

DESIGN AND FABRICATION OF GOODS LIFTING MACHINE

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ABSTRACT

In recent days, people frequently travel by car to some other places for their job, spending summer trip etc., along with heavy luggage that should be placed above the car annually. The theme of our project is to lift luggage above the car by using simple lifting mechanism. Our project is driven by DC motors to which the power supply is taken from battery. The lifting process was done with the help of thick nylon ropes at four ends which was connected with pulley at each ends. Two 12v DC motors was used at the top which was connected with the pulley to lift the load and also to bring down the load from top of the car to bottom to unload and a switch was kept to control the rotation of the motor as to lift up and to bring down the load.

Key words: Heavy Luggage, DC Motors, Nylon Ropes.

1. INTRODUCTION

Our project is about loading the luggage semi automatically above any vehicle .This is a simple lifting mechanism. Earlier, the luggage was lifted above manually but it was too difficult to lift high load above the vehicle so we have designed this lifting mechanism. In this mechanism, we have used electrical energy which was converted to mechanical energy to lift the load above the vehicle. The components used in our mechanism are DC motors, battery, nylon rope, switch, adaptor and slider .These are used to lift the load and unload from the top of the vehicle. In our project the electrical energy is used to lift the load. First the electrical current is passed to the DC motor. DC motor is connected to the pulley as the pulley is connected to the wire. wire is connected to the carriage which is used to

lift the load and the switch is used to convert the direction of the motor. Lifting the high load above the vehicle is very difficult and there are many other problems while lifting and our project will save time and gives an easy way to lift the load above the vehicle.

2. PROBLEM DEFINITION

The luggage in automobile is too hard to lift, everyone struggles to lift luggage in automobiles, so we made easier way to lift these luggage.

3. SCOPE OF THE PROJECT

Taking in considering the difficulties of lifting the load above the vehicle. A simple lifting mechanism was used to lift the load.it needs only a less amount of electrical energy. It is a relatively cheap and

environmental friendly. This project makes the lifting process easy and simple and does not affect the environment.

4. COMPONENTS

The fabrication of goods lifting machine is consisting of the following components to full fill the requirements of complete operation of the machine.

The project consist the following parts

- DC motor
- Gear head
- Drawer slide
- Pulley
- Rope
- Bin
- Battery

5.DRAWING FOR GOODS LIFTING MACHINE

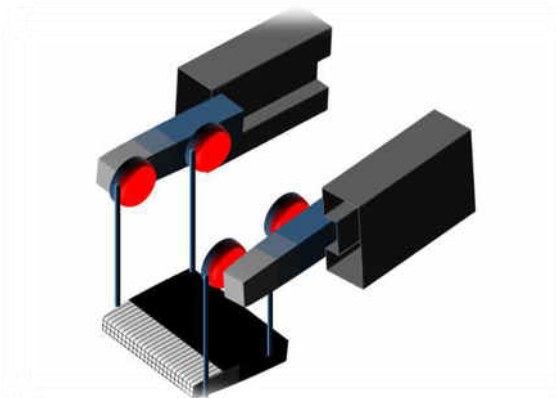


Fig.1: 3D-Model for Goods Lifting Machine

Fig 1 represents 3D-Model for Goods Lifting Machine which is drawn by using solid work software.

6. WORKING PRINCIPLE

At the time of journey, we want to pack our luggage on top of the car .For that we made a Goods Lifting Machine which will slide only on left side. First, we slide out the carriage and press the switch button on down side. Now the both the motor runs due to this the rollers rotates which releases the rope and this is guided by the pulley which makes the landing of carriage in a correct manner. After it comes down we release our hand from switch button then automatically the power will cut off at this time. We load our luggage on the carriage. After loading the carriage we will press the switch button on top side due to this the carriage will lift up with goods and reached its exact position. After that we release our hand from the switch button the motor will stop then we adjust the slider to their original position and lock the slider.

7. MERITS

- Easy to operate
- Less maintenance
- Electrical power is enough
- occupy less space
- Less skilled operator is sufficient
- Project to use this in efficient way to control the money for goods lifting charge

8. APPLICATIONS

- Applicable in goods loading in car, bus, tourist van, etc.,

10. CONCLUSION

Thus the goods lifting machine was designed & fabricated successfully. The major advantages of the machine are automatic lifting and sliding of goods without human effort. The machine can be fully automated and the manual operation can eliminate.

PHOTOGRAPH



Fig.2: Photograph of Model