# MODIFIED ULTRA EFFICIENT MULTIPLE SENSING FOR WATER QUALITY ASSESSMENT SEWAGE WATER QUALITY MONITORING SYSTEM USING IOT

**ABSTRACT:**

The sensor era for water quality monitoring (WQM) has progressed for the duration of latest years. The system consists of an application layer, a network layer, and a sensing layer. The sensing layer collects the parameters of the sewage wastewater through a variety of sensors and equipment components. These values are monitored in the network layer through a website as the application of which is to monitor the sewage waste water. This method is implemented in order to improve the efficiency of industrial/domestic waste water treatment system and the immature operation management experience. It provides a complete solution for the operation and management of sewage treatment plants and has high reliability in practical applications. Through this method the sewage water management can be monitored real-time. This is projected to reuse the resources as human should save resources (water) which are limited. The increasing reduction of available water, sewage treatment becomes important issue to be studied nowadays. By this way the water quality can be monitored remotely.

**KEY WORDS:** Sewage Water Quality, Turbidity level, IoT.

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| **EXISTING METHOD** | **PROPOSED METHOD** |
| 1. In Existing method, sewage water quality is difficult to monitor. 2. Sewage water is not utilized after treating it with proper agents.   **DRAWBACKS**   1. Water cannot be recycled or reused if not monitored properly. 2. Manual monitoring leads to high human resource. | 1. In proposed method, The water quality is monitored automated using sensors 2. This method helps to treat the sewage water and reuse it.   **ADVANTAGES**   1. Sensors provide accurate details of water present in the tank. 2. The sensor values can be monitored remotely from webpage. |

**WORKING PRINCIPLE**

In this proposed method, Arduino UNO microcontroller is used to interface with the sensors and to the communication devices. The MQ 135 – air quality sensor is used to monitor the quality of air. The MQ 4 –Methane sensor senses the methane value of the tank. The turbidity sensor evaluates the water quality which helps to pump the water to the next tanks. The PH sensor is used to measure the PH value of the final level water. The ultrasonic sensor provides the water levels of the sewage tanks. The LCD is used to display the updated value from the sensors and if any abnormality occurs it is indicated by the buzzer. The I2C adapter is used to connect LCD to the arduino. The IOT module ESP8266 is used to update the information of sensors to the cloud. The end result can be monitored in webpage. The pump motor is activated based on the turbidity level.

**BLOCK DIAGRAM**

**ARDUINO UNO**

**LCD**

**PUMP MOTOR - 2**

**BUZZER**

**IOT MODULE**

**MQ 4 - METHANE**

**TURBIDITY SENSOR**

**ULTRASONIC SENSOR – (3)**

**POWER SUPPLY - 2**

**MQ 135 – AIR QUALITY**

**PH SENSOR**

**I2C ADAPTER**

**HARDWARE REQUIREMENT**

1. POWER SUPPLY
2. ARDUINO UNO
3. I2C-ADAPTER
4. LCD
5. MQ-135 – AIR QUALITY
6. MQ 4 – METHANE
7. TURBIDITY SENSOR
8. ULTRASONIC SENSOR
9. PH SENSOR
10. BUZZER
11. IOT MODULE
12. PUMP MOTOR

**SOFTWARE REQUIREMENT**

1. ARDUINO IDE
2. EMBEDDED C LANGUAGE

**APPLICATIONS**

1. This method is used in sewage treatment for changing the waste water to usage water process monitoring system.