

## **ABSTRACT**

The rice threshing process using a power thresher can increase rice productivity by up to 10–20 kg/hour. This study aims to design a rice threshing machine that uses solar energy as the power source for the motor. The research method employed is an experimental method consisting of several stages, broadly starting from planning, conceptualizing, designing, and finalizing. In constructing the machine, design and calculation of material strength and mechanical elements were carried out, along with the planning of maintenance and assembly, with the aim of determining the appropriate power source and motor capacity needed. The machine has the following specifications: a height of 200 cm, a width of 50 cm, and a length of 80 cm. The threshing drum has a diameter of 23 cm and a length of 60 cm, with threshing teeth measuring 6 cm in length. The solar panel stand has a height of 4 cm, a width of 55 cm, a length of 101 cm, and is positioned at a 45° tilt angle. Based on the power calculations, the appropriate motor for use is an AC motor with a power rating of 1/4 HP. The required solar panel must be capable of generating 160 Wp, using a battery with a specification of 12 Volts/100Ah. To convert direct current (DC) to alternating current (AC), an inverter is used along with a 10A solar charge controller to regulate battery charging. The result of this design is a prototype of a rice threshing machine that is ready for production.

**Keywords: Rice, Rice Thresher, Solar Panel**