Pulley Design as Powertrain Mechanism in a Wheelchair Portable Electric Motor

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ABSTRACT

Wheelchairs are a basic need for people with disabilities, especially people with physical disabilities. Although conventional wheelchairs have helped the mobility of people with disabilities, they are in short range due to biological fatigue factors. In the concept of inclusion, there is equality in various aspects of life so that everyone can live together and equally without exception, including people with disabilities. Thus, technology development is needed to help people with disabilities to achieve equality in mobility, especially when using wheelchairs. This can be achieved by developing manual wheelchairs into electric wheelchairs (Electric wheelchairs), with the addition of electric motors for drive and other supporting features. The study aimed to establish the features and specifications of IoT-based electric motors in wheelchairs for the convenience and comfort of mobility of people with disabilities—development based on the results of last year's research. The research method used is the Research &Development method. The research and development results show that the power transfer mechanism for wheelchair electric motors uses two pulleys. The drive mechanism using Pulley and Belt is suitable for low torque and speed use. Because the speed of the electric motor for this wheelchair will be limited to a maximum of 6-12 km/hour, with the aim of safety. The pulleys used use Aluminum material. The drive pulley that gets power from the motor is made smaller than the driven pulley that is placed on the wheel axle of the wheelchair. With the comparison of these sizes, the resulting rotation will be smoother.

Kata Kunci: *Electric wheelchairs,portable*