

Implementation of IoT Based Sewage Water Purity Indicator

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Abstract: To develop an efficient IOT based monitoring of water quality for better results, low cost, easy handling, less manual work and to reduce the time involved in lab testing. It minimizes the time required for testing the quality of water. This system removes need of laboratory testing. Test results are recorded in cloud so that any previous data of testing can be fetched easily

Key Words: IoT, Sensors

1.INTRODUCTION

The goal behind the proposed system is to design a real time monitoring system. The proposed system is cost effective and very easy to implement. The system consists of Temperature, Turbidity, pH , conductivity sensors . using Aurdino Board and different sensors in IoT Environment we notify respective authorities about quality of water . In our design Aurdino Board is used as a core controller. The design system applies a specialized IoT module for storing sensor data (simulated) from core controller to the cloud. The sensor data can be viewed on the cloud using a special IP address. Test results are recorded in cloud so that any previous data of testing can be fetched easily. Results are sent to owners so that required action can be taken by the operator. The factory detail will be uploaded in a social media if necessary action is not taken.

2.SYSTEM DESIGN

The design system applies a specialized IoT module for accessing sensor data (simulated) from core controller to the cloud. The sensor data can be viewed on the cloud using a special IP address. The data stored on the cloud will be retrieved at the the server site.

The average values will be calculated continuously for each of the sensor data and is stored with the timestamp which reduces the redundancy of the data. Further, it is compared with the standard values and a graph is plotted.

Based on the analysis of the graph, a report is generated only when the quality does not meet the required standards. This report is sent to the respective factory. A certain period of time is given in order to ensure safe flow of sewage water. If the necessary action is not taken by the factory within the assigned period, the DRDO will upload the report on to the social websites like facebook, twitter etc...

3. IMPLEMENTATION

Implementation of our system is completely based on .NET platform. The platform is a crucial element in software development. A platform may be simply defined as a place to launch software. It is an agreement that the platform provider gives to the software developer that logic code will interpret consistently as long as the platform is running on the top of other platforms.

Implementation Modules:

1. Create Factory Module

This module basically collect all the factory details such as factory name, factory address, contact number, email address, factory type and the factory image. When the data is collected from the IoT device and stored on cloud, these data is retrieved at the DRDO server for calculations and report generation. The report generated has to be sent to the respective factory.

Using the above mentioned details, it is possible to send the report to any particular factory

2. Hardware Data Module

This module explains about reading the data from the hardware through the USB port and storing onto the cloud. A software called Aurdino is used to identify the IoT device(aurdino) which is connected through the USB port that runs as a background process.

A UI application will display the sensor values on click of the start button which continuously reads the values from the sensors. On the click of the same button the data which is finally read will be stored onto the cloud.

3. Report Generation Module

This module explains about how the report is generated at the server site. The report basically consists of the factory details to which it has to be sent, the different sensor parameter values like pH, temperature, turbidity, salinity that has been read from the water sample of that

factory remotely, and also has the information about the requirements for measuring those mentioned parameters. A warning note specifying to take an immediate action is intimated.

4. Send Email Module

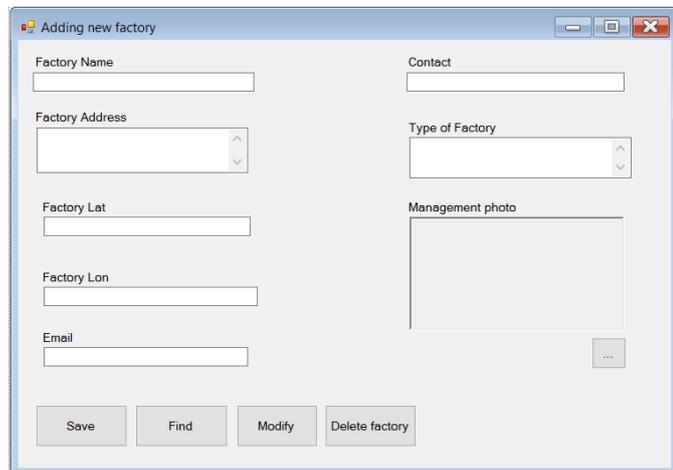
This module explains how the generated report is sent to the respective factory. SMTP protocol is used to send

the email. The details required to send the mail are taken from the create factory database. It also explains about how the report is attached as a file and sent using a created SMTP object.

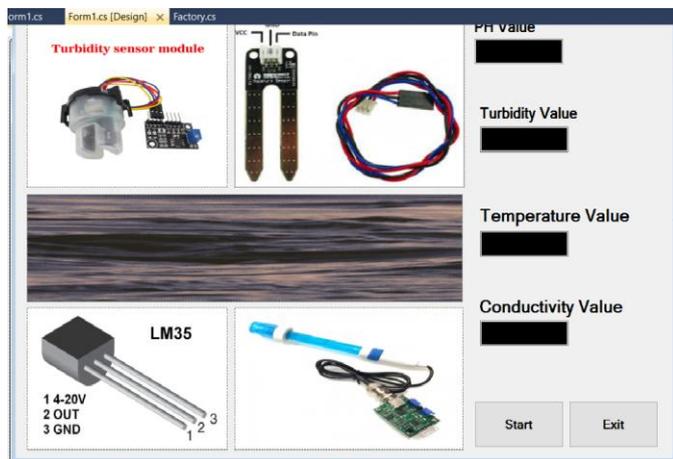
5. Resolved Module

After sending reports to the respective industries, the DRDO has to keep track of a record which contains the details about to which factory the report has already been sent. The record contains information such as reference id, factory name and report sent date. For every factory a particular duration is given to take a required action. This module removes the factory detail from the above record once it has been resolved by the factory.

4. SNAPSHOTS

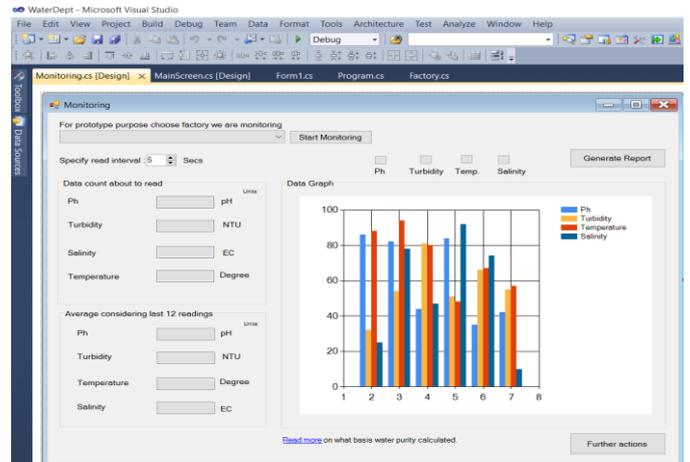


The factory owners have to enter their factory details into the DRDO database that includes the details such as factory name, factory latitude, factory longitude, factory address, email address etc...



This application will run on a system to which all the sensors are connected through IoT device (Aurdino). On clicking 'start' button, the sensor values are read and displayed

continuously. When stopped, the data read finally will be stored on to the cloud.



The sensor data that is stored on the cloud is retrieved at the server site. Mathematical calculations are performed on this data and a graph is plotted. Based on the analysis of the graph, a report is generated.

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