

# EFFORT LESS LIFTER AND MOVER FOR INFIRM PATIENTS

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## **Keywords:**

Screw jack, toggle switch, Battery, Motors, Caster wheels, Tube, Shaft, Cylindrical bearings.

## **Introduction:**

1. Ergonomics is a branch of science that aims to learn about human abilities and limitations, and then apply this learning to improve people's interaction with products, systems and environments.
2. Ergonomics aims to improve workspaces and environments to minimize risk of injury or harm. So as technologies change, so too does the need to ensure that the tools we access for work, rest and play are designed for our body's requirements.
3. Exoskeletons have been constructed to assist human locomotion and provide medical rehabilitation. In particular, the field of medical rehabilitation has utilized exoskeletons in an increasingly effective manner, and several relatively compact powered exoskeletons for mobile applications have recently been demonstrated, but the duration of usage is often limited due to power constraints.
4. A leg exoskeleton could benefit people who engage in load carrying by improving metabolic locomotory economy, or reducing the perceived level of difficulty.
5. Our goal is to make a device or devices that will be able to retain a patient's motion but have them be able to use the devices themselves and have it be cheap enough for them to afford without much debt.
6. They are primarily made for the rehabilitation of the paralyzed people but can also be used for their day to day like necessities with convenient advance program and feature. And while they are state of art, they come at prices far beyond reach for normal or poor people to afford.

## **Objectives:**

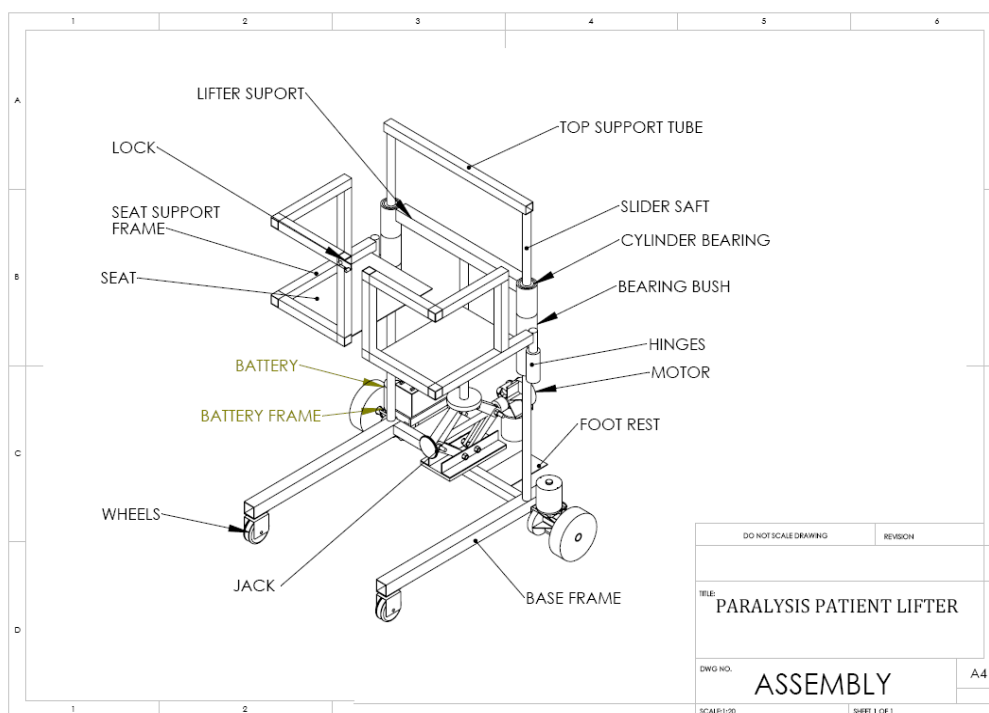
1. To design a simple mechanism.
2. To reduce the human efforts
3. To give the human comfort
4. To make a machine which is economical

5. To obtain a standard product
6. To make an ecofriendly device

## Methodology:

As we have seen that there are lots of problem take place with the hospital to shift the patient or so take him to bathroom, so strong person is required to do this work as this is a major problem we have plan with this project in which the mechanism is so simple that any person can operate this machine and also the patient also can operate and move from one place to another place the major problem was to shift the patient from bed to toilet, in this machine basic parts we have used so that all the parts are standard and availably easy in the market, the machine is a structure with some mechanism to lift the mechanism is derived with the toggle jack which is powered with a dc motor with the help of battery which is operated the toggle the function of the jack is to lift the patient up and down, caster wheels are attach so in order to move easily from one place to another. The lifter mechanism can be moved left and right, front, back with the help of 2 dc motors and which can be controlled with the help of toggle switch.

The rechargeable battery is used and the battery can be charged easily the structure is stiff info that it can sustain the weight of one person in which the mild steel material is used.



## Conclusion:

1. We have taken up this project as real challenge, as we were not experience in the field. We started our work on this project facing new hurdles initially.
2. After the completion of the project work we tried its working in our college machine shop and we were pleased to note that it does meet the requirements for what it is meant.

3. The mobility of the device is quite good and the handling is quite simple. For commercial purpose one can improve the efficiency of the device effectively by increasing the size of the device.
4. We obtained a standard product to reduce the human efforts.
5. We designed simple mechanism device which is economic and environmental friendly.

**Scope for future work:**

We feel the project that we have done has a good future scope in any MEDICAL SECTORS. The main constraint of this device is the high initial cost but has low operating costs.

Savings resulting from the use of this device will make it pay for itself with in short period of time & it can be a great companion in any field dealing with rusted and unused metals.

The device affords plenty of scope for modifications, further improvements & operational efficiency, which should make it commercially available & attractive. If taken up for commercial production and marketed properly, we are sure it will be accepted in the industry.