

# Review of Shared Water System Framework with Surge Evasion Strategy

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**ABSTRACT:** Agriculture represents the biggest users, with irrigation accounting for 70% of global water withdrawals. It is Expected that without improved efficiency agriculture water consumption increases very rapidly. This project focuses on devising an efficient, economical and automated solution for irrigation by detecting the dampness content as it turns of motors automatically. This system has an impelled feature to avoid surge(outpouring) the level of water and dampness is absolutely controlled with no power cut off. The benefit of utilizing this innovation is to lessen the human intercession and still guarantee legitimate water system. We have used a GSM module to communicate between user and system for long range inspection.

**KEYWORDS:** Arduino; GSM module; Flood Avoidance Motor; Depth level sensor; Moisture sensor.

## I.INTRODUCTION

Agriculture is the art of science or exercise of farming, which play a vital role in the ecosystem. The survival and existence of the world is in the hands of the agriculture. It includes the cultivation of the soil for the growing of crops, vegetables and fruits. Today, the India ranks worldwide second in the producing agriculture output. In 2013, agriculture and allied sectors like forestry and fisheries have yielded 13.7% of the GDP, about 50% of the workspace. India is the world's third biggest producer of tuber crops, roots, farmed fish, pulses, eggs, sugarcane, coconut, dry fruits, farming based textile raw fabrics and numerous vegetables.

Agriculture is the backbone of India. The economy of our country depends on the agriculture. The Government of India has invested more wealth and money to develop the technology in agriculture, thereby increase the production of it. Our country is surrounded by dry lands. Survival of the plants in the dry land is very important element. The important issues in dry land are saving of water. The amount of water in soil is checked regularly to determine the moisture of the soil. This measurement prevents the plant from wilting. The consumption of water by the different plants varies based on the area or region and the season. For example, the cactus plant does not need a lot of water for its survival. It needs sprinkling of water once or twice a week. Because of evolving technology of Internet of Thing, several automated system has been developed in the agriculture to sense the moisture of the soil and the temperature of the air. The farmer, gardener, cultivator and so on can use this system to sprinkle the exact amount of the water to the plant or crops. Saving water and electricity for the future is challenging task for farmer and landlords. government has faced an electricity shortage over a period of years. During the summer season, the ground water level goes down by creating water scarcity. The moisture sensor is used to avoid the drought and supplies the water in time for the crops.

The right amount of water can be supplied to the crops by automatically by switching off the motor based on the type of the crop. Drought, cyclone and floods are the natural hazards, which cause heavy damage to the agricultural farms. Floods can be controlled by designing an excellent, optimal and have used solar panel and battery to provide water at the right time to the crops. Solar panel converts the heat energy into electrical energy. It serves to overcome the effect of the power supply failures. The battery supplies the electrical energy to the system in case of power failure. Thus, our system provides an uninterrupted power supply, timely deliver, and right amount of water to the crops and plants.

This survey paper is organized as follows; In section II, we review the investigate the existing research contributions towards Smart irrigation. In section III, we discuss research trend and research gap. Finally, the conclusive remarks are provided in Section IV.

## II. RELATED WORKS

[1] programmed water system framework has seen a fast development as far as innovation. At show cost-sparing innovation, work sparing are the tending to enter issues in water system. This paper gives a survey of these frameworks in view of existing advances and furthermore proposes a temperate and non specific programmed water system framework in light of remote sensors with GSM-Bluetooth for water system framework controller and remote checking framework. This framework has more straightforward highlights outlined with the goal of minimal effort and viable with less power utilization utilizing sensors for remote observing and controlling gadgets which are controlled by means of SMS utilizing a GSM module. A Bluetooth module is likewise interfaced with the primary microcontroller chip. This Bluetooth module disposes of the use charges by speaking with the apparatuses through Bluetooth when the application is in a constrained scope of few meters. The framework illuminates client about any unusual conditions like less dampness substance and temperature rise, even convergence of CO<sub>2</sub> by means of SMS from the GSM module or by Bluetooth module to the agriculturist's portable and moves are made as needs be by the rancher. In future, the agriculturist will have the capacity to screen and control the parameter by GSM and Bluetooth innovations

[2] IoT has turned out to be exceptionally well known in the field of correspondence. IoT will turn into a reality over the next couple of years, with quick and far reaching keen gadgets will be ready to execute freely as per the adjustment in their environment. The utilization IoT systems to distinguish and channelize the water system techniques are examined in this work. To build up a robotized system to break down the water required by the plants at a specific time, a database is made. The database contains preparing tests identified with the dirt kind, dampness content, temperature, plant leaf condition and the moistness level and the measure of water stream required for consequent arrangement of highlights. Diverse sort of soils and plants vary in water content required. The database is construct utilizing the highlights extricated from the pictures of the dirt and the plants. The shade of the plants and the dirt pictures can be recovered utilizing Fisher's straight discriminant investigation (LDA), The Fisher's LDA approach is utilized to extend the plant and soil RGB pictures into the database to recover the shading demonstrating the dampness level. The RGB pictures are should have been examined precisely to decide the water necessity. In any case, shading handling has extraordinary points of interest for its straightforwardness, strength, control and proficiency. The diagram cut based division can be executed to fragment the areas precisely and utilizing this system the water content in the leaf and the dirt covering the plants can be separated. The preparing of the pictures ought to be performed by separating the plant and soil fragments. A novel order calculation called transductive help vector machine (TSVM) is utilized for arrangement and measurement. Accordingly, the required water system level of the plants can be decided and the procedure could be completed in a productive way.

[3] This paper proposes insightful and shrewd Irrigation framework which can be utilized for controlling the watering or water system of blooming plants. It controls the water system of plants naturally where the need of human intercession can be diminished. This for the most part concentrated on wastage of water, which is a noteworthy worry of present day period. It additionally helps efficient, cost viability, ecological assurance, low upkeep and working expense and productive water system benefit. Raspberry Pi (open source) is utilized as a part of the outline of the model in influencing the framework to minimized and reasonable. The framework has sensor which measures the dampness of the dirt and switches hand-off which controls solenoid valve agreeing to the necessity. The model showed gave expected outcomes at the distinctive dampness levels.

[4] Home mechanization framework is utilized to control the home machines remotely. There are numerous home robotization innovations accessible in showcase out of which the well known innovations are X10, Z-Wave, Zigbee, GSM innovation, INSTEON, and EnOcean. Every one of these innovations have its masters what's more, cons. The proposed framework is easy to understand and simple to utilize. The framework is utilizing Global System for Mobile Communication (GSM) modem to control home machines by means of Short Message Administration (SMS). The AT-Commands has been utilized as a part of this framework to control the gadgets. AT89s52 microcontroller is coordinated with the GSM to give baud rate of 9600 bps. For the security reason the example is utilized that will validate the SMS.

[5] The proposed framework is an installed framework which will nearly screen and control the microclimatic parameters of a nursery all the time round the clock for development of yields or particular plant species which could expand their generation over the entire product development season and to dispense with the troubles associated with the framework by lessening human mediation to the most ideal degree. The framework contains sensors, Analog to Digital Converter, microcontroller also, actuators. At the point when any of the previously mentioned climatic parameters cross a wellbeing edge which must be kept up to secure the harvests, the sensors sense the change and the microcontroller peruses this from the information at its information ports in the wake of being changed over to an advanced frame by the ADC. The microcontroller at that point plays out the required activities by utilizing transfers until the strayed-out parameter has been taken back to its ideal level. Since a microcontroller is utilized as the core of the framework, it makes the set-up ease and successful by the by. As the framework too utilizes a LCD show for persistently alarming the client about the condition inside the nursery, the whole set-up progresses toward becoming easy to use. Therefore, this

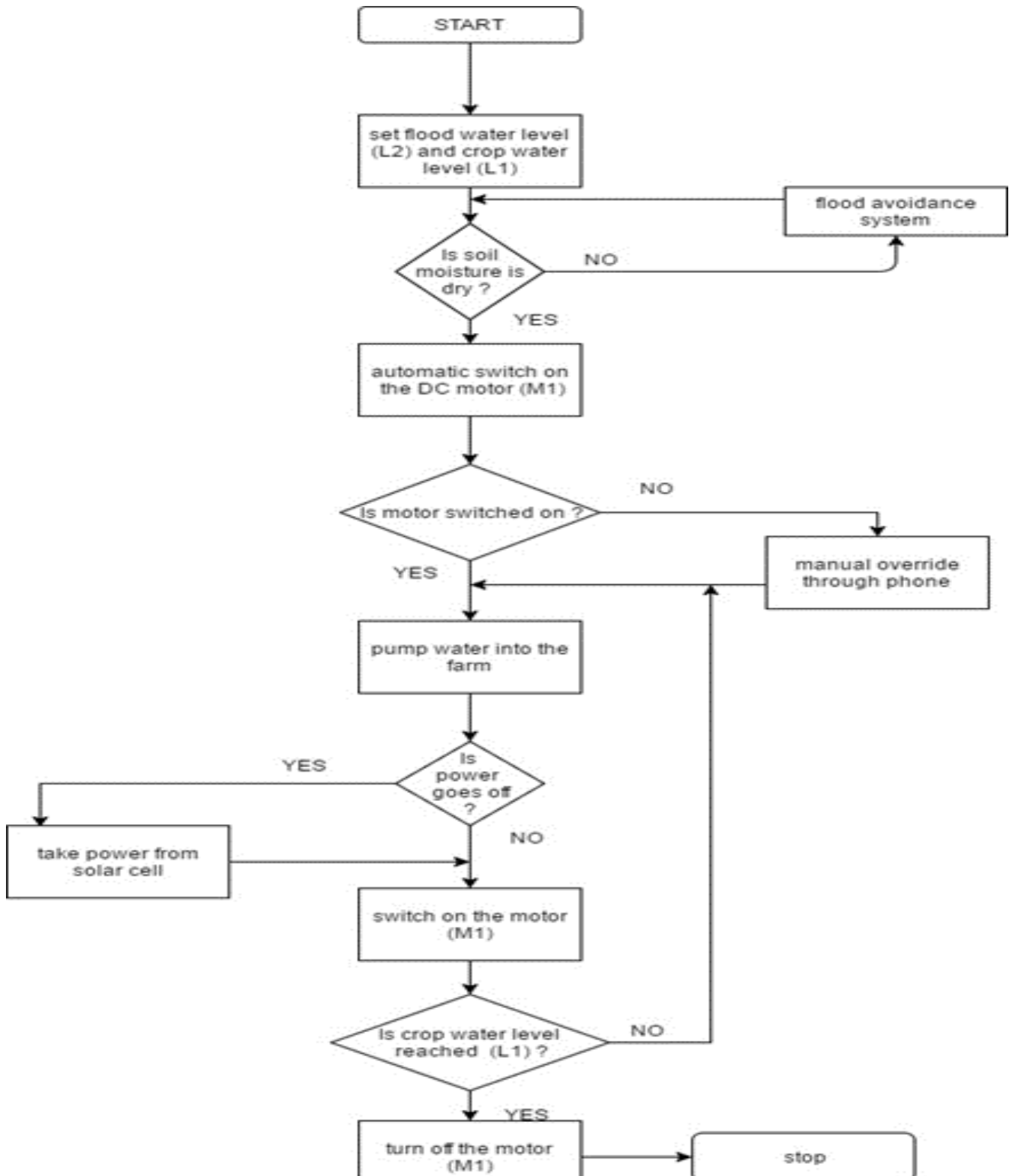


Fig 1: Workflow of the system

framework wipes out the downsides of the current set-ups specified in the past area and is planned as a simple to keep up, adaptable and low cost arrangement.

Problem	Technology	Advantages	Limitations
No proper water irrigation system with minimal or no wastage of water.	Raspberry Pi Soil moisture sensor Solenoid valve	Time saving. Less human intercession. Water management is done effectively. Can be accessed from farthest places if IP address of raspberry pi is known.	The cost of installing and maintaining the raspberry pi approach is not efficient.
Cost saving and labor saving technology for water irrigation system.	GSM Bluetooth Remote monitoring Microcontroller	Cost efficiency of network usage by using both GSM and Bluetooth.	But it is not efficient in situations which have strong real time requirements. The system has its application in situations where the amount of data to be transferred is mandatory.
To build a smart irrigation system using IOT technology.	Wireless sensor network Arduino uno Zigbee technology Solenoid valve	Automatic ON/OFF of the pump using solenoid valve. The cost of installation and maintenance is very much reduced.	This system does not take into consideration different types of crops with different nutrient content of soils. Client server communication is not embedded. Fisher's LDA method increases the complexity.
Increasing energy costs and decreasing water supplies point out the need for better water management.	ARM7LPC2148 processor GSM Soil moisture sensor Temperature sensor	Agriculture field and increase the growth of food production and provides excellent water management.	The system is not completely automatic. Human intercession is needed.
An automatic irrigation system thereby saving time, cash and power of the farmer	IOT Sensors Microcontroller(AT MEGA 328)	Irrigation at low cost. The farmer can control the system from anywhere provided there is internet access.	Internet cannot be provided to every remote or rural place. The cost of maintenance is not reduced as compared to previous systems.

[6] In this paper, programmed water system framework in light of ARMs and GSM module. The created framework is a machine based framework, which computerizes the water system of land by joining different programming and equipment approaches together to discover correct field data and to give moment over the field. This includes a few sensors, LCD show, GSM and ARM7LPC2148 processor. LCD will be on field show reason. GSM module will contains a Subscriber Identity Module (SIM) client can speak with this SIM-Number. At the point when the specific charge enacted or given by the client, instantly the relating sensor will initiates and peruses the present perusing and instantly sends results to a similar client portable and shows in the LCD board in the field. Quickly client will make the fundamental move if required. Here we are utilizing sensors to screen the field condition. Those are Temperature, Level sensors. Every one of these gadgets are associated with the ARM processor. GSM is utilized for correspondence reason, with the assistance of AT (consideration)- Commands we can speak with the parts.

[7] This framework we have depict another approach for Irrigation requiring little to no effort. The moistness, dampness, temperature and PH esteems are estimated and gotten by the beneficiary hub through the zigbee convention. At that point the qualities are exchanged to the IOT innovation so rancher can screen and control the water system from anyplace.

[8] The sensors will dependably detect the water level of the field and will make an impression on the client's wireless to illuminate the state of water system through the DTMF (Dual Tone Multi Frequency) flagging. Rancher will control the engine sending appointed code to the microcontroller. A Photo Voltaic (PV) cell is the main wellspring of vitality to drive this proposed framework. The vitality will be put away in the DC Battery through power supply. The sensors,

microcontroller and PDA interface are driven by DC control. In any case, pump is driven by AC control; inverter is used to change over DC to AC power, and AC control interface guarantees the best possible AC control supply to the pump.

[9] A computerized water system framework for proficient water administration and gatecrasher discovery framework has been proposed. Soil Parameters like soil dampness, pH, Humidity are estimated and the Pressure sensor and the detected esteems are shown in LCD. The gatecrasher recognition framework is finished with the assistance of PIR sensor where the winged animals are repulsed from going into the field. The GSM module has been utilized to set up a correspondence interface between the agriculturist and the field. The present field status will be suggested to the rancher through SMS and furthermore refreshed in the website page.

#### IV. CONCLUSION

By the execution of the SISFAT, we made surge shirking which has been a colossal leap forward for the work heap of agriculturists to abstain from flooding in the present circumstance, control cutoff is being diminished by reinforcement utilizing photovoltaic cell and straightforwardness during the time spent the framework is built up through GSM module was distinguished. This will give improvement of the ranch and furthermore guaranteeing sturdiness of the dirt and quick development of the yields giving tremendous future income for them. Later on, we can actualize a safe engine room that will be gotten to just through GSM or Android application and establishment of IR sensors in each corner which will distinguish the intercession of creatures that annihilates trims and will dispose of them by delivering an uproarious commotion through ultrasonic signal.

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