

Design And Fabrication of Stair Climbing Mechanism To Lift Load Over Stair

Prof.Darshika Khawase¹, Mr. Mahesh Sawant²,Mr. Rushikesh Hamane³,Mr.Jaspal Rathod⁴,Ms.Sajeshwari Bhagat⁵,Mr.Kunal Adhau⁶,Mr.Sumit Bawankule⁷

¹Professor Department of mechanical engineering of tulshiramji gaykawad patil College of engineering and technology Nagpur

²⁻⁷student of Department of mechanical engineering of tulshiramji gaykawad patil College of engineering and technology Nagpur

Abstract - Design of stair lift is a project which aims in developing a lifting facilities over the stair in cheap and easy Installation method. Our project is used to lifting the old people, handicapped person up and down, and who not able to climbing stair case physically. to keep the civil shape and any ancient constructing which have no space for set up industrial lifts our challenge are very beneficial for them. This project has many features which are very expensive and not easy for installation. our project having have low cost, much less energy required, much less preservation cost, convenient to set up and easy format as examine to any other kind of conventional lifting

Device. Overall, this project of ours is being developed to help the people and best way possible and also reduce the human efforts.

Key Words: stair lift, seat, rail track, load, material handling, civil structure.

1. INTRODUCTION

The stair lift is a type of mechanical device which used to lifting the people up and down. This project having the straight rail track stair lift which used to lift the old aged peoples handicapped person persons with physically disabled and who cannot climbing the stair case. In this project we used the rail track which is made by mild steel bar having thickness is about 5mm and length is 8ft.the 250w geared dc motor is used to generate the motion for lifting the stair lift. The control system is used to control the action of the stair lift. We used the 4mm bar for motion and carrying the load. The on off on toggle switch also used to control the forward reverse motion. The stair lift is take person up and down using the motorized up and down on a rail track which is attached on the stair case. Our project will work on any type of electric current whether it is ac or dc because we used the dc motor which having the control system to connect them with both supply

2. Project Planning and Result

Project planning:

Before starting any project, its planning is done. Planning is a very important task and should be taken up with great care, as the efficiency of the whole project depends largely upon the planning. While planning the project each and every detail

should be worked out in anticipation and all the relative provisions should be carefully considered in advance. Project planning consists of thither task have been allotted us in the so, we have start information collection from the start the information from internet The information collection from various internet source workshop & industries are begins up to the start .The project pre – testing also end up .we start up the fabrication processes. The fabrication is successfully completed on given time and also the final testing also successful in that period with the hard & soft copy completion.

Result:

It has been decided that project should be made use of mechanical spares under the guidance of respective Guide. Search has been made for the need of the project by finding the problem faced by different mechanisms. It has been found that in various building and apartment the space for commercial lift is complicated. Where we try to minimize the problem and implement our idea. Group has come up with the concept of “DESIGN AND FABRICATION OF STAIR CLIMBING MECHANISM TOLIFT LOAD OVER STAIRS” which will be less costly. Different equipment’s during fabrication has been found and there working has been studied.

3. Formulation of work

In our project we used dc motor, rope wire, roller bearing, shaft, seat, rail track etc. The motor is having the direction of the stair lift which may up or down can be changed by the control system which is used in the project. the safe transportation of the stair lift is mostly depend on the strength of the pulley and wire rope which is connected to the seat of the stair lift we used 4mm wire rope which having the more breaking strength which is up to 1tone . We use DC motor for altering the polarity of the strength furnish which will make the motor run in reverse direction. The carriage run in the direction of upward or downward course with the assist of Toggle switches and push buttons. As information wheel roller bearings are connected with seat the motion of the seat is like a linear tracking system. In in contrast with the traditional hydraulic lift, there are some additional like no civil shape and

alteration is required, low cost, much less bulkiness, much less power, much less preservation requires, handy design, convenient installations.

4. Diagram



Fig1.Rail Track



fig2.Controller

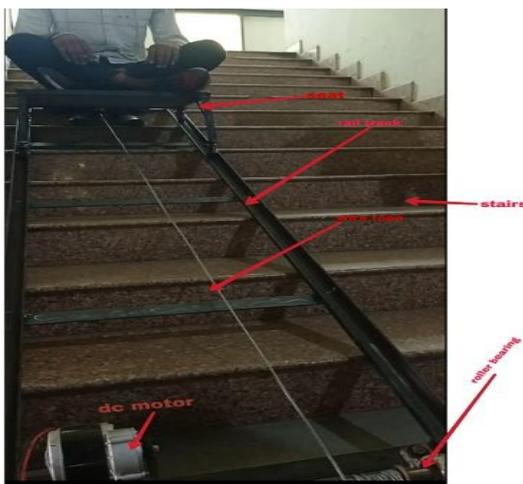


Fig3.working model

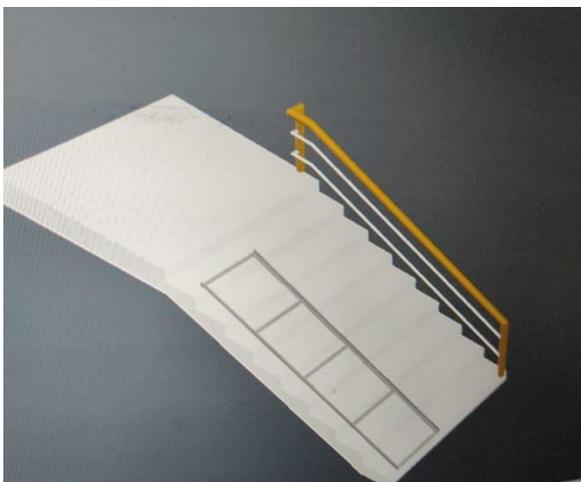


Fig.4 AutoCAD diagram of stair case with rail track

5. Application and Future Scope

Application:

The Stair lift is mechanical device used to lifting the people upward and downward. For senior the stair is difficult to navigate but it's a best option for them. It is use to lifting system which helpful for disable persons. It's a solution for Old building where commercial lift not installed.it is use to carry heavy load .it can be used at following places homes, hospitals, old age homes, apartments, old buildings, factories, malls, school, colleges.

Future scope:

The advantages and the benefits associated there for the reason for the Stair lifts. In Indian and global economically grow. This application Can Easily implemented under Various Situation.We Can add new Feature as when we required. We currently use this on small commercial area but in future it can be used for large scale buildings and apartments. In future we can easily increase the height of the lift and also increasing the length of the track with adding include and rotational.

6. Conclusion

As per the objective of our project the stair lift system is wonderful solution which can able to lift all the people like handicapped ,old aged person and person who not able to climb the lift physically.. This is aimed to work effectively and provide safety transportation over stair. We making an attempt To consumer pleasant and error free service. Our mission making price pleasant stair elevate which is having some problem however extra advantage, it was once precise and difficult undertaking for us. Making a stair carry with roller bearing is now not difficult technique all the are reachable in market without difficulty we bought it. Dc motor with manage container which is manufactured for auto rickshaw and this can be without delay use in the stair lift. During the take a look at run of this prototype is successful to carrying heavy load except any difficulties and deformation. Though the preliminary value of the mission appeared to be a little bit greater however it is correct .As examine to heavy industrial or industrial carry the no one has alter the civil shape for set up there after shortest price of for the set up system as in contrast to that lifts. So future of our lifting device Appear to very bright.

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