UTILIZATION OF SOLAR PANELS AS A SOURCE OF AQUAPONIC ENERGY WITH ENERGY MEASUREMENT SYSTEM AND FISH FEEDER BASED ON MICROCONTROLLER

Ahmad Fahriannur, ST., MT *(minithesis counselor)*

Mohammad Azizi
Study Program of Renewable Energy Engginering
Departement of Engginering

ABSTRACT

Aquaponics is an aquaculture and plant growth technique that uses ammonia from fish metabolism as a source of nutrients. Waste from fish excretion and incorrect feeding can pile up in the pond, slowing fish growth and potentially causing mortality due to ammonia poisoning and a lack of oxygen in the aquaponics system. Therefore,an aquaponics technology that provides for more efficient feeding and electrical energy that is ready to turn on the pump 24 hours a day to circulate water continuously so that ammonia can be converted to nitrates that are helpful to plants is needed. Solar panels can be used as an environmentally friendly aquaponics energy source. The aim of the research is to create a solar panel installation system for aquaponics, knowing how much energy is needed in the aquaponics system and the application of fish feeders to aquaponics. The results showed that the designed system can operate according to the design made. The average energy consumption required by pumps and control systems for 24 hours is 151.79 Wh. The average daily energy income yield is 176.18 Wh/day. The average energy yield of solar panels can already exceed the amount of energy load on aquaponics for 24 hours. The use of Fish Feeder also facilitates in maintenance and increases work efficiency.

Keywords : *Aquaponic, Solar Panel, Fish Feeder*