



Motorized Vehicle for Disable People

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Abstract — In today's scenario people travel to the moon but somethings that we forgot is about the people who is not even capable to travel by themselves which is shameless thing that we don't think about disable people. Disable people who don't even walk by their legs is our focus area to resolve their problems. So we refer a different papers in which they are solve their many problems by made a tricycle but by surveying we found that they have a lot of problems still in there cycles. So we are going to resolve their problems by making motorized vehicle, change in steering mechanism, brakes, seating arrangement, emergency siren, vehicle accessories etc. Through this facilities they feel comfort driving.

Keywords- Handicapped, Tricycle, Motorized, Shelter, Emergency Siren.

I. INTRODUCTION

Handicap is the "loss or limitation of opportunities to take part in the life of the community on an equal level with others; encounter a person with disability and social, physical environment. Is an inability to accomplish something one might want to do? The term emphasizes the focus on shortcomings in the environment and in many tasks and activities."

There are mainly two types of disable people, one who is mentally disable and the other which we are focusing is physical. People disabled by many body parts like who is eyes (blind), ears (deaf), mouth (dumb), hands, legs etc., and the one who's body don't grow. We are working on the disable people who can't walk because of their legs or lower body cant response from their born or by incidentally. Some people's legs not working 20-30% who can walk with some support by using wheelchairs which is mostly use for inside places but some people's body are totally not working. They can travel by self-drive vehicle, tricycle. For transportation this tricycle is effectible for them but it consumes more energy and also need more efforts to drive it.



Fig. 1 Wheelchair



Fig. 2 Tricycle

1.1 Disabled Tricycle

It is a human-powered three wheeled vehicle for disable people through which they can ride. It is a single chain drive hand operated tricycle which has three wheel for self-balancing. The structure of tricycle is made from mild steel for robustness. It also contain mild steel seat for sitting as well as resting. It has a single handed steering mechanism and the breaking system is by a spring loaded rubber break. The tricycle includes a tube tire. And it is sufficient to travel.

2.1 Problem Definition

The problems occurs in this tricycle are as below:

- a. Driving is hard due to continuous drive by a single hand
- b. Vibration occurs because of absent of shock absorber
- c. Aged people and the people who suffering from health problem can't drive vehicle by hand
- d. Problems occurs in summer and monsoon because of unviability of roof
- e. Shocks produce by front side break only.
- f. Unviability of horn, side light and head light makes sure chances of accident
- g. Punctures, bending of wheel rim, air filling, breakage of spokes consumes more energy to travel for repair it
- h. Breakage of welding joints and bending of chassis occurs due to unviability of smooth road
- i. Can't indicate anyone in case of emergency.



Fig. 3 Problems in Tricycle

II. LITRATURE SURVEY

Tatyaso Garande, et al. [1] discussed various types of transport available and appropriate for physically handicapped people for long and short distance travel. The types are classified as per the mane verity, ease, automation and comfort. Several machines used for travelling of disabled persons include wheelchair, automatic wheelchair, Smart wheelchair, retrofitted vehicles, tricycles, modified cars etc. Systematic assessment of all these vehicles is conceded in this paper. Also considering advantages and disadvantages of each type, suggestions are made for use of proper vehicles as per the handicapped people's requisite. It displays that vehicles like Tricycle as shown in Fig. 4, or Wheelchair needs more physical effort for task. To overcome this automatic wheelchairs are developed but their travelling range is limited due to complexity of the machinery. For long distance travelling and relaxation of the handicapped person, retrofitted moped bikes and modified cars are developed. The main drawback with this was, the person making use of cars needs to get out of wheelchair from time to time making it a difficult task. As well such vehicles are not affordable for every people. Hence, it deliberates the necessity to develop a mode of transport for handicapped person, which does not include a people to come out from the wheelchair.

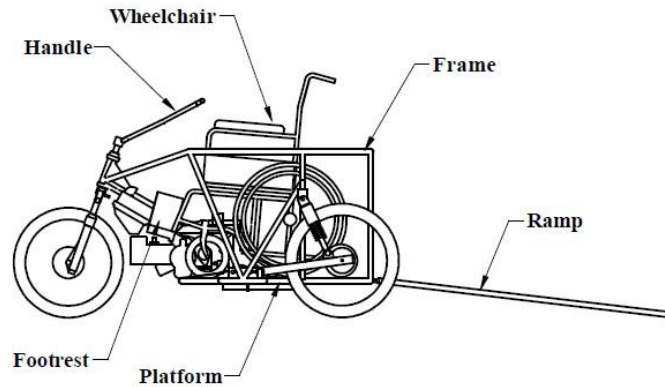


Fig. 4 Schematic Diagram of a Tricycle

Po Er. Hsu, et al. [2] explained the development of “Intelligent Robotic Wheelchair (IRW)” highlighting its mobility assistance design. The IRW necessitates much less space than conventional electric wheelchairs in turning and sideways. Based on this moving vehicle, mobility assistance utilities are designed for three different operators: the wheelchair consumer, caregivers, and the IRW itself in autonomous behaviors. This paper presents the development of the IRW, which proposes to redefine the wheelchair as the most important aid to the mobility, everyday living, and healthcare of older adults. Technically, the IRW is composed of a moving vehicle, a multiple degree-of-freedom (DOF) seat adjustment mechanism, and an information/communication module. The urgencies are assigned to the operation modes to avoid different modes disturbing each other and foster safety. Uppermost priority is assigned to the emergency modes such as obstacle avoidance. Priorities are then assigned according to the operators of the modes (in descending sequence): wheelchair user, caregiver, and finally the IRW itself.

F. Leishman, et al. [3] described the implementation of assistance to the driving of a smart wheelchair through a deictic methodology. Initially, a state of the art of mobility assistance, interfaces and types of instructions for smart wheelchairs is presented. The deictic concept and more particularly, the methodology used for the design of interface are examined. Then the two functionalities carried out to appliance this type of interface, as well as methodology used to control wheelchair are illustrated. Finally, the usability of this deictic method for the assistance to the driving of a smart wheelchair is discussed. The deictic approach contains in using a vision of the environment as a control interface. This vision must be as near as possible to the perception of the user so that the interface is intuitive and therefore easy to usage. To move, the consumer specifies the location within the environment he wants to go to by pointing at it on the interface. At that juncture the wheelchair will move automatically to that position. As the command is given from time to time, it does not require much effort from the user. The additional system is composed of a camera, a laser sensor and a computer, and it can be revised to any electrical wheelchair without any detailed modification. Control through pointing the goal to reach on the view of the environment is simple and intuitive, which makes it available to any user. This methodology to convert an image point into a point of the laser perception space and following by laser perception.

Thus, the available methods of transportation for disabled persons include various wheel chairs, tricycle etc. But their travelling range is limited due to sophistication of the machinery. So this work focuses on a design of a retrofitted tricycle that allows a physically disabled person to travel along with the wheelchair in order to increase traveling range.

M. REDDI SANKAR, et al. [4] the solar assisted bicycle developed is driven by DC motor built-in in front or rear axle housing & operated by solar energy. The solar panels attached on the carriage will charge the battery & which in turn drive the hub motor. When the bicycle is idle, the solar panel will charge the battery. This procedure will substitutes the petrol engine, the gear box & the fuel tank in case of a two wheeler or a chain sprocket, chain & gear shifting arrangement of a conventional bicycle being used by most common man. As a portion of dissertation work, the solar assisted bicycle is fixed with a dc hub motor on front axle of a bicycle with power rating of 250W and with a travelling speed of about 25-30 km/h. It is delivered with a pair of lead acid batteries of 35 Ah each, a photovoltaic solar panel using capacity of 20 watt, a voltage regulator of 24v 10 Amp, accelerator and motor controller of 24v 25Amp. There is also a facility for charging of the battery with 220-240V, AC wall outlet supply, in case of poor solar supply due to cloudy weather.

ABDULKADIR BABA HASSAN, et al. [5] this project design is personified on a motorized tricycle for disabled Persons. The tricycle was specially designed to suit wheelchair occupants of healthy Upper torso with pelvic to foot limit. It is also designed to suit a commonly available Wheel chair. The level of relationship between the disabled people in the culture has highly being threatened; so this project was designed to solve the difficulties in mobility of the wheelchair users. The main goal of the project design is to ease mobility for the physically challenged and also provide suitable

comfort they desire. Existing tricycles for the disabled requires the disabled person to descend from the wheelchair onto the tricycle. The motorized tricycle in this project is designed to overcome this problem by letting the disabled person to wheel up or down his wheelchair onto or down the tricycle. This is achieved using a specially designed platform that allows the wheel chair to be wheeled up or down. The prototype of this tricycle has been fabricated. The anthropometrics data that need to be considered in the design of the platform and frame of the tricycle have been occupied into consideration at the design phase of the tricycle.



Fig. 4 Smart vehicle for disabled people

SHUH JING YING, et al. [6] a hand tricycle is originally designed to be used by a disabled person with extremity weakness but with power in his or her hands and arms. This tricycle is improved by the addition of an electric motor and battery to help power the vehicle. The functions of the unique design are not altered. The battery, motor, speed reducer and clutch are properly settled. An additional sprocket is fond of to the drive wheel. The motor controller can regulate the speed in five different settings and the tricycle can be driven forward or backward. They salvaged a lightweight tricycle considering about thirty pounds from a storage area. It was not in working condition. The wheels are settled with one fixed direction drive wheel in front and two pivoting wheels for steering in the rear. Two handles at the side of the seat are used for hand control of the steering. A large sprocket 25.4 cm in diameter placed in front of the driver is connected with two crank handles for the driver's hands to power the vehicle.

ARUN MANOHAR GURRAM, et al. [7] Personal mobility means freedom for the physically challenged. One of the best creations in the medical field that helped both the elderly and the handicapped is the mobility vehicle. The fact that they are no longer depending on somebody else to carry out daily duties is a big step forward. On the journey to mobility and freedom, motorized scooters and wheelchairs are the outfits to finish that journey. With scooters and wheelchairs, there is a small inconvenience to mobility individuality. The accumulation of some devices allows persons with physical disabilities a comfortable travel beyond their homes. The present work includes in design and fabrication of solar powered wheel chair. A motorized wheelchair, power chair, electric wheelchair or electric powered wheelchair (EPW) is propelled by means of an electric motor rather than manual power.

III. CONCLUSION

The study suggest that disable people face many problems through the main is that they can't give their effort to drive the tricycle by a single hand. So to trim down this problem they need something from they ride easily in effective manner which they can afford. Also they have to suffer from many problems. Although elder person have to face this kind of hitches. In order to get desire smooth transportation some motorized system can help them out in their budget. The researches will look to adopt this system with some facilities like headlight, horn, heavy sports tubeless tires, roof, quality welding joints, shock absorber, disc brake etc. to resolve their snags. By those above solutions they can travel superior journey of life.

IV. REFERENCES

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