SPECIAL FEATURE STAND-UP WHEELCHAIR WITH POWER GENERATION

PROJECT REFERENCE NO.: 40S_BE_2193

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Objectives:
1. Wheel chair can be moved very easily.
2. Very handy for use by the handicap and ill person.
3. Supports the standing condition for the handicap or ill person and provides movement in the standing condition.
4. Making the person self reliant in doing his work either in office work or home work to attend to the cupboards to keep or take some materials in the due course when required and do his work smoothly without anybody’s assistance.
5. Build up confidence amongst the ill and handicap people to do their work by themselves.
6. Maintenance is relatively low.
7. Provides support during standing condition and also make him to move smoothly maintaining the centre of gravity during standing and movement.

The power wheel which is required to be pushed is very handy since it is raised when standing up and in standing condition also it is very handy and accessible to use smoothly.

Methodology:
This is a wheel chair having the drive transmission being transferred from the drive wheel which is tilting during the standing condition and the person who is not able to stand up by himself completely is clamped by the belt to the wheel chair and through mechanism support can lift up and stand and during doing so, the drive wheel also moves up to be able for him to propel the wheel for the movement. The person in standing condition can move with proper balance to any side and do his actions in normal actions to be able to conduct in standing condition and moving in standing condition in order to do so. The wheel chair is supported by the castor wheels which are fixed at the base and the center of gravity is considered while designing this.

A Wheel chair is a chair fitted with wheels. The device comes in variations allowing either manual propulsion by the seated occupant turning the rear wheels by hand, or electric propulsion by motors. There are often handles behind the seat to allow it to be pushed by another person. Wheel chairs are used by people for whom walking is difficult or impossible due to illness, injury or disability. People who have difficulty walking, standing normally use wheel chair.

A basic manual wheel chair incorporates a seat, foot rests and four wheels two caster wheels at the front and two large wheels at the back. The two larger wheels in the back
usually have handrims, two metal or plastic circles approximately 3/4th inch thick. The handrims have a diameter normally only slightly smaller than the wheels they are attached to. Most wheelchairs have two push handles at the top of the back to allow for manual propulsion by the second person.

Manual wheelchairs come in two major designs, folding or rigid. The rigid chair, which are increasingly preferred by active users have permanently welded joints and many fewer moving parts. This reduces the energy required to push the chair by eliminating many points where the chair would flex as it moves. Welding the joints also reduces the overall weight of the chair. Rigid chairs typically feature instant release rear wheels and back rests that fold down flat, allowing the user to dismantle the chair quickly for storage in a car.

**Expected Outcome of the project:**

A Standing wheelchair is one that supports the user in a nearly standing position. They can be used as both a wheelchair and a standing frame, allowing the user to sit or stand in the wheelchair as they wish. The person in standing condition can move with proper balance to any side and do his actions in normal actions to be able to conduct in standing condition and moving in standing condition in order to do so.

- Raises Independence
- Raises Self Esteem
- Heightens Social Status
- Allows For Easier Communication
- Extends Access Level
- Improved Quality of Life
- Increased Pressure Relief
- Improved functional reach to enable participation in ADL
- Improved Circulation, Enhance independence and productivity
- Improved Respiration, Maintain vital organ capacity, Reduce occurrence of UTI
- Improved Flexibility, Maintain boner mineral density, Improve passive range motion
- Improved Ease of Transfer, Reduce abnormal muscle tone and spasticity, pressure sores.

**Application of the project:**

Construction industry, Machinery manufacturing industry, Storage systems, Transmission towers, Automotive industry