

***DESIGN OF A CONTROL SYSTEM FOR BROWN PLANT PLOTTERS, BIRDS
AND RATS USING UV LIGHT AND SOLAR-POWERED ULTRASONIC
WAVES***

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ABSTRACT

Planthoppers, rats, and birds are factors that can reduce rice crop productivity. This research aims to design and test an integrated off-grid solar panel-based insect killer and pest repellent system as an environmentally friendly pest control method. The system consists of a solar panel, SCC, battery, LDR sensor, relay, UV lamp, sting net, and ultrasonic transmitter that operates automatically based on light intensity. Test results show that the LDR sensor is capable of controlling the relay automatically according to environmental conditions. The transmitter produces a frequency of 59.747 kHz for rat repellent and 40.04 kHz for bird repellent. The UV lamp, ultrasonic transmitter, and sting net also functioned well during testing. Based on the research results, the developed system is effective and has the potential to become an alternative renewable energy-based pest control method for rice fields.

Keywords: Off-grid solar power plant, LDR sensor, insect killer, ultrasonic.