



Motorized Wheel Chair with Solar Power

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ABSTRACT

A Smart Wheelchair is a system-managed tool designed to move with the help of a user command. This reduces human effort and the potential to power wheelchairs. The wheelchair is also supplied with a detection system that reduces the danger of collisions whilst journeying. The clever wheelchair has gained plenty of interest these days. these materials are especially useful for transporting from one area to another. those gadgets can also be utilized in old age houses in which the aged have problem strolling. Gadgets serve as a blessing to the ones who've lost their mobility. exceptional types of clever wheelchairs have been advanced within the past but new generations of wheelchairs are being developed and used that reflect the use of synthetic intelligence and go away little to be considered for the consumer of the wheelchair person. The undertaking additionally aims to build a comparable wheelchair which could have some sort of ingenuity and assist the person on his adventure.

Key words: Wheelchair, Motorized, Solar Powered, Joystick etc.

INTRODUCTION

There may be a growing want for transportation, either interior or office, as well as on the streets and in different public areas. This ongoing need is risky for each person with a disability, mainly people with a foot hassle. electric powered wheelchairs are part of the technical answers to this need. however, their fee could be very high in comparison to mechanical wheelchairs. With that in mind, the task aims to introduce a brand new modular tool that can be used to transform a wheelchair into an electric powered one. The proposed device is designed to facilitate installation, excessive earnings value ratio and smooth manage movement. preliminary results indicated the implementation of an offer on an lively prototype. human beings with physical disabilities or extra usually called disabilities want special tools to do their jobs. Wheelchairs are one of the tools for humans with physical disabilities, in particular the legs, with a view to circulate from one place to every other, each in an apartment and from the ground to the top (pointing up). using a ordinary wheelchair he nevertheless makes use of thrust movement along with his arms. It does not work properly for human beings with disabilities to transport a wheelchair because it requires numerous energy to step on a wheelchair the usage of hand gestures. further, while a person passes through a place with slopes, energy is needed to double than everyday. In India approximately 21% of humans are disabled and handcuffed so the ones humans are from center magnificence so it is very difficult or difficult to pay hospital bills and buy a mechanical wheelchair to lessen those kinds of backlash we layout voice control joystick wheelchair of power.

OBJECTIVE

- The principle motive of this paper is to manipulate the wheel using Joystick, for this purpose an android application is created.
- The working system will provide the person with a terrific end result to pick out that remote platform as it provides open equipment for this feature.
- Motorists are managed by controller. in this controller configuration utility connected to the Joystick system the usage of the master-slave.
- Solar smart Wheelchair is designed and designed for human beings with disabilities and is powered through sun energy and battery.

HISTORY

The first version of wheelchair occurred as a long way returned as the 18th century, however rapid improvement inside the subject dates lower back to the mid-twentieth century. considering then, many extraordinary varieties of fashions had been developed, extending to a extensive range of products. The leading electric wheelchair became mounted by George Klein with the aim of assisting soldiers wounded in world struggle II. through the years, it has evolved into many designs and forms. the primary wheelchair changed into based in 1595 so-called wheelchair for the Spanish monarch Phillip. Later, in 1655, Stephen Farfler constructed a wheelchair on a 3-wheeled chassis. In 1783 John Dawson of tub town England invented a wheelchair referred to as tub wheel. The wheel had wheels and one small wheel. In 1869 the rear wheelchair and small the front caster have been added, in 1881 push rims for selfpropulsion wheel chair have been delivered. In 1900 the first motorized wheelchair turned into delivered. and in 1916 the first motorized wheelchair was invented by means of British Engineers. In 1932, Harry Jennings constructed the first wheelchair accessible. There are 2 forms of wheelchairs in line with their feature. Of course: 1. Wheelchair. 2. Electricized wheelchair.

BLOCK DIAGRAM

The system block diagram shows how the command from the controller is sent with joystick to the system. After that the following given manage will be opened and started via DC tools cars.



EQUIPMENT AND TECHNIQUES

For this model to be constructed both electrical and digital components had been required. a number of the sections are summarized as follows:

1. **DC Gear Motor:** is a sort of electric powered engine designed to provide excessive torque even as preserving a low horsepower, or a low-speed motor. Gear vehicles are generally utilized in conveyor-belt drives, family home equipment, wheelchairs and stadiums, scientific and laboratory equipment, device equipment, packaging system and printing gadget. They reduce the rate in a chain of gears and create extra torque. It therefore saves area, is dependable and lasts a long time, consumes much less energy and has less vibration to call some blessings.
2. **Joystick:** A joystick is an input tool that connects the rotating rod to the bottom and reports its attitude or course to the manipulate tool. The toy stick, also known as the manipulate column, is a key manage device.
3. **Analogue Switch:** An analogue switch, also called a -way transfer, is an digital element that works within the equal manner as a relay, but has no shifting components. A switching characteristic is mostly a pair of MOSFET transistors, one N-channel tool, the other P-channel tool. The tool can handle analog or digital signals in any mode when became on and disconnect the modified terminals when became off. The manipulate enter of the smartphone can be a switching sign between the positive and terrible supply voltage, the positive voltage switching at the device and the fairly terrible switching of the tool.
4. **Lead Acid Battery:** Lead-acid batteries are extensively used even though surgical power is insignificant and some designs might also provide high strength density. large-format lead-acid tasks are extensively used to shop backup energy in mobile towers, widely to be had settings such as hospitals, and stand-alone strength structures. In these roles, changed variations of a fashionable cell may be used to enhance garage instances and decrease upkeep necessities.
5. **Solar Panel:** solar panel refers to a panel designed to take in solar radiation as a supply of electricity to generate energy or warmth. A photovoltaic module (PV) is a composite entity, which connects sun photovoltaic solar cells in general. Photovoltaic modules integrate a photovoltaic array of a photovoltaic system that produces and gives sun power for business and residential sports. each module is confined to DC output under wellknown test situations (STC), and usually levels from a hundred to 25 watts.

WORKING

For this model to be constructed each electric and Mechanical additives had been required for the reason of shifting inside and outside of the wheelchair. The diagram of the system block indicates the power from the sun panel to the charger whilst these solar controls are designed to extract the maximum quantity of electricity to be had from the solar panels and charge the battery. The battery is connected to a potentiometer that facilitates control the speed of DC Geared motors with a managed wheelchair-powered wheelchair.

ADVANTAGES

- Electric Powered
- Quick and Easy Movement
- Useful for Children
- Provide better support
- Utilization of clean energy source reduces pollution and save energy wasted.
- Offer reliable and abundant energy source to charge the wheelchair almost anywhere exposed to sunlight
- Improve the energy reserve capacity

FUTURE SCOPE

A smart automobile for human beings with physical and mental Disabilities designed for this project has many advantages, however can also be improved. right here the automobile is managed by way of a joystick. EEG symptom control is the satisfactory choice for patients who're unable to use the techniques. another proposed method is motor manipulate with thoughts manage. in this way you possibly can control the identical movements with mere creativeness. This car may be modeled in this type of way that it may be easily converted into a nap mode in order that the patient can feel greater at ease and for this reason reduce the hassle of sitting in one non-stop mode. rather designed options to wheelchairs may be combined with this. Like a wheelchair that climbs and connects among machines — the subsequent mission that is trying to get began on street vehicles. Verbal exchange help with these wheelchairs will assist the deaf and dumb to reconnect. All of this will be thought of in detail with the destiny activities we will suggest approximately this vehicles.

REFERENCES

- [1]. Snehlata Yadav, Poonam Sheoran, “International Journal of Innovative and Emerging Research in Engineering,” Volume 3, Issue 2, 2016.
- [2]. Abdul Razak Shehab, “International Journal on Engineering Technology and Sciences (IJETS)”, Volume2 Issue 1, January 2015.
- [3]. Tadakamalla Shanmukh Anirudh, Jyoti Pragyan Satpathy “Journal on motorized wheel chair, National Institute of Technology”, Rourkela Issue: 2011
- [4]. Mohan Kumar R., Lohit H. S., Manas Ranjan Mishra, Md. Basheer Ahamed “International Journal of Electrical and Electronics Research” Volume. 2, Issue 2, Month: April - June 2014.