Design and Build a Pest Repellent System using Dual Ultrasonic Wave Generators by utilizing Solar Power as an Energy Source. Ahmad Fahriannur, S.T, M.T as chief counselor.

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ABSTRACT

Indonesia is a tropical country that is traversed by the equator, cannot be denied that Indonesia is an agrarian country. The majority of the population in Indonesia consume staple food in the form of rice where the main factor is farmers become the foundation of the community to meet food needs. Rats is not a strange name for farmers, as explained in the data from the Central Statistics Agency in 2014 showing that rats are one of the pests that increase the top position in destroying rice crops. Indonesia has a tropical climate so that every year the sun can shine, this is a source of energy that has the potential to be developed. The purpose of this research is to design a pest repellent system using dual generators ultrasonic waveby utilizing solar power as an energy source which also serves to increase food yields in the food or staple sector. The author conducted the research by making dual ultrasonic generators from the Astable IC NE555 circuit which produces ultrasonic waves with a frequency of 48 kHz to 52 kHz, the generator is supply with power through a PLTS system with 50 Wp solar panels, with a 16 Ah battery. This pest control tool is also equipped with control Bluetooth with Datalogger via Arduino Uno microcontroller system. The results of this study, it was stated that the effectiveness of the behavioral pattern of rat pests was effective from a distance of 20 meters by showing a behavior pattern that decreased appetite to hiding. The input power generated by the solar panels is always higher than the power consumed by the overall load.

Keywords : Solar Panels, Ultrasonic Waves, Pest Repellents, Astable IC NE555, Arduino Uno