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MODULAR MOTORIZED HANDICAPPED VEHICLE CONVERTIBLE FROM SCOOTER TO WHEELCHAIR AND VICE VERSA

Nowadays, the number of the handicapped people who have to use vehicles such as wheelchairs and scooters permanently or temporarily due to various reasons and rate of usage of such vehicles has been increasing rapidly. Mobility vehicles and components thereof needed by the handicapped and the elderly for short distance transportation form a wide range of products due to changes in the levels of obstacles, rehabilitation process, variety of activities, outdoor and indoor use, journey distance, socioeconomic situation, architectural regulations etc.

Wheelchairs, for those who have weak muscle strength and control

Scooters, for those who can have the strength in the arms to direct the vehicle but have problems in their legs

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Such vehicles can be defined in two groups as the following in terms of structures;

- Wheelchairs, for those who have weak muscle strength and control
- Scooters, for those who can have the strength in the arms to direct the vehicle but have problems in their legs.

The reasons stated above may require the user to have both vehicles (wheelchair and scooter) in the same period or depending on the change in needs in different period of time.

Majority of the users usually prefer vehicles like scooter outdoor because of its effects to increase self confidence while they prefer wheelchair indoors due to its manoeuvre capacity .Since these vehicles may sometimes be expensive as they are custom made, purchasing both vehicles or changing parts thereof are really hard to afford. This causes new and special designs for the vehicles. The invention is related to a motorized handicapped vehicle convertible from scooter to wheelchair and vice versa with the help of basic structure meeting mobility need of a wide range of users.

ADVANTAGES

For users:

- Modular vehicle suitable to use in different users, environments and obstacles.
- Design increasing self confidence
- Cost efficient
- Adaptable to the changes in the situation of the handicapped
- Compatibility with rehabilitation process and acceleration in the process
- Reduction in the cost of spare parts, maintenance and repair
- Light and portable sizes allowing carriage by personal car
- Expansion in second hand vehicle market
- Reduction in parking needs

For Social Security Institutions and Governmental Offices:

- Reduction in the cost of social security with the participation of the handicapped and the elderly in the entire activities of life with affordable cost
- Enabling the handicapped to become participative with full self confidence
- Recyclable and environmentally friendly

For manufactures:

- Modular design addressing to a variety of customers with its basic structure
- Availability with the use of standard and modular components and competitiveness in international markets
- Reduction in the costs of design and manufacturing
- Reduction in the stocks of spare parts
- Easiness in sales and services
- Reduction in volume and cost of transportation

This invention was developed during the Project studies detailed below.

I would like to thank to all institutions and organizations that supported me

1. Leonardo da Vinci actions - Multilateral projects : Transfer of innovation
   Title: An Educational Platform for Physically Disabled People in Designing/Manufacturing/Maintenance of Supporting Equipment
   Project Number: LLP-LdV-TOI-2007-TR-064
   www.epdp.eu.com
2. UNIDO-ICHET:
   Development of a hybrid Scooter with hydrogen energy, 2010
3. KOSGEB Sakarya Service Center-Republic of Turkey
   Small and Medium Enterprises Development Organization
   Application of fuel cells to small mobile vehicles, 2010
4. TUBİTAK (Turkish Scientific and Technical Researches Institutions)
   Incentive for patent
5. Sakarya University Scientific Research Projects
6. Meral Ergün (Industrial Designer)

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