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SOLAR POWERED COMPRESSOR TYPE AERATOR WITH SMART MONITORING SYSTEM

A Project Study Report

Presented to

The Faculty of the Department of the Electrical Engineering

Central Philippine University

Jaro, Iloilo City Philippines

In Partial Fulfillment

of the Requirements for the Degree of

Bachelor of Science in Electrical Engineering

By

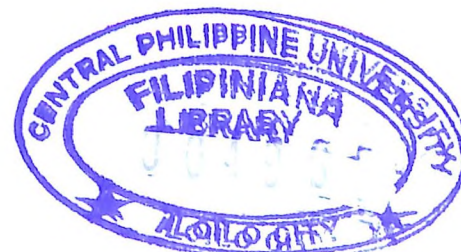
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ABSTRACT

Being a country with a geography containing 7,107 islands made the Philippines value aquaculture towards growth and prosperity. Low dissolved oxygen levels, algal blooms, as well as off-limit temperatures and pH concentrations, have killed potential harvests that might have benefitted the local farmers. Thus, many inventions and innovations were created to mitigate these problems, and one of them is called an aerator. However, operational cost and unavailability of grid electricity to aerators have added burden to aquaculture production. The Solar Powered Compressor Type Aerator with Smart Monitoring System is made up of a compressor type aerator that is powered by pure renewable solar energy and a battery bank capable of 1-day autonomy. In addition, it has sensors such as Dissolved oxygen sensor, temperature sensor and pH sensors, Arduino Uno that collects data and make decisions based on the data given, and a mobile application that can control the device and monitor the data remotely using Bluetooth technology. Two pairs of red and green LED lights indicate visual alarms which are especially useful if mobile app notification is out of range. 4 PVC floaters with 6-inch diameter are used to make a 1m by 1m raft to keep the device afloat. The device was able to automatically maintain the range of acceptable D.O. level in the water within approximate radius of 6.5m. The device has an ingress protection of IP44. Through the use of the device, the local fish farmers may have smart control, smart monitoring and management of their business without compromising profit.