

DESIGN OF CHARGING STATION USING SOLAR ENERGY FOR AUTOMATIC LAWN MOWER

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ABSTRACT

Regular lawn maintenance is needed to create a beautiful view and comfort. Lawn mowing aims to ensure that the grass remains neat and beautiful. With the advancement of technology, automatically controlled equipment systems offer better efficiency and safety compared to manual systems. This study aims to develop an efficient and environmentally friendly charging station by utilizing solar energy for automatic lawn mowers. This study includes the design and development of a charging station integrated with a 20 Wp solar panel as the main source of energy to be stored in a 10 Ah charging station battery and used to charge a 6 Ah robot battery. The test results show that this system is able to charge the charging station battery in 15 hours, the robot battery charging process by the charging station battery for 12 hours and the robot battery can be used for the lawn mowing process for 5 hours. This study provides an innovative solution for landscape maintenance, reducing the use of fossil fuels, and increasing the efficiency of lawn care.

Keywords: *Charging station, solar energy, automatic lawn mower, solar panel*