**Experiment No: 01**

**Summary:**

This solution integrates the design of STM32 singlechip microcomputer, sensors, WiFi wireless transmission and remote water quality management. The system uses sensors to monitor water quality turbidity, pH value, temperature and other parameters, and uploads the data to the management center through wireless communication. According to the analysis results, the water environment quality was measured, and water quality problems were pre-warned to prevent further spread of pollution, improve the scientificity and efficiency of water quality monitoring and management, and provide relevant departments with response strategies and management measures. This system has good real-time performance and strong practicability, and can be promoted and used in the future to promote the development of water environment monitoring.

**Proposed solution:**

A household water quality sensor is proposed and implemented is made with Arduino uno, a Resistor, a potentiometer, Alphanumeric LCD is to collect and process data to check on basis on water quality parameters. Processed data is send through Bluetooth module to smart phone and displayed over LCD.

The design requirements of this system are:

(1) It can detect the turbidity of water in real time.

(2) It can show the value of turbidity.

(3) Alarm or response can be given to the value exceeding the set turbidity.

(4) The turbidity value of the alarm can be set freely.

**Problem Defination :**

In recent years, The pure pursuit of economic interests by human beings is seriously polluting the water environment. The discharge of industrial sewage and urban and rural domestic sewage far exceeds the self-purification capacity of ecosystems. Whether for drinking, household, food production or recreational activities, safe and readily available water is needed for public health. Once the water source is polluted, people's life and health will be seriously threatened . According to statistics, the total amount of renewable groundwater resources in China alone is 870 billion cubic meters, accounting for only 31% of China's water resources. Among these 31% of groundwater resources, better water bodies only account for 40%, and 60% of the water quality is not optimistic. A related 2017 report on the nation's water quality prepared by the U.S. Environmental Protection Agency (EPA) stated that 46% of river and bstream miles, 21% of the nation’s lakes, 18% of coastal and Great Lakes waters, and 32% of the nation's wetland areas are in "poor biological condition." In order to strengthen people's awareness of water environmental protection, various countries around the world have begun to pay attention to water quality improvement.

**Reference:**

C. Zhang, J. Wu and J. Liu, "Water quality monitoring system based on Internet of Things," 2020 3rd International Conference on Electron Device and Mechanical Engineering