Design of Bird Repellents on Microcontroller-Based Rice Plants Using Solar Panel Energy.
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ABSTRACT

The increase in rice productivity, both in quality and quantity, is highly expected by the Indonesian population. Meanwhile, in an effort to increase the productivity of rice plants carried out by farmers, many obstacles were found, one of which was the problem of rice pests. The country of Indonesia has a tropical climate so that every year it can be lit by the sun, this is a source of energy that has the potential to be developed. The purpose of this study was to design a bird repellent system using ultrasonic frequencies by utilizing solar panel energy as an energy source which also serves to increase food yields or staples. The author conducted research by making an ultrasonic generator from the Astable IC NE555 circuit which produces ultrasonic waves with a frequency of 61.52 kHz, 63.71 kHz, and 65.43 kHz. The generator is supplied by a 20 Wp solar panel with a 12 V 12 Ah battery. From these results, it is stated that the effectiveness of the tool against bird pest behavior is effective from a distance of 5 meters with a frequency of 50 kHz, indicating that the behavior of bird pests is disturbed by a reduced appetite, birds tend to be more aggressive (confused) and often sing. The input power generated by the solar panels is always higher than the power consumed by the ultrasonic generator load.

***Keywords** : Solar Panels, IC NE555, Bird Pest, Ultrasonic Wave.*