Anomaly Sensor based Wastewater Detection for Agriculture using IoT Techniques

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Abstract—This system proposes an Waste Water management and agricultural environment monitoring server system for monitoring server system for monitoring information concerning an outdoors agricultural production environment utilizing Wireless Sensor Network (WSN) technology. The proposed agricultural environment monitoring server system collects water quality data that is provided for the crops along with soil moister information on the outdoors through WSN-based environmental shoulder-riding assaults on verification plots by proposing Illusion PIN (IPIN), a PIN-put together validation strategy that works with soil Moister information on the outdoors through WSN-based environmental optimizing consumption and protecting crops. This work describes an automatic system for monitoring farm environments with water quality of the agricultural environment. The data collected is shared through the server using Internet of things (IOT). The temperature, water quality and soil parameters are monitored in real time. Therefore, the proposed system can provide an effective tool to improve the quality of agricultural production and energy efficiency.

Keywords: Water, GSM, Arduino Mega 2560, Cloud

I. INTRODUCTION

The IOT (Internet of Things) is a technology concept and/or an architecture which is an aggregation of already available technologies. IOT architecture can also be called as an event-driven model. The visionaries have also realized that this IOT ecosystem has business applications in areas of Home Automation, Factory/assembly line automation, Retail, Medical/Preventive healthcare, Automotive and more. Starting from the bottom level, the data flow gets generated from any "thing" through sensors that are being sent out to the cloud through communication gateway for analysis, which turns out to be useful information. IOT has evolved from the convergence of wireless technologies, micro electromechanical systems and the Internet.

II. EXISTING SYSTEM

The monitoring of urban waste water for agriculture use provides a smart solution for testing the quality of water by using array of sensors and the measured value is displayed in LCD. The major objective of this paper includes the estimation of water quality parameters, for instance, pH, Turbidity, Temperature, BOD, TDS that helps to identified the deviations in the parameters and provides an alert messages when there is an abnormal level i.e., the value exceeds the predefined threshold or the standard value set in the Arduino Mega 2560 Controller. These extreme values indicated chemical spills, treatment plant issues or the problems in supply pipes which may causes severe problem in terms of the cultivation of crops and quality of the soil anomaly detection of water quality setup using a GSM module, the data is stored in a cloud and server is connected with an IOT to send message to the government and provides a remedial measure to overcome these problems and helps the farmers to improve the sales and business processes.

III. PROPOSED SYSTEM

The system proposes for complete waste water management to provide qualified water supply for the agricultural lands. The proposed system is also focused towards monitoring and controlling the agriculture process such as soil condition, and provides automatic water irrigation through internet of things with microcontroller. Historical data can then be used with a machine learning algorithm to predict and forecast the water management. Such data insights enable managers to fix the problem before it happens to prevent downtime, reduce operational costs, and improve the overall efficiency of the system. if the turbidity levels dropped below 100 NTUs in the past, the system can predict when the next expected drop in water quality will occur again.

IV. BLOCK DIAGRAM

Following fig. 1 shows the block diagram and components in the proposed system.

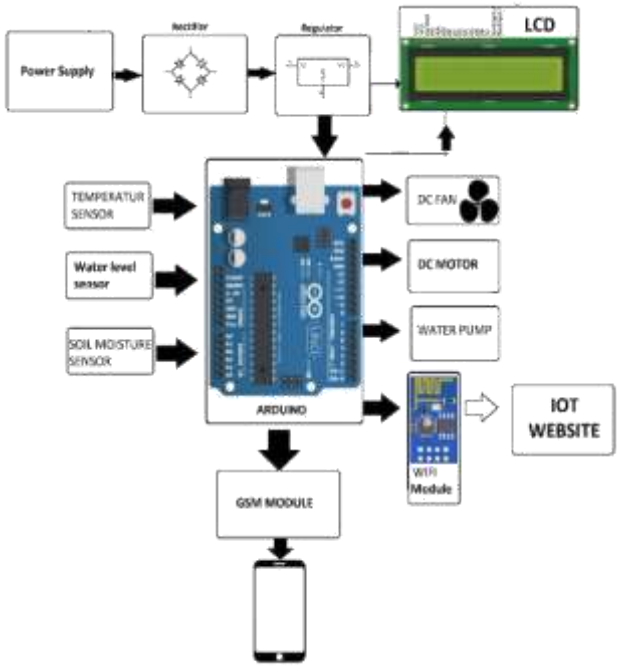

Fig.1: Proposed system block diagram

V. CONCLUSION

The system is successfully completed to measure and the water quality parameters through IOT server remotely and provides the effective agricultural supply monitoring by using wireless communication protocol. Various sensors are interfaced with the IOT Module to sense and monitor all the required parameters. This controller with the IOT module reads the data from the sensing unit and transfers that data to IOT Module through the serial port. The IOT module has the ability of sending information to the web server page. The water quality can be monitored in order to supply the qualified water to the agricultural lands there by protecting the yield of the crops, and also controls the water level being supplied to the agricultural lands based on the moisture level and also the level of water required for the particular crops in order to provide good yield of the crops.

VI. FUTURE WORK

The Future Enhancement of this project can be that the farms can be incorporated with Sprinklers and the proposed system can undergo the required changes which help automation of water and pesticides needs of the soil accordingly. The model can have modules which have more crop specific data and that too with state wise/region wise data which is necessary as all crops do not need same amount of water and pesticides in different climatic circumstances. So these changes can be incorporated into the proposed system in the coming times.

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