**Alerting System on Poly Pond**

**Problem Statement**

To develop an effective solution to address the rising number of drowning incidents in poly ponds, primarily caused by the absence of immediate assistance.

**Limitations of Existing Solutions**

There are no existing solutions available according to survey done.

**Proposed Solution**

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1. **Automated Drowning Detection System:** An LDR (Light Dependent Resistor) detects any disruption in the laser beam.
2. **Immediate Alert Mechanism:** If the laser beam is interrupted, the LDR registers the change. The microcontroller processes the signal and triggers an alarm/buzzer.
3. **Emergency Notification System:** A message alert is sent to the pond owner or nearby responders. The notification ensures quick intervention to prevent drowning incidents.
4. **Cost-Effective and Accessible Design:** The system is designed to be affordable for farmers. Simple hardware components make it easy to install and maintain.
5. **Reliable and Efficient Performance:** Works in all weather conditions with minimal power consumption. Ensures continuous monitoring without human intervention.
6. **Scalability and Customization:** The system can be adapted for different pond sizes and farm layouts.

**System Workflow**

1. **Laser Setup:**
   * **A laser is positioned at one corner of the poly pond.**
   * **Mirrors are placed at the other corners to reflect the laser beam.**
2. **LDR Placement:**
   * **A Light Dependent Resistor (LDR) is positioned near the laser.**
   * **The LDR continuously detects the presence of the laser beam.**
3. **Normal Operation:**
   * **Under normal conditions, the laser beam remains uninterrupted, and the LDR receives a constant light signal.**
4. **Incident Detection:**
   * **If a person falls into the pond, the laser beam is obstructed.**
   * **This interruption is detected by the LDR as a sudden drop in light intensity.**
5. **Triggering the Alert System:**
   * **The microcontroller processes the LDR signal and detects the disruption.**
   * **A buzzer/alarm is activated immediately to alert nearby individuals.**
   * **A message notification is sent to the pond owner or concerned authorities for immediate assistance.**
6. **System Reset:**
   * **Once the obstruction is removed and the laser beam is restored, the system resets to its normal state.**

**Tech Stack & Requirements**

* **Languages:** C++
* **Hardware:** Arduino Uno, Laser, LDR Sensors, Buzzer, Power Supply Adapter (5V), Mirror
* **Software:** Arduino ide

**Flowchart**

A diagram of a software project

AI-generated content may be incorrect.

**Summary**

This project is highly beneficial for farmers and individuals working on farms. Our goal is to help save lives by providing timely assistance. Through extensive research, we found no existing solution to this problem, making our initiative even more significant. If our project can save even a single life, it will be a true success. Additionally, our solution is both environmentally friendly and cost-effective, ensuring that even small-scale farmers can easily implement it in their ponds.

**References**

1) Theft protection by using laser system.

https://ijarsct.co.in/Paper10850.pdf

2) Arduino Basics:

https://docs.arduino.cc/learn/starting-guide/getting-started-arduino/