IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.301
Volume 3, Issue 1, May 2023

Long-Range Self-Powered IoT Devices for Agriculture Aquaponics

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Abstract: *The aim of this project is to establish a controlled environment in the aquaculture industry by minimizing human errors and reducing the need for manpower. Additionally, the project seeks to enable remote monitoring of aquatic environments from any location in the world. By utilising mobile phone applications, the physical presence of humans can be significantly reduced. The device is capable of collecting and transmitting data from a variety of sensors, including those that measure temperature, humidity, and pH levels. This real-time monitoring and analysis of the aquaponics systems allows farmers and growers to make informed decisions about water usage, fish health, and other productivity-related factors. Ultimately, this system can improve productivity and efficiency in the aquaculture industry. Aquaculture is a growing industry worldwide, and the need for sustainable and efficient practices is increasing. The use of technology and automation has become more common in recent years as a means of improving productivity and reducing human error. The proposed system for aquaculture monitoring aims to address these issues by utilizing sensors and microcontrollers to create a controlled environment for aquatic organisms. The system employs various sensors to measure critical parameters such as water temperature, pH, and turbidity, and sends this data to a central monitoring system. Farmers and growers can then access this data remotely and make informed decisions about the health and productivity of their aquatic systems. This can lead to better control over water quality and temperature, improved feeding practices, and ultimately higher yields.*

Keywords: IoT, Agriculture

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ISSN (Online) 2581-9429
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International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
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Volume 3, Issue 1, May 2023

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