ABSTRACT

ANALYSIS AND UTILIZATION OF THE U SHAPE OPTICAL TUBE TO CONTROL POND FISH FARMING WATER TURBIDITY USING PLC

By

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It has been realized a turbidity sensor from U shape optical materials for controlling turbidity of pond’s water fish farming using PLC. U shape turbidity sensor consists of a RGB LED as transmitter and LDR as receiver. We also made a round-shape turbidity sensor from optical materials and turbidity sensor without optical materials. Turbidity sensor calibration on the level of turbidity using a turbidimeter, which has units Nephelometric Turbidity Units (NTU). Water samples were measured from 0 NTU-900 NTU. The water turbidity of pond fish farming controlled by Omron PLC CPM1A. The vacuum pump system and sewerage works when the pool water turbidity reaches a reference turbidity, which is 400 NTU. When turbidity was under turbidity reference, system stops working. Based on the results of research using a U-shaped optical materials turbidity respond output sensor was only about 0.01 volts-0.03 volts. On the other hand the round-shape from optical materials turbidity sensor did not respond to changes in turbidity, while the turbidity sensor without optical materials give linear response.

Keywords. optical materials, turbidity, Omron PLC CPM1A.