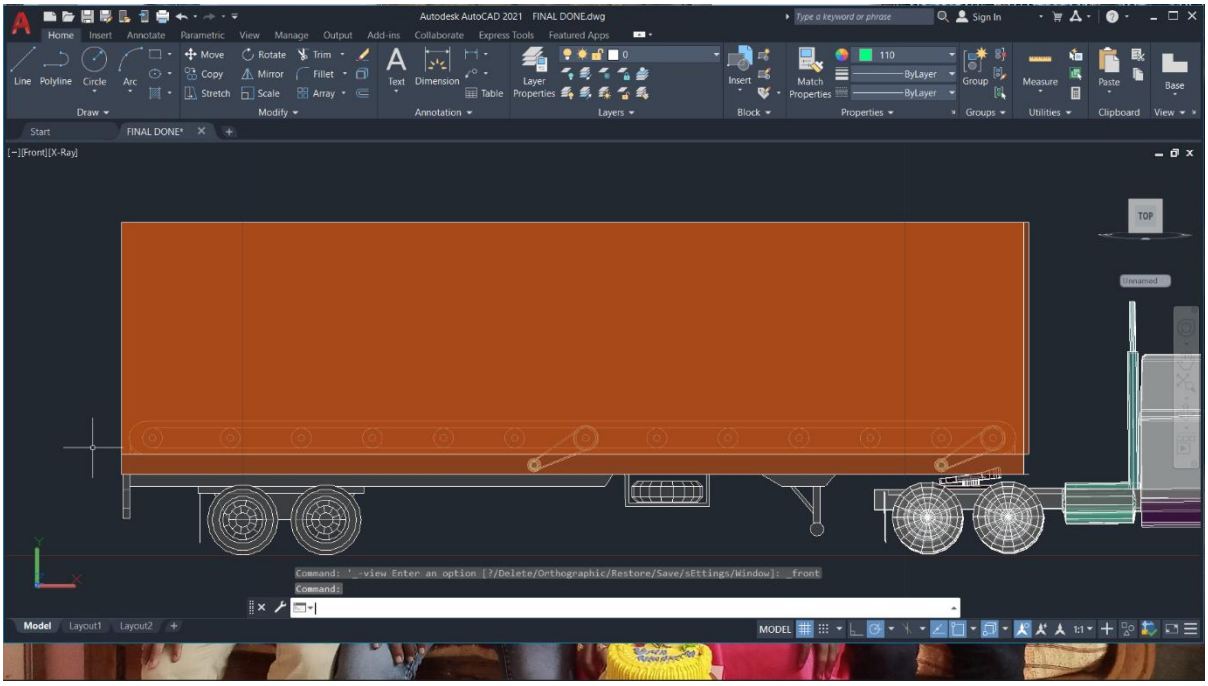
1. A conveyor belt works by using two motorized pulleys that loop over a long stretch of thick, durable material. When motors in the pulleys operate at the same speed and spin in the same direction, the belt moves between the two.
2. A trailer is an unpowered vehicle towed by a powered vehicle. It is commonly used for the transport of goods and materials.
3. Sometimes recreational vehicles, travel trailers, or mobile homes with limited living facilities where people can camp or stay have been referred to as trailers. In earlier days, many such vehicles were towable trailers.
4. So, we have combined that and prepared a project as a inbuilt that will make the material to move as easy way and to move the conveyor as a moving part of the vehicle.
5. The work can make all the work at simple way.

6. The conveyor can move the material at a simple and easy way.

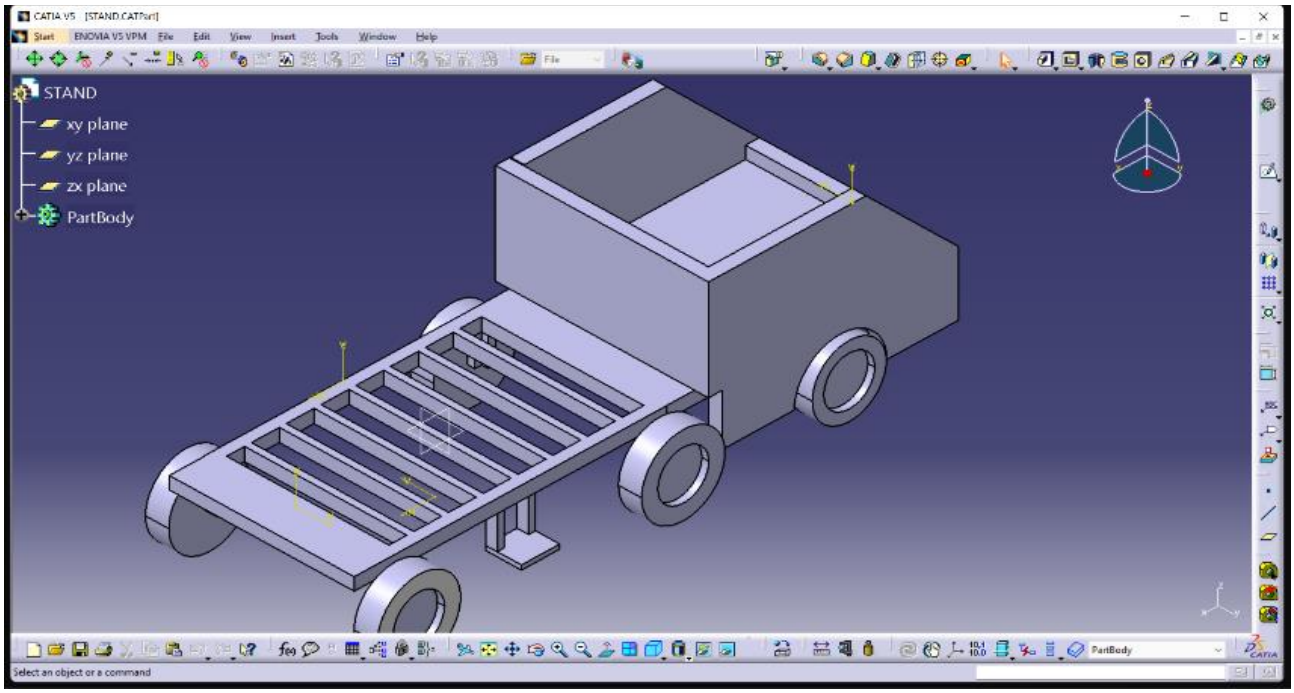
7. That we are prepared in the AutoCAD design that to make the dimensions neat and clear like



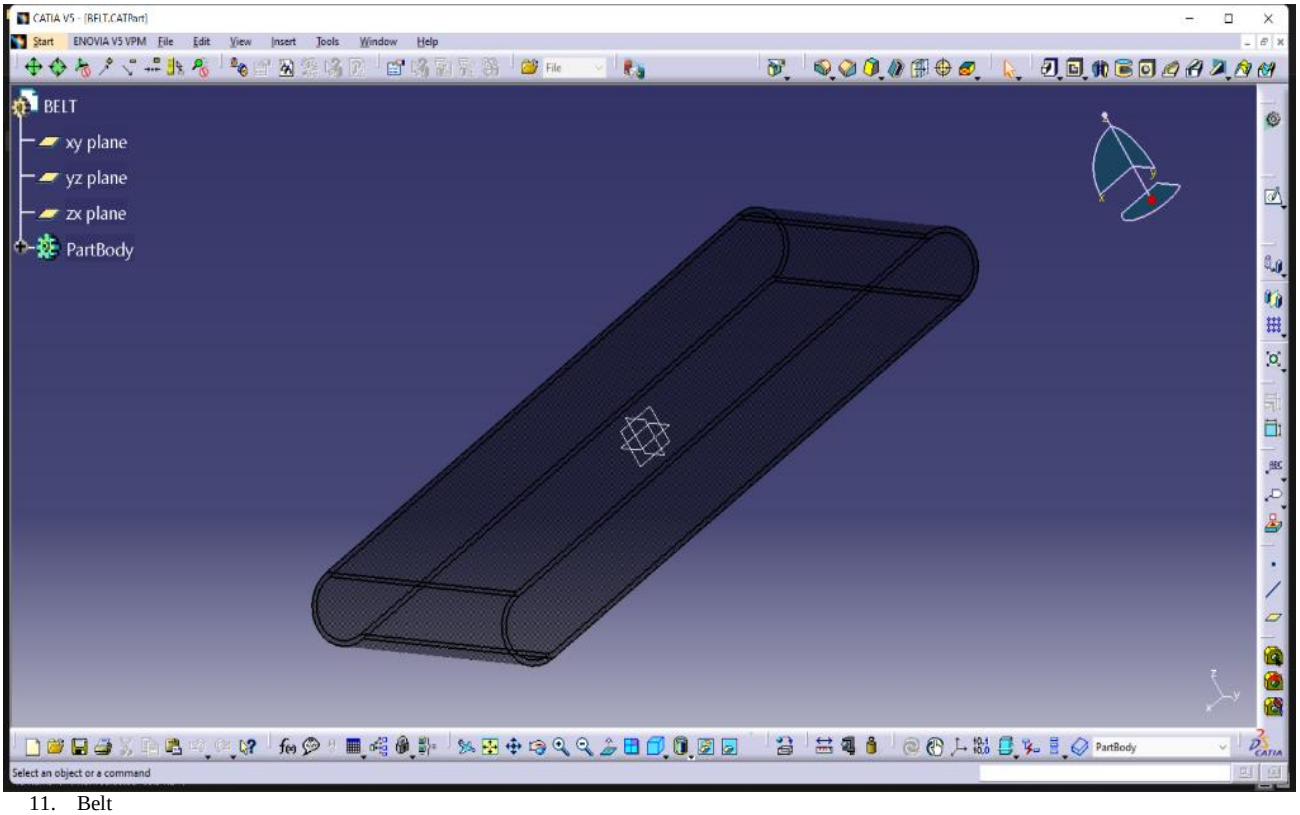
8. We are also designed on catia also simulation of project.



9. Chassis

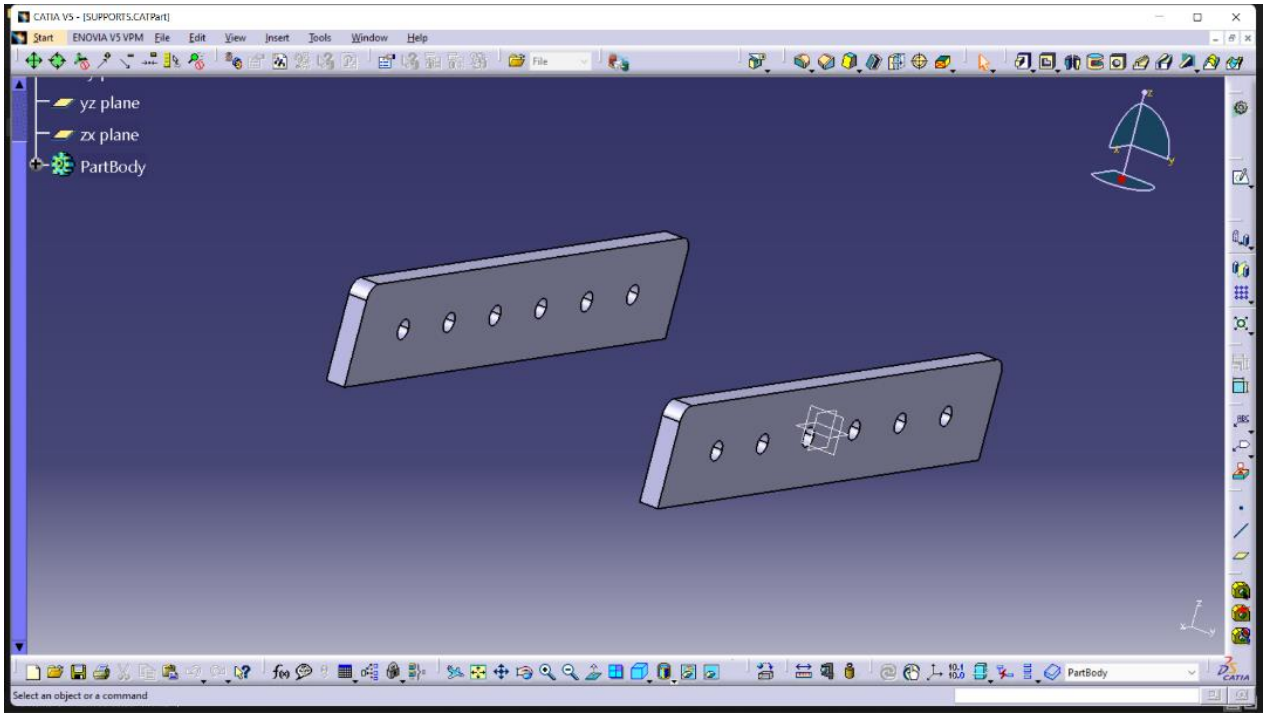


10. Rollers

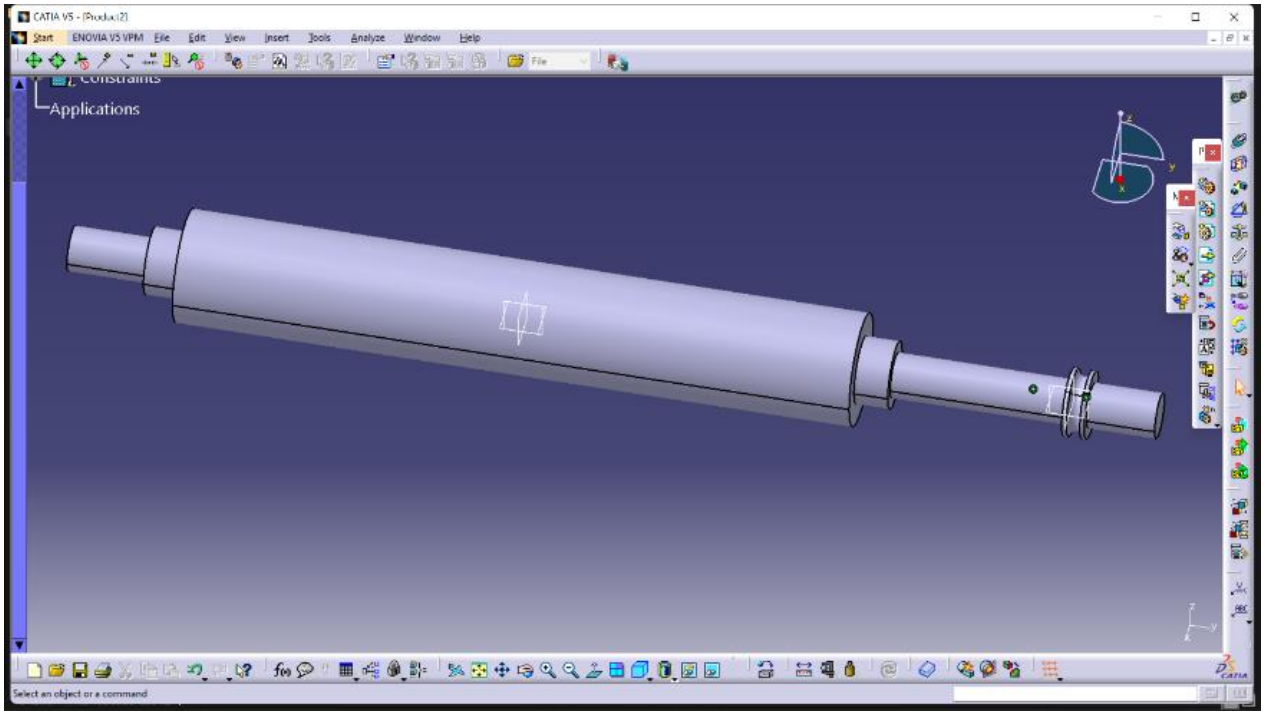


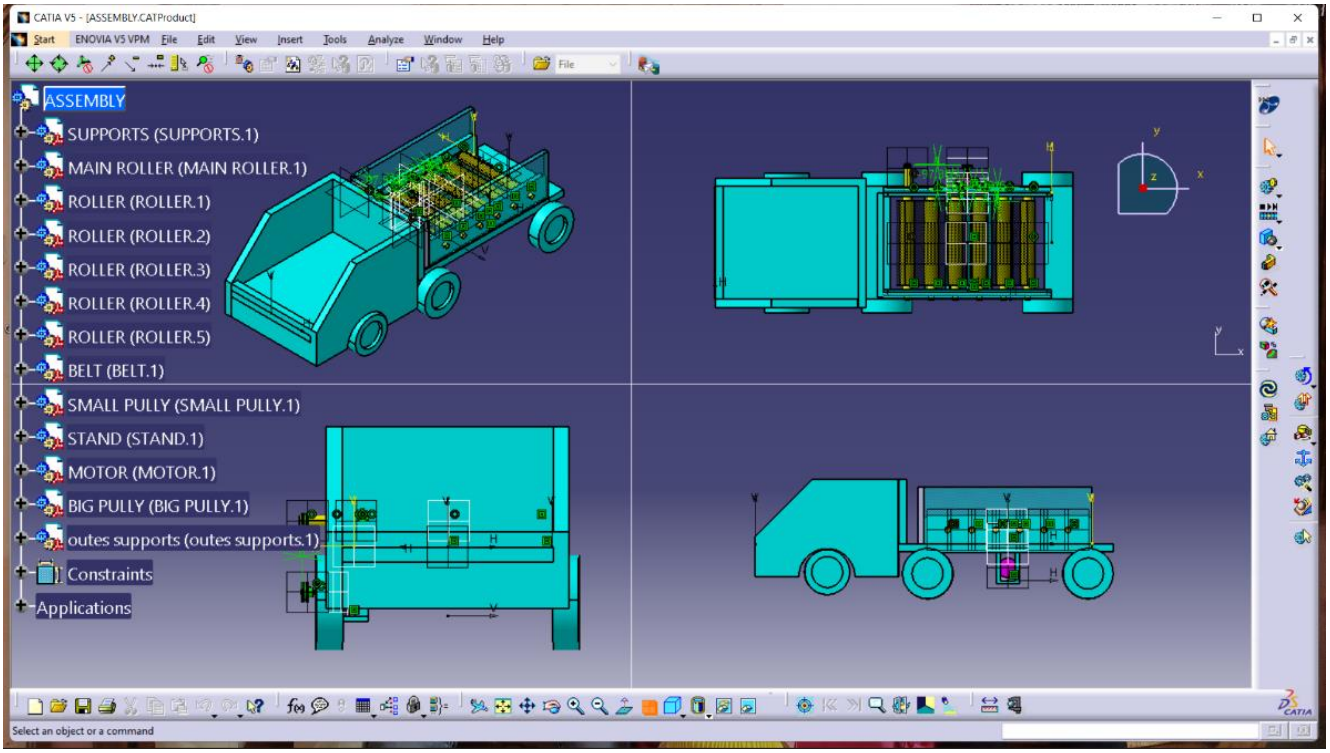
11. Belt

12. Supports



13. That we have assemble the parts in catia that make an design of project

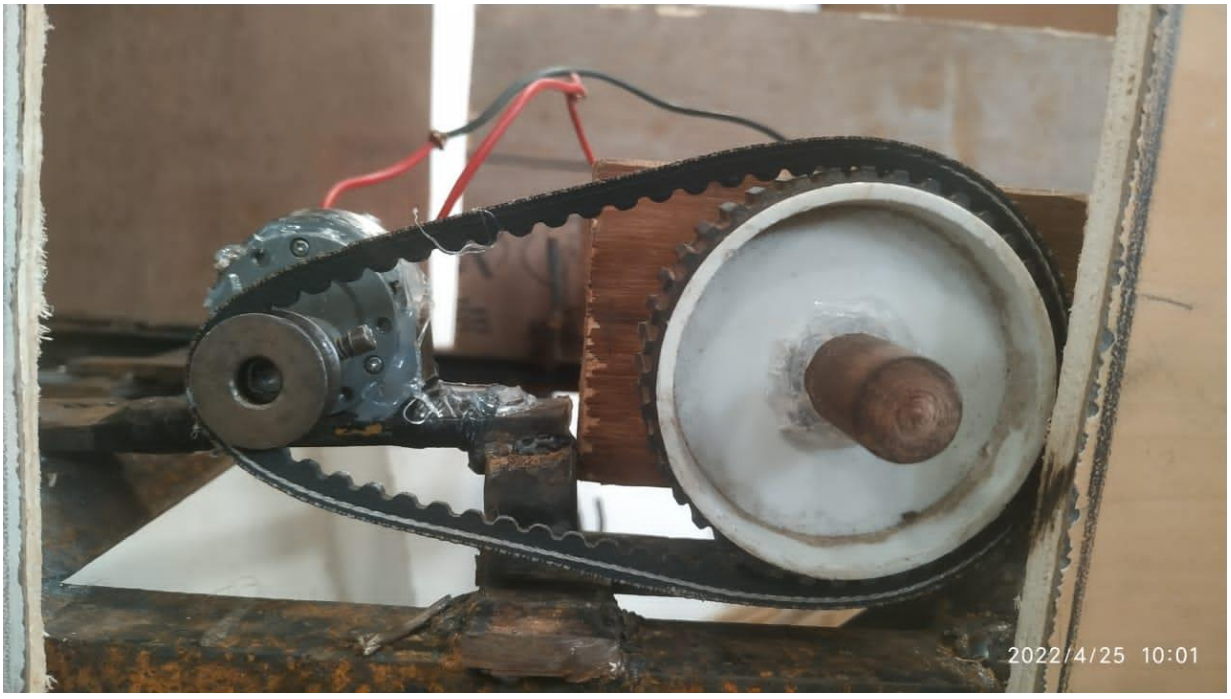




14. That we have complete the fabrication part as per dimensions

15. That we have completed the conveyor as 1st. that to make a place to make a chassis and that to has done.

16. The next we have completed that connection to fix the back part of trailer.



17. We have completed the frame as a lorry.

18. That we have completed all the work as per design.

3. CALCULATION

Belt calculations:

- Flame Resistant Conveyor Belt
- Material: Rubber, Polyester, Cotton, Nylon.
- Belt Width: 100 mm to 1600 mm. Belt Thickness: 1.5 mm to 16 mm. Tensile Strength: 500-3000 N/mm
- Width: up to 600 mm
- Tensile Strength: up to 15 KG
- Thickness: up to 1 mm

Motor calculations:

- Specifications - RPM - 100 shaft diameter - 6mm (with internal hole), shaft length - 15 mm. Dimensions: Gearbox diameter - 37mm, motor diameter - 28.5 mm, length (body only) - 63mm, weight - 300 gm, torque - 12 kg.cm, voltage - 6 to 24 (nominal voltage - 12v), no-load current = 800 mA(max), load current = 9 A(max).

Battery calculations:

- 12V device, 12 volts are always “given” from the battery. A battery always has a fixed voltage (e.g. 12, 24, or 36 volts) and a device always works at a certain voltage. For example, a device that works on 12 volts obviously needs a battery that also supplies 12V.

4. CONCLUSION

- Hence the inbuilt conveyor is successfully working as per our designed dimensions.
- It has to make the proper assembly.
- It is properly functioning for loading and unloading in automatically

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