

IOT BASED WATER QUALITY MONITORING SYSTEM USING RC BOAT

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ABSTRACT

Clean drinking water is a critical resource, important for the health and well-being of all humans. Safe water is a precondition for health and development and a basic human right. So it's very important to monitor the quality of water available in reservoir. For this purpose, we proposed an "Water quality monitoring system using RC boat". This wireless remote control driven boat has sensors to measure water turbidity, pH, conductivity and temperature. Project contents a boat with sensors and a remote controlled. User can drive the boat using remote and boat will collect all readings after specific interval. All the readings measured by sensors will be send to remote and can be seen on LCD display attached to remote. Also same readings will be uploaded to Thing Speak webpage using the Wi-Fi module on remote. Boat will be driven by 2 DC motors attached to back side and controlled with the help of switches on remote. Both remote and boat are powered through 2 different batteries.

Keywords: Quality Monitoring, Sensors, Water Parameters, RF Modulator.

I. INTRODUCTION

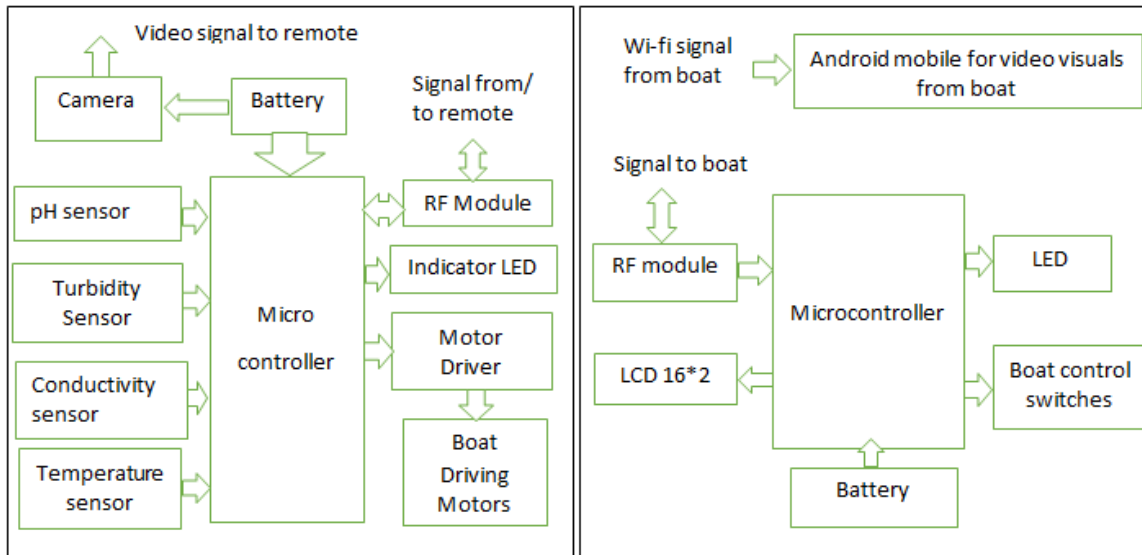
Water quality is affected by both point and nonpoint sources of pollution, which include sewage discharge, discharge from industries, run-off from agricultural fields and urban run-off. Other sources of water contamination include floods and droughts and due to lack of awareness and education among users. The need for user involvement in maintaining water quality and looking at other aspects like hygiene, environment sanitation, storage and disposal are critical elements to maintain the quality of water resources. Poor water quality spreads disease, causes death and hampers socio-economic progress. Fertilizers and pesticides used by farmers can be washed through the soil by rain, to end up in rivers. Industrial waste products are also washed into rivers and lakes. Such contaminants enter the food chain and accumulate until they reach toxic levels, eventually killing birds, fish and mammals. Chemical factories also dispose of waste in the water. Factories use water from rivers to power machinery or to cool down machinery. Raising the temperature of the water lowers the level of dissolved oxygen and upsets the balance of life in the water. All the above factors make water quality monitoring essential.



II. METHODOLOGY

In "Iot Based Water quality monitoring system using RC boat". This wireless remote control driven boat has sensors to measure water turbidity, pH, conductivity and temperature. System is divided into 2 parts, the 1st part is boat with sensors and wireless Wi-Fi camera and 2nd part is remote with LCD, Wi-Fi module and an android mobile. Both are connected together using wireless RF modules. All the readings measured by sensors will be send to remote and can be seen on LCD display attached to remote. Also same readings will be uploaded

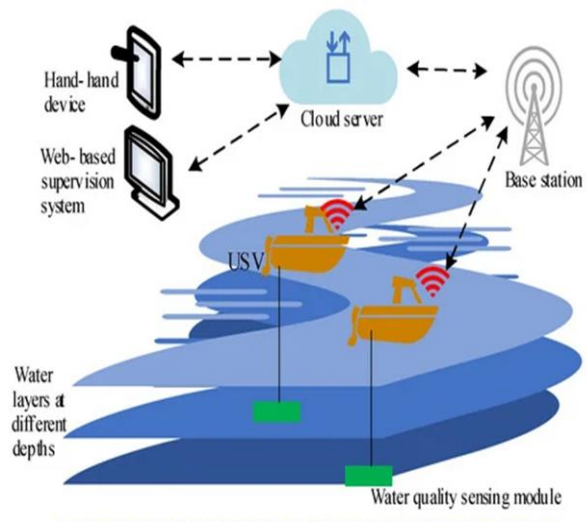
to Thing Speak webpage using the Wi-Fi module. Boat can be driven by 2 DC motors attached to back side and controlled with the help of switches on remote. Both remote and boat are powered through 2 different batteries.



III. MODELING AND ANALYSIS

COMPONENTS	SPECIFICATION
PH Sensor	Measuring Range: 0 to 14.00 pH Maximum Flow Rate: 10 feet (3 meters) per second
Turbidity Sensor	Operating Voltage: 5V DC Operating Current: 40mA (MAX)
Conductivity Sensor	Input voltage: 5 VCC at one rod Voltage will be measured at 2nd rod
Temperature Sensor	Temperature range: -55 to 125°C Usable with 3.0V to 5.5V power/data
ATmega328	28 pins IC with 20 GPIO pins Inbuilt 10bits 6 channel ADC

IV. RESULTS AND DISCUSSION



V. CONCLUSION

Monitoring of Turbidity, pH, EC & temperature of water gives users knowledge about the quality of water in the reservoir. The system can monitor water quality automatically. So the water quality testing is likely to be more economical, convenient and fast, since we can monitor any time through IOT webpage. The system provides good flexibility.

VI. REFERENCES

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