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Novel Water Monitoring System: A Python Based Aqua Monitoring System using Raspberry PI

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Abstract: Water pollution is one of the biggest fears for the green globalization. In order to ensure the safe supply of the drinking water the quality needs to be monitored in real time. In this project we design and develop a low cost system for real time monitoring of the water quality using IOT,(internet of things).The system consist of several sensors used to measuring physical and chemical parameters of the water. 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. The measured values from the sensors can be processed by the core controller. The Raspberry Pi model can be used as a core controller. Finally, the sensor data can be viewed on internet using WI-FI system.

Keywords: Temperature Sensors, pH Sensor, Turbidity Sensor, Arduino Uno, Raspberry Pi

I. INTRODUCTION

The In the 21st century, there were lots of inventions, but at the same time were pollutions, global warming and so on are being formed, because of this there is no safe drinking water for the world's pollution. Nowadays, water quality monitoring in real time faces challenges because of global warming limited water resources, growing population, etc. Hence there is need of developing better methodologies to monitor the water quality parameters in real time. 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. Turbidity measures the large number of suspended particles in water that is invisible. Higher the turbidity higher the risk of diarrhea, cholera. Lower the turbidity then the water is clean.

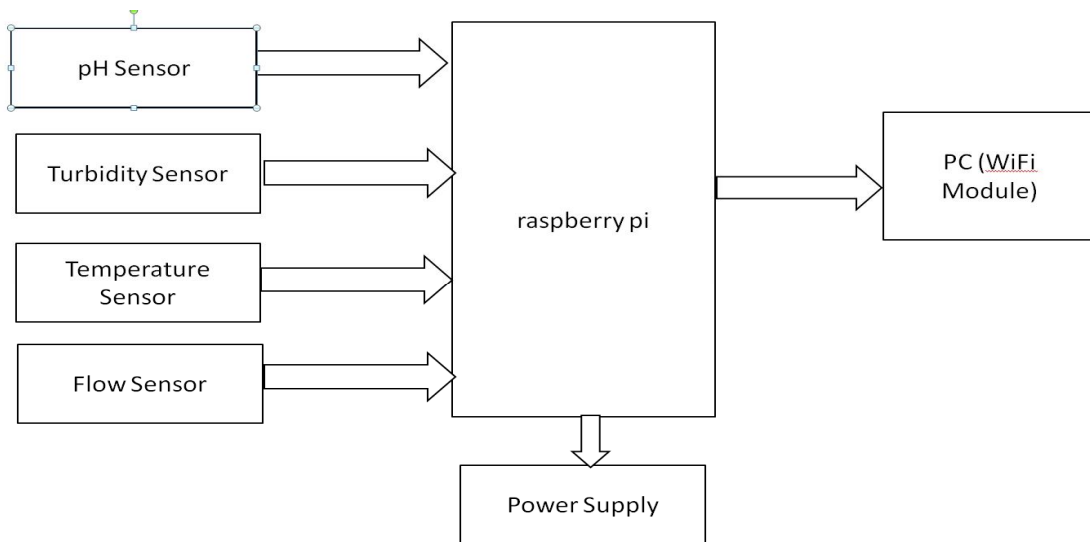
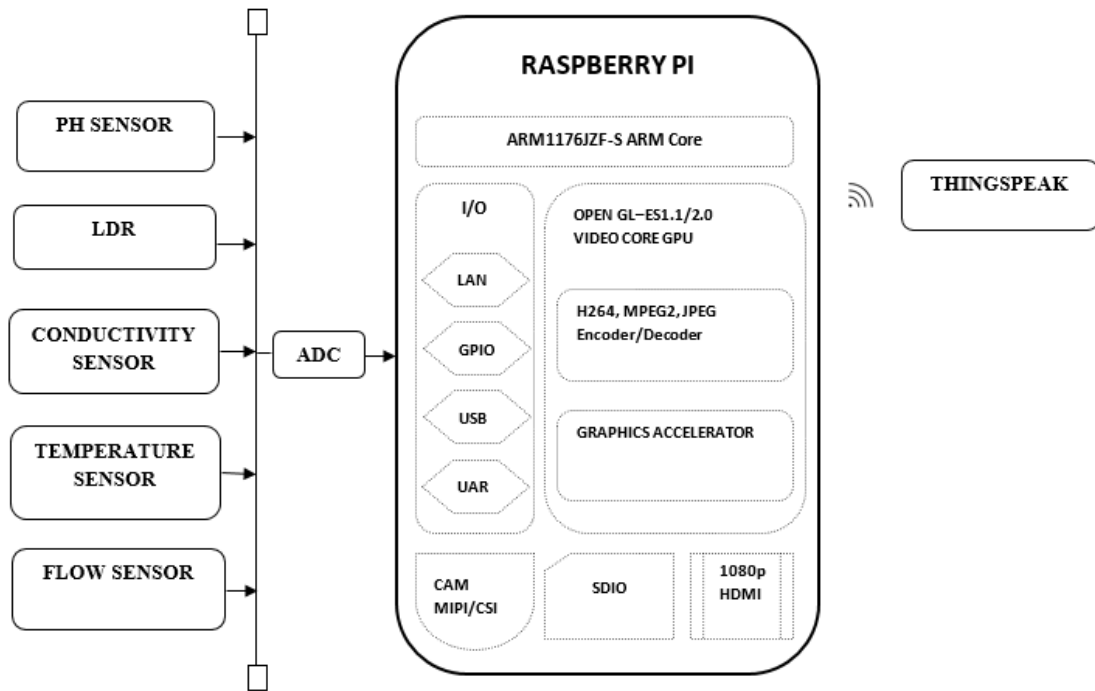
A. Problem Statement:[1-45]

This To implement and design an automated water monitoring system based on python using Raspberry Pi as the core controller. To detect and analyze various sensor reading information and categorize the quality of the water sample , along with constant monitoring of water level.

II. METHODOLOGY OF PROPOSED SYSTEM

- 1) In this, we present the theory on real time monitoring of water quality in IoT environment. The overall block diagram of the proposed method is explained. Each and every block of the system is explained in detail. In this proposed block diagram consist of several sensors (temperature, pH, turbidity, flow) is connected to core controller. The core controller are accessing the sensor values and processing them to transfer the data through internet. Raspberry Pi is used as a core controller. The sensor data can be viewed on the internet wi-fi system.
- 2) *pH Sensor* : 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. Pulse rate: Pulse rate is measured from the ECG signal
- 3) *Turbidity Sensor*: Turbidity is a measure of the cloudiness of water. Turbidity has indicated the degree at which the water loses its transparency.
- 4) *Temperature Sensor*: A temperature sensor is a device, typically, a thermocouple or RTD, that provides for temperature measurement through an electrical signal. A thermocouple (T/C) is made from two dissimilar metals that generate electrical voltage in direct proportion to changes in temperature.
- 5) *Raspberry Pi*: The Raspberry Pi 3 Model B is a tiny credit card size computer.

The Following figures are MODEL of Proposed System



III. CONCLUSION

Monitoring of Turbidity, PH & Temperature of Water makes use of water detection sensor with unique advantage and existing GSM network. The system can monitor water quality automatically, and it is low in cost and does not require people on duty. The operation is simple. The system can be expanded to monitor hydrologic, air pollution, industrial and agricultural production and so on. It has widespread application and extension value. By keeping the embedded devices in the environment for monitoring enables self protection (i.e., smart environment) to the environment. By deploying sensor devices in the environment, we can bring the environment into real life i.e. it can interact with other objects through the network. Then the collected data and analysis results will be available to the end user through the Wi-Fi



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