Dupli Checker

PLAGIARISM SCAN REPORT

10%
Plagiarised

90%
Unique

Date	2023-07-24
Words	680
Characters	4744

Content Checked For Plagiarism

Hardware Requirements:
Node MCU microprocessor or Arduino UNO
Sensors: pH, Temperature, Turbidity, Dissolved Oxygen, Water level sensor, Water flow control sensor
DC motors along with Fans
Connecting wires and resistors
Page | 9
4. Materials and Methods
4.1 Hardware Equipment for the Development of the System

The temperature sensor and pH sensor measure the properties of the water and transmit those properties to the server via the Wi-Fi module. To view values, a mobile application was created. Fish need a certain pH level. Maintaining the pH level is crucial to growing a healthy fish. Thus, a pH sensor (Fig. 1) was employed . The pH of natural freshwater ponds ranges from 6 to 8. Low pH levels indicate acidic water, whereas high pH levels indicate alkaline water. Fish can suffer harm to their skin, eyes, and other exterior surfaces if pond water gets overly alkaline. Fish cannot reproduce in acidic water. Low pH levels can cause fish to perish.

The temperature of the water has been tracked using a temperature sensor (Fig. 3; reference 29). It's critical to maintain the proper temperature because fish activity levels are influenced by temperature. It is crucial for fish because hot water cannot hold adequate oxygen. Fish require more food to thrive because they are more active in hotter water. They require less food since they are relatively less active in cold water.

Not all varieties of fish prefer the same temperature. The DS18B20 temperature sensor was employed here. A programmable digital temperature sensor is the DS18B20. It functions with a single cable for communication.

For fish, oxygen is a crucial component. Water quality will be impacted by dissolved **oxygen levels that are either too high or too low.** So, the concentrations of dissolved oxygen in the water have been measured using Dissolved oxygen sensor. A concentration of 5 mg/L DO is recommended for optimum fish health. **Sensitivity to low levels of dissolved oxygen is species specific, however, most species of fish are distressed when DO falls to 2-4 mg/L. Mortality** usually occurs at concentrations less than 2 mg/L. Hence if the oxygen levels falls to certain
Page | 10
threshold value aerators automatically turned on and when it reaches to normal conditions the aerators will turned off.

Turbidity is a water parameter that affects its transparency due to fine dispersion of the light beam passing through it. **This phenomenon is directly associated with suspended solids in water. The** suspended solids are a combination of clay, salts as well as organic and inorganic matter. Higher turbidity

results may cause decease of fishes hence by using turbidity sensor we can know the quality of water and if the turbidity is higher valves automatically open and old water is replaced with fresh water using water flow control sensors.

Fig 1.Temparature Sensor

Page | 11

Fig 2. pH Sensor

Fig 3. Dissolved Oxygen Sensor

Page | 12

Fig 4. Turbidity Sensor

Fig 5.Water Flow Control Sensor

Page | 13

Fig 6. Water Level Sensor

Fig 7. Arduino UNO

Page | 14

5. SYSTEM IMPLEMENTATION

5.1 Implementation of sensors using Tinkercad Software

We can employ a broad variety of electronic components from Tinkercad in our Designs. These parts include sensors, resistors, capacitors, LEDs, motors, and microcontrollers (such as Arduino boards). We may link these components to our systems in order to detect things like pH level, temperature value, dissolved oxygen level, and water turbidity level.

5.1.1 Temperature Sensor Working

Circuit diagram of temperature sensor

Page | 15

Fig.Temperature at Normal Level (25°c - 30° c)

The Temperature Sensor[TMP36] having 3 inputs

- Analog pin(A0) connected to the temperature sensor(Vout)
- Power pin is connected to the 5V
- Last pin connected to Ground

There are two LEDs are connected to digital pins (output)

Whenever the connections are completed then we can write the code as per our conditions and simulate it.

Condition:1 If the temperature level is high(>30°c) then the Red LED is glow

Condition:2 If the temperature level is low(8.5) then the Red LED is glow

Condition:2 If the Ph level is low(

Matched Source

Similarity 5%

Title:Dissolved oxygen - NIWA

https://niwa.co.nz/our-science/freshwater/tools/kaitiaki_tools/impacts/dissolved-oxygen

---

Similarity 5%

Title:FA27/FA002: Dissolved Oxygen for Fish Production

https://edis.ifas.ufl.edu/publication/FA002

Similarity 3%

Title:Retinopathy of prematurity: a podcast on the nurse's roleO2 I.Q. - Pulse Oximetry in Neonatal Care Archives

Mar 19, 2021 — Clinical causes are being exposed to supplemental oxygen and having oxygen levels that are either too high

or too low.Clinical causes are being exposed to supplemental oxygen and having oxygen levels that are either too high or too low. Being born premature or being exposed ...

https://www.myamericannurse.com/podcast-the-nurses-role-in-retinopathy-of-prematurity/

Similarity 3%

Title:**(PDF) Environmental aspects of drainage**

Feb 20, 2015 — ... This phenomenon is directly associated with suspended solids in water. The suspended solids are a combination of clay, salts as well as ...

https://www.researchgate.net/publication/272483609_Environmental_aspects_of_drainage

---

Check By: Dupli Checker