Proposed System For Drainage And Irrigation Management

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Abstract: To manage drainage water, most important and useful method is to re use this water. We are going to implement this system to reuse of maximum drainage water. For short and long terms need, it is necessary to avoid the waste of water. In some regions, percentage of rain is minimum, in such areas; reuse of drainage water is most important and useful method. According to the quality of drainage water, the water should be distributed to the crops which should be irrigated. For salt sensitive crop it is not possible to do the reuse of drainage water. For salt sensitive crops and trees, purified drainage water should be reused. If this project is located near the wetland at that time we can reuse of drainage water for that wetland. However, in this system we have to take precautions of leaving things in the water. Leaving things in water such as fish and other insects should get harmful because of the drainage water so that at the time of implementation of this system we have to take care of such things. In this system, we are proposing a system which consists of water level point contact sensor, solenoid valve, Wi-Fi module, Arudino microcontroller. This system detects the water level of drainage and transmits it to the necessary irrigation area.

Keywords: IoT, Irrigation, Solenoid valve, Tolerant, Wetland, Drainage, Salt Sensitive.

1. INTRODUCTION

The most important issue at the time of reuse of drainage water is that the high concentration of ions. Low concentration of ions is useful for the plant or tree growth. Low concentration ions are required to plants and trees for their growth. However, as salinity will increase, specific ions might become toxicant or interfere with the uptake of alternative nutrients. In soils, the buildup of ions will increase the diffusion potential against that plants extract water. At the time of management of salinity in the agriculture, the most important key factors are Voidance and activity of salts. At the time of management another issue should be occurred i.e. salt tolerance of crop. Salt tolerance is the maximum level of salt that tolerates without losing the productivity of the crop. If salt tolerance is high, productivity level of crops gets decreased. This system is useful for the reuse of drainage water for such agricultural crops which have high economical collection and which are famous to be extremely tolerant to salinity. As salt level of water will increase within the water in the irrigation area, there is a larger have to be compelled to the monitoring and the management of irrigation. For the economical management of crops most important thing to do is to check the characteristics of the water in the crop and also check the soil characteristics of the crop to increase the productivity of the crop by using these characteristics. Poor quality water needs choice of crops with acceptable salt tolerances, enhancements in water management, and maintenance of soil structure and porousness (tilth, hydraulic conductivity). Once sensitive crop growth stages like germination and early growth are excluded, the temporal weighted mean root zone salinity has been found to be a legitimate live for evaluatingFor the estimating response from the crops, the mean root zone salinity at intervals the maturation depth integrated over the time of exposure is a good approximation is done. Plants answer the weighted mean salinity at intervals a particular growth amount. It is necessary to manage voidance, and it's most helpful technique to manage voidance by exploitation Iot. In IoT we have a tendency to use some controllers and sensors like LAN module ESP8266, water level purpose contact device, coil valve, Arudino microcontroller. With the assistance of water level device we will monitor voidance or flood water and by exploitation coil valve we will manage water to specific space. We will conjointly collect dataset of rain in last year. It is necessary to manage drainage, and it is most useful method to manage drainage by using Iot. In IoT we use some controllers and sensors such as wifi module ESP8266, water level point contact sensor, solenoid valve, Arudino microcontroller. With the help of water level sensor we can monitor drainage or flood water and by using solenoid valve we can manage water to particular area. We can also collect dataset of rain in last year. On the basis of this dataset we are going to predict areas which have less amount of rain in last year and manage water in that area.

2 LITERATURE SURVEY

K.L.Keyung, C.K.M.Lee, basically IOT is the combination of the hardware system with the software. For gathering the information, some experiments were done. The information is then accustomed train the bogus Neural Network. To assist the storm water and emptying management analysis of projected is done. According to the result, we can predict emptying things. After the cross validation, it is ready to predict most of the testing inputs. The main aim of this paper is at profit to Hong Kong emptying service. V.S.Velladurai, M.Saravanan, this paper shows the modified work of the model which is used to put safety in industries. This technique may be employed in homes, villages, cities and offices. The forming of toxic gases is most of the emptying and unused wells. The most important objective of this work is planning microcontroller primarily based toxic gas police work, alerting system and gas purification. RamKumar Narayanan, VM Lekshmy, This paper, new system is introduced by using the sensation of the democratic and flood or water level detection by using the pc vision. In this system with the help of mobile phones user can upload pictures of the part submerged static structures such as buildings, lampposts etc. These pictures should be uploaded on the server with their tags. After this with the help of the algorithms, uploaded image should be matched with the reference image. According to the reference image flood should be calculable. Antonio Rueda, Jos_e M. Noguera, this proposed system should works on unprocessed DEMs avoiding the issues caused by pits and ats, will generate watercourses with a breadth larger than one cell and detects uvial landforms like lakes, marshes or watercourse islands that aren't directly handled by most previous solutions. P.S.Chandramohanan Nair, Preetha P.K., This paper proposes a completely unique technique for ill the emptying power that is generally wasted within the delta winding of the distribution

electrical device. The experimental studies conducted on a 3 kVA electrical device shows that once the emptying power of delta winding is recovered it helps in rising the electrical device potency and system power issue. Kizito Masaba, Amini Ntakirutimana, In this paper, Author introduce the system which works on sensors, microcontrollers and water pumps along with the choice creating system. According with the collection of atmosphere data, truth table is developed by the Author along with the need of irrigation area. According with the need of irrigation area and the sensor values the decision should be taken to turn on the sprinklers. At the time of this water is sending to the dry area in the irrigation and also it stores the economical use of the water. In this system use of different types of parameters such as temperature, wetness and wet is done, it makes attainable to regulate the system in step with the wants of a selected location.

3 SYSTEM ARCHITECTURE

In the diagram, there is flow of our project.

1. The whole architecture is made by Net beans used in java language. Net beans give all the necessary stuff related to GUI design. Net beans provides us display screen, buttons and so on. So, in these way Net beans helps us in design GUI.
2. After designing of GUI, another task is to authenticate valid user for operating application. To deal with this task, we are using MySQL

   database to store data of username and password and through this, user can authenticate easily.

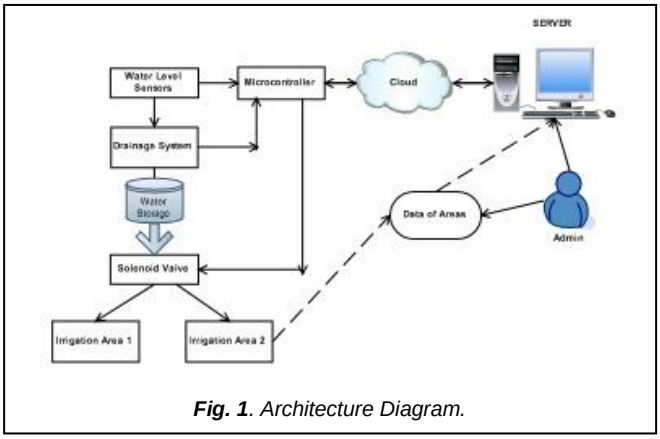
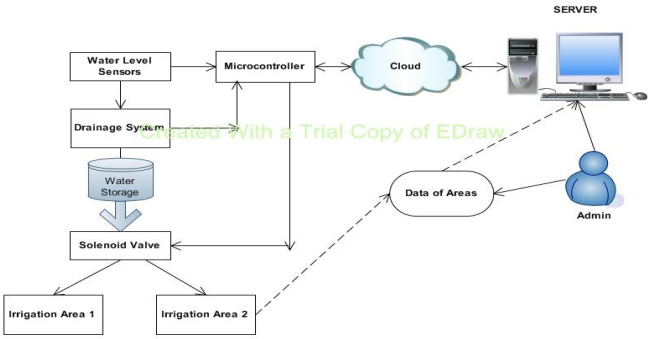


***Fig. 1**. Architecture Diagram.*



3. Another task is to collect values from the sensors. Sensor sends value to the server and by using server it is easy to access all values of sensors
4. The major task of this survey paper is to collect datasets of last year soil moisture and temperature and to achieve this result, we are working on Google for the dataset of rain last year on which, we are providing the irrigation of that area.

In this way, we achieve our all the tasks to achieve our project goal.

4 ALGORITHM

NAÏVE BAYES ALGORITHM IN OUR APPROACH

Step 1: Collection of data from the sensor and upload collected data to the server

Step 2: Continuously data is send to the server and updating of data is done

Step3: With the help of threshold values which are predefined, microcontroller controls the sensors.

Step 4: Checking of water and reevaluation of the water is done according to the probability showing water level such as full or not.

Step 5: This checking and reevaluation is done continuously until the result should be same.

Step 6: According to the threshold values, sensor data

classification is done.

Step 7: Final output is to generate alert or sending notifications to the admin.

DECISION TREE ALGORITHM IN OUR APPROACH

Step 1: Collection of data from the sensor and upload collected data to the server

Step 2: Continuously data is send to the server and updating of data is done

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Step 5: This checking and reevaluation is done continuously until the result should be same.

Step 6: According to the threshold values, sensor data classification is done.

Step 7: Final output is to generate alert or sending notifications to the admin.

Step 8: On and off operation of solenoid valve should be controlled manually by admin. If water tank is not full but it should be full in some time at that time admin can manually turn solenoid valve on.

Step 9: If the water is full, and generation of alert takes time at that time regeneration of alert message takes place and send message that the water tank is full to the authorized person and with solenoid valve gets started flowing of water to the irrigation area.

5 CONCLUSION

Drainage & Irrigation Management System, in this type of application, we have first collect datasets of irrigation area and after that make a web application so that user can able to manage drainage and irrigation system. To implement this system we are going to use the different types of sensors according to which we can manage irrigation of particular area. In this way, we are successfully implementing all the tasks of the survey paper.

6 FUTURE WORK

In future work, we use different type of sensors to get accurate output for manage drainage. We can use decision tree algorithm or naïve baiyes to predict that the need of water in particular area and for alerting the system administrator.

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