

Performance Test Electric Bicycle Brushless DC 3-wheel For Physically Disabled People

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ABSTRACT

This research aims to determine the performance of electric bicycle brushless DC three-wheeled vehicles using lithium-ion and lead acid batteries in normal and upward roads. This research was carried out in January - June 2022 at the PT Manufactur Dynamic Indonesia (MDI) and Automotive Engineering Laboratory Jember State Polytechnic. The research method used is the primary data method of lithium ion battery assembly in electric vehicles. This research was conducted to determine the Initial Voltage, Final Voltage, Current, Distance, Maximum Speed, Average Speed, Peak Power and Speed difference on these vehicles using lead acid and lithium ion batteries in normal and upward roads. In this research, come to conclusion that normal roads the lithium ion battery has more excelent battery life, which can last for 0.8 hours (48 minutes) with a maximum speed of 20.81 km/hour and an average speed of 11.784 km/hour to cover a distance of 9.429 km with the power used is 439.19 Watt, while for using lead acid batteries, the average data obtained is that the battery can be used for 0.508 hours (30:51 minutes) with a maximum speed of 31.87 km/hour and an average speed of 16.035 km/hour to cover a distance of 8.480 km with the power used is 284.06 Watt.

Key Word: Performance, *Lithium Ion, Lead Acid, Electric Bicycle*