

ABSTRACT

Electric motorbikes are starting to be considered as a replacement for conventional vehicles. PT. Indonesian Electric Cars is one of the electric motorbike manufacturers that uses a ZT-7220 type battery with a capacity of 20Ah and a power of 1.48Kwh. In general, electric vehicles are expected to cover a distance of up to 121,000 km during their lifetime. However, in reality the batteries used by PT. Molindo is only able to cover a distance of around 2,597 km. This research uses reliability tests and ANOVA analysis aimed at identifying charging intervals and average speed that influence the reliability of electric motorbike batteries, as well as providing recommendations for optimizing their use so that battery life can be increased. The charging interval factor has an influence on reliability, with a positive influence where the greater the charging interval, the greater the reliability. The charging interval has an F-Value of 145.66 and a P-Value of 0.000, which shows the effect on decreasing battery performance. In contrast, the average usage speed only has an F-Value of 3.83 and a P-Value of 0.118, which means its effect on battery degradation is not statistically significant. The research results show that, to extend battery life over long distances, don't charge the battery too often, and even though it's not significant, it's recommended to drive at a speed that isn't excessive.

Keywords— ANOVA, Lithium-ion Batteries, Charging Intervals, Electric Vehicles, Reliability.