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IOT Based Organic Farming Using Fisheries

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Abstract—Rural India's traditional aquaculture has been ne- glected for decades during the developmental stages. However, the methodology has its own significance in terms of providing pollution-free fish food. This device has enormous potential for capturing global export markets. Reduced fisheries harvests, wild fish food safety problems, environmental concerns, and the fish consumption, as well as the growing market share of organic food, which is focusing on "pure aquaculture." Over the following decade, consumer demand for organic fin-fish, shellfish, and other aquatic species became mainstream. Organic aquaculture has piqued the interest of academics from a variety of fields, as well as environmental activists and entrepreneurs. In developing countries, only a few "certified" and non-certified organic fish and micro-algae products have made it to the retail market.Though regulatory details must still be worked out, this new organic market niche has considerable growth potential for India's fisheries sector in the near future.

Index Terms—Internet of Things(IOT), Organic Farming, Node MCU.

I. INTRODUCTION

Organic wastes, such as waste water and animal wastes, produce resources that can be extracted using a mixture of physical, chemical, and biological techniques. Biological processes, which employ the activities of microorganisms such as bacteria, algae, fungi, and other higher life forms, may be the most effective way to treat and recycle organic wastes. Those products' by-products Compost manure, biofuels, and protein biomass are examples of biological processes. From the moment the fish is captured or harvested until the final product is shipped to the consumer, fish processing refers to the processes involved. In fact, it's been expanded to include all marine species captured for commercial purposes, whether caught in wild fisheries or harvested from culture systems. Filleting, freezing, drying, fermenting, canning, and smoking are the most common methods used in fish processing plants. Inedible fish waste and by-products are produced in large amounts by fish processing operations. parts and endo-skeleton shell parts from the peeling of crustaceans, such as flesh, skin, scales, bones, and other organs, head, fins, shells, or liquid stick water Solid wastes account for 30-40percent of total output, depending on the species processed. Because of the inclusion of blood, tissue, and dissolved proteins, these wastes are high in organic material.The amount and concentration of waste water from fish processing is primarily determined by the raw fish composition, additives used, processing water source, and unit phase; the

amount and concentration of wastewater from fish processing is primarily determined by the raw fish composition, additives used, processing water source, and unit process. At the moment, one of the most pressing issues affecting the ecosystem is the control of such fishery wastes. Algal blooms, aggressive odours, acutely deadly discharges, and other problems result from these effluents, which are normally rich in nutrients.

II. SURVEY

Research shows strengths and weaknesses in the organic supply chain that causes problems in getting products to consumers and meeting consumer demands. Other research indicates the importance in educating consumers in the organic processes to reduce concern of quality and safety issues and increase consumer knowledge that differentiates the organic products from any other product. Some research examines the quality and safety risks that indicate that best practices in organic farming needs to be considered, while still other research has examined the expectations and perceptions from consumers regarding organic products. There are techniques that research has proven that will shift the seasons of organic products to widen the window of opportunity for organic farmers and other techniques that are alternatives to increase best practices to reduce risks of disease in organic products.

III. DESIGN AND IMPLEMENTATION DETAILS

The study employed descriptive analysis methods. A de- scriptive design is a set of methods and procedures for describing variables. The fish farmers who grow fish on their farms were the population of interest in this study, and the research design involved gathering data that described events and then organising, tabulating, depicting, and describing the information. staff from the Kenya organic Agriculture Network and Ministry of fisheries Development. Kenya's organic agri- culture network and the Ministry of Fisheries Development sent representatives. A total of 139 people participated in the report, including 124 fish farmers, 10 staff from the Kenya Organic Agriculture Network, and 5 staff from the Ministry of Fisheries Development. A questionnaire was used to collect primary data, which was self-administered via drop boxes. and distribute questionnaires to a random selection of fish farmers and Kenya Organic Agriculture Network Officers and Ministry of Fisheries employees. There were both open-ended and closed-ended questions on the questionnaires. The data was thoroughly analysed and reviewed for completeness and read- ability.After that, the data was compiled, coded, and tabulated. After then, the data was cleaned and tallied. The tabulated data was analysed with the Statistical Package for Social Sciences,

B. Pump

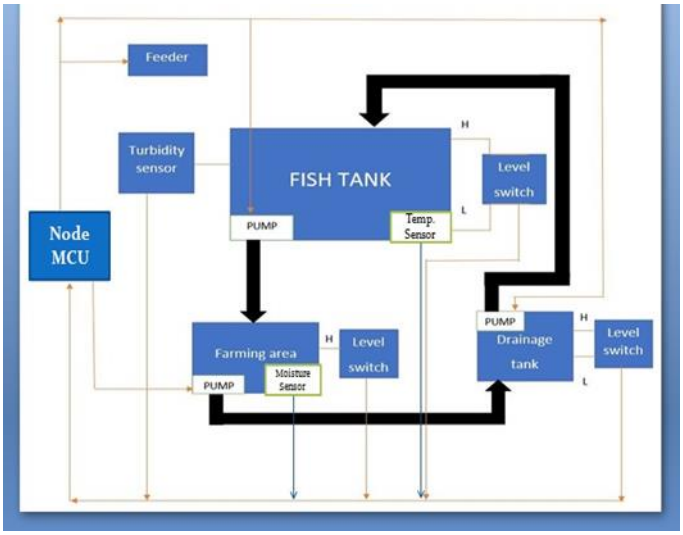

Fig. 1. Process Block Diagram

Fig. 2. Node MCU

which includes data processing, statistical analysis, and the capacity to interpret data statistics and produce descriptive statistics.

IV. PROJECT COMPONENTS

A. Node MCU

Node MCU is an open-source platform with hardware that can be edited, modified, and built.

The Node MCU Dev Kit is available in version 2 (V2), which is the Node MCU Development Board v1.0 (Version2), which is usually black in colour. Serial communication proto- cols such as UART, SPI, I2C, and others are supported. We may use serial protocols to connect it to serial devices such as I2C powered LCD displays, Magnetometer HMC5883, MPU- 6050 Gyro metre + Accelerometer, RTC chips, GPS modules, touch screen displays, SD cards, and so on.

The basic concept of a pump is to raise the fluid's pressure in order to provide the required driving force for flow. The pressure filter supply pump is usually a centrifugal pump, with the working principle that slurry reaches the pump through the eye of the rotating impeller, creating a circular motion.

C. Turbidity Sensor

The sensor works on the theory that when light passes through a sample of water, the amount of light transmitted is proportional to the amount of soil present. The turbidity sensor determines the turbidity of the wash water by measuring the amount of light transmitted.

D. Level Switch

The functioning principle is demonstrated using a scenario in which water is provided from the mains. A ground tank and an elevated tank are common in office and apartment buildings.The bottom tank receives water from the mains, which is then pumped up to the elevated tank and given to each storey. When the water level in the elevated tank falls below a certain level, water from the bottom tank is pumped up to fill it. The pump turns off when the water level reaches a certain level.

E. Soil Moisture Sensor

For gardeners, a basic soil moisture sensor. The relationship between the measured property and soil moisture must be calibrated, and it will change depending on environmen- tal conditions such as soil type, temperature, and electrical conductivity. The soil moisture litters reflected microwave radiation, which is used for distant sensing in hydrology and agriculture. Farmers and gardeners can use portable probing tools.

F. Temperature Sensor

Stainless steel tube with a diameter of 4mm and a length of 36" or 91cm cable with a diameter of 6mm and a length of 30mm (1 Meter Long) The DS18B20 temperature sensor is made up of three wires. A voltage of 3-5 volts binds to the red wire. Black is a colour connected with the earth.

G. Working Process

As turbidity sensor sense the water level turbidity is accord- ing to the set value if value increases then node MCU will start the pump to start the action of remaining water. 2. Pump will released 75 percent of water of the fish tank to farming area. 3. Temperature sensor will show temperature value of water in the fish tank. 4. Float switch at lower level will work when the level will be less and pump will stop releasing the water. 5. Farming area is having Moisture sensor will send input values according to the need, the node MCU will pump water in the farming area from the fish tank. 6. Excessive water will be thrown out from the farming area to drainage tank through pump. 7. High level float switch will give the reading of excessive water. 8. Drainage tank will fill the water in fish tank and level will rise in the tank from 25 percent to 100 percent. 9. Drainage tank will send the water only which is above low level float switch. 10. Such as system repeats the process after some interval of time.

H. Figures

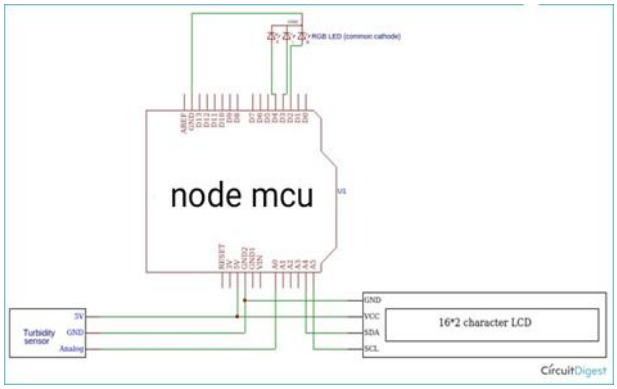

Fig. 3. Circuit Diagram 1

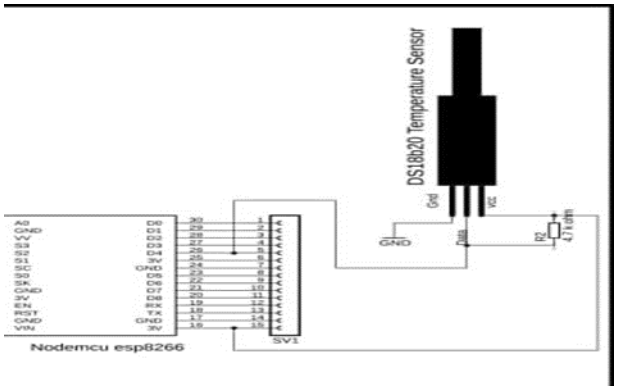

Fig. 4. Circuit Diagram 2

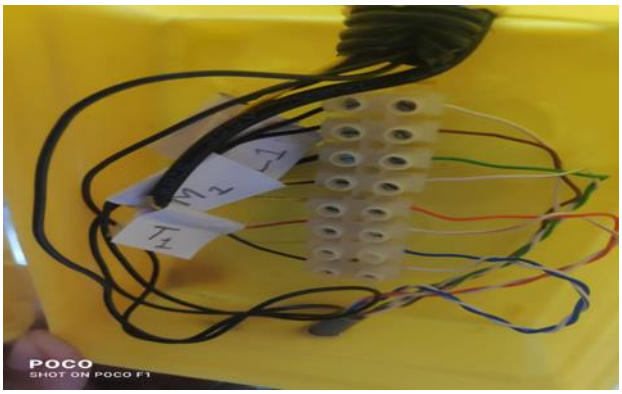

Fig. 5. Connection's

Fig. 6. Setup

V. CONCLUSION

Using current technologies, almost all types of organic waste will be recycled into valuable products. Knowledgeof the nature and characteristics of those wastes is vital for correct sizing and selecting an acceptable technology when constructing facilities for their handling, treatment, and disposal/reuse; this term could be used to describe the features of organic wastes produced by animals and a few agro- industrial processes. The management of waste water in the fish-processing sector is a major challenge. The biological treatment of such waste water could be one of the most effective approaches on a global scale. Biological treatments, which are usually part of secondary treatment systems, use mi- crobial populations to remove non-settling solids and dissolved organic load from effluents. The microorganisms in the systembreakdown organic matter and help to stabilise organic wastes. They will be divided into aerobic and anaerobic categories based on how they use oxygen. Aerobic methods for organics include activated sludge, lagoons, trickling filters, and rotating biological contactors. Based on the characteristics of fish processing wastewater, a combination of both anaerobic and aerobic procedures is determined to be ideal for achieving high (80-90 percent) organics removal and producing bio-gas.

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