

## **ABSTRACT SHEET FOR PROJECTS**

### **TITLE OF THE PAPER**

**Smart Water Level and Quality Monitoring Framework**

### **CATEGORY**

Automation

### **OBJECTIVE**

Create a simple and effective system in which water level and quality in water tanks are monitored and maintained automatically, minimizing the wastage of human resources and water.

### **APPLICATION**

The system can be integrated into any tank and especially implemented in the BITS campus with the instantaneous data of all the tanks available on a mobile app. It can also be implemented in a large-scale system where management would otherwise be cumbersome and prone to errors.

### **JUSTIFICATION OF CATEGORY CHOSEN**

The objective of the project of reducing human assistance and associated errors through the use of sensors and machine learning to maintain the water levels and quality justify the chosen category of automation.

### **BASIC EXPLANATION OF PROJECT**

The system makes use of a NodeMCU as the microcontroller for controlling the various sensors and transmitting the data through Wi-Fi to a server. An ultrasound module, with enhanced waterproof transducers for improved durability and protection from water, is used for the detection of the water level. If the water level gets low, information will be sent to another NodeMCU which will be connected to a relay for controlling the water pump, and when the tank is full, the pump will be switched off automatically. The system further makes use of a pH sensor, temperature sensor and a turbidity sensor to detect anomalies in the water tank and give a warning to the supervisor for further steps to be taken thus ensuring maintenance of water quality. The supervisor will have an app on his mobile phone for monitoring instantaneous data at any given time and will have an option for overriding the existing command in case of any emergencies.

### **TENTATIVE TIMELINE**

The project is expected to take four weeks to complete.

Two weeks for the choosing and assembling the components in the desired design and two weeks for on-field testing and debugging.

### **FEASIBILITY AND SCOPE OF PROJECT**

All the components required for the project are commercially available and hence can be procured within the above-stated timeline. Thus, the project is feasible.

The future scope of the project will be towards making it a very compact unit that has a long life making it feasible for implementation in real life tanks and coordination of all of them to a central server.