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DEVELOPMENT OF REAL TIME WATER QUALITY MONITORING SYSTEM

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***Abstract*— Pollution of water is one of the main threats in recent times as drinking water is getting contaminated and polluted. The polluted water can cause various diseases to humans and animals, which in turn affects the life cycle of the ecosystem. If water pollution is detected in an early stage, suitable measures can be taken and critical situations can be avoided.**

Proposed system has various sensors to check and ensure the quality of water-based on pH, temperature, turbidity, and free residual chlorine. Data is collected through sensors and send for further processing. LEDs deployed on the system are for general users to immediately identify the water quality. The system aims to reduce the delay in existing systems by deployingindictors on system itself so that the person using the system will be able to decide whether water is safe to drink or not, which can avoid further health hazards. Implemented system is economical and dynamic. Use of LEDs on system makes it user friendly and even common people can assure quality of water.

***Keywords*—** ATMEGA328, PH sensor, turbidity sensor, Temperature sensor, water monitoring.

I. INTRODUCTION

The environment around consists of five key elements e.g., soil, water, climate, natural vegetation, and landforms. Among these water is the utmost crucial element for human life. It is also vital for the persistence of other living habitats.

The water quality parameters pH measures the concentration of hydrogen ions. It shows the water is acidic or alkaline. Pure water has 7pH value, less than 7pH has acidic, more than 7pH has alkaline. The range of pH is 0-14 pH. For drinking purpose it should be 6.5-8.5pH.

Now a day's Internet of things (IoT) is an innovative technological phenomenon. It is shaping today's world and is used in different fields for collecting, monitoring and analysis of data from remote locations. IoT integrated network if everywhere. Temperature sensor measures how the water is, hot or cold. Flow sensor measures the flow of water through flow sensor. The traditional methods of water quality monitor involves the manual collection of water samples from different locations

II. WORKING

The main aim is to develop a system for continuous monitoring of river water quality at remote places using wireless sensor networks with low power consumption, low-cost and high detection accuracy. pH, conductivity, turbidity level, etc. are the limits that are analysed to improve the water quality. In this proposed block diagram consist of several sensors (temperature, PH, conductivity, water level, water flow) is connected to core controller. The parameters such as temperature, PH,

turbidity, flow sensor of the water can be measured. The measured values from the sensors can be processed by the core controller. Temperature sensor measures how the water is, hot or cold. Flow sensor measures the flow of water through flow sensor. Turbidity has indicated the degree at which the water loses its transparency. Finally, the sensor data can be viewed on internet using WI-FI system.

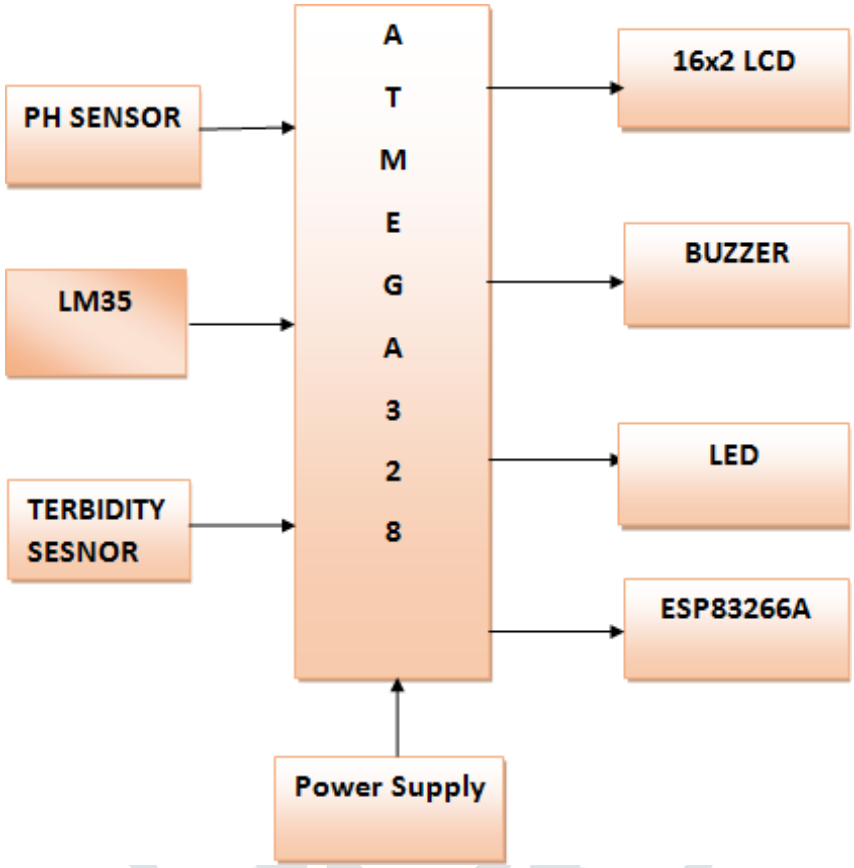

Fig. 1 Block diagram of system

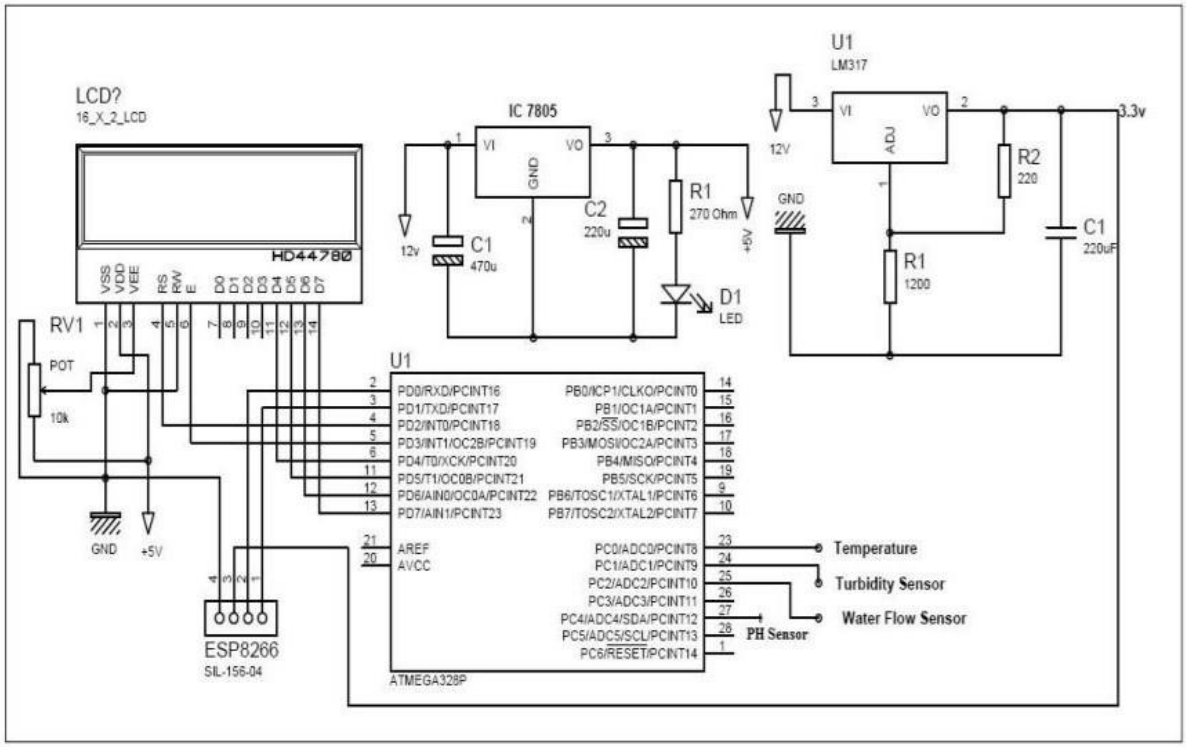

Fig. 2 Circuit diagram of system

III. REQUIREMENTS

Hardware equipment: Atmega328P microcontroller, LCD Display, Buzzer, PH sensor, Temperature sensor, Turbidity sensor, LED display, Wi-Fi Module, Power Supply

Software Equipment: Programming language- Embedded, Compilers- Keil 4.0uv, Dumping software- Using Micro controller flash magic/ preload Software we are dumping our code into Micro Controller

IV. APPLICATION

Applications: In MNC water supply, Institute like college, school, office, Agricultural use, public water tanks, Apartment, remote villages, etc.

Future scope: In addition to this project, if we replaced arduino microcontroller with the raspberry pi microcontroller, wide range of sensors can be implemented in order to check the quality of water with different perspectives.

V. CONCLUSIONS

The results obtained matched with the expected results obtained through research. The temperature relation with pH and conductivity were also observed for all the water samples. Turbidity sensor quantitative measure of suspended particles in the fluid or liquid. Water with high turbidity is murky, while water with low turbidity is clear. pH sensor, commonly used for water measurements, is a measure of acidity and alkalinity, or the caustic. In the system has proved its worth by delivering accurate and consistent data throughout the testing period and with the added feature of incorporating IoT platforms for real time water monitoring, this should be an excellent contender in real time water monitoring solutions. Our main intention was to reduce the time required for testing of water in laboratories, and we have been able to achieve it but with lesser accuracy.

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