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| **Title:** | Design and Implementation of Solar Power and an IoT-Based Pisciculture Management System | | |
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| **Abstract:** |  |
| Abstract— Introduction: Pisciculture means fish farming for commercial purposes in a pond or in an artificially created fish tank. Proper care is needed for optimum fish yields.  Aims: The present research aims to design, simulate, implement, and test a low-cost pisciculture monitoring system to get the environmental status of a fishing pond where aquatic plants and fishes reside. The objective of this work is to produce high-quality and high yields of fish in the pond keeping the standard or prescribed states of the pond water.  Study Design: The factors that affect the pond environment are flow rate, pH level, oxygen level, temperature, humidity, etc. To get high yields of fish from a pond, these factors must be within a specified level. If the values of these parameters go below or above the prescribed level then the water loses its quality and thereby fishes find it very difficult to survive in that pond because each water quality factor affects the health conditions of fish. Therefore, it is necessary to monitor these parameters.  Place and Duration of Study: Department of Electrical and Electronic Engineering, Southeast University (SEU) between June 2021 and April 2022.  Methodology: In this work, we have designed an automated microcontroller, IoT, and solar power-based water quality monitoring system for a fishpond. The automated system restores the values of these factors automatically when any of these factors fail to maintain their level in the pond.  Results: After testing the prototype of the system, we found that the designed system is performing very well and showing different parameter values in the LCD screen as outputs.  Conclusion: The system is in expensive and therefore, may be employed in practice. | |