# Water pH sensor for remote fish tank monitoring

Idea of this project is to make a pH sensor to monitor the pH level of the water in my fish tank. If the pH value of the aquarium becomes either to alkaline or too acidic, an alert can be triggered so a remediation action can be taken (e.g., change the water or put some neutralization solution). The pH readings of the water can be taken every hour and the message be transmitted to my remote monitoring application on the backend computer sitting in the same local area WIFI network.

## Components:

**Arduino Uno with WIFI shield:** The heart of the system is an Arduino board equipped with a Wi-Fi shield. The Wi-Fi shield enables the device to connect to the local network and access the internet, facilitating data transmission to the backend computer.

**pH sensor:** This sensor measures the pH value of a water to show the acidity or alkalinity of the water. pH reading <7 will mean the water is getting acidic and pH reading >7 means the water is becoming alkaline. Ideally, the water should be around pH = 7.

**Breadboard + wire:** This is to wire up and connect the IR sensor to the Arduino Uno board.

## Data Workflow:

- The pH sensor is placed near the surface of the fish tank. The pH sensor is connected to the Arduino Uno with WIFI shield.
- The pH sensor's reading is calibrated to ensure it reads pH = 7 for normal tap water
- The Arduino is programmed such that it will take the reading of the pH sensor every 60 mins (or any other time interval as deem fit)
- The pH value read is then transmitted to a backend application for data recording and dashboard monitoring.

## Purpose of Wi-Fi:

The readings from the pH sensors can be transmitted to a backend application via the Arduino Uno for monitoring. Should the pH value goes beyond a pre-defined critical range, the backend system will send an alert (e.g., as a Telegram message) so quick remedial action can be taken to prevent damages to the aquatic life.