

Automatic Drip Irrigation System And Gsm Technology Using Labview And Lifa Base

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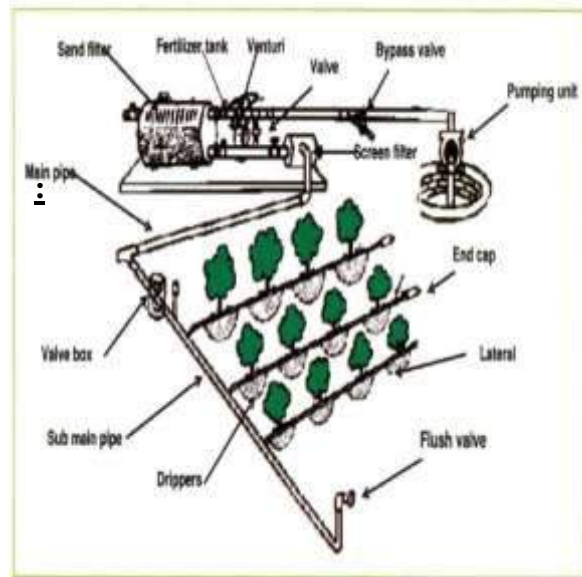
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ABSTRACT:

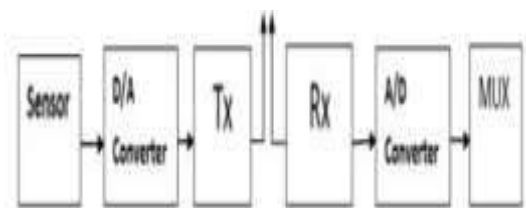
Optimal usage of water resources has been provided with greater extent by automation technology. Traditional instrumentation based on discrete and wired solutions, presents many difficulties on measuring and control systems especially over the large geographical areas. Utilization of proper method of irrigation by drip is very reasonable and proficient in remotely monitored embedded system for irrigation purposes have become a new essential for farmer to accumulate his energy, time and money and will take place only when there will be requirement of water. In this approach, the soil test for chemical constituents, water content, and salinity and fertilizer requirement etc. data collected by wireless and processed for better drip irrigation plan. This paper describes an application of a wireless technology using labview and LIFA sensor network for low-cost wireless controlled irrigation solution and real time monitoring of water content of soil.

The use of technology in the agriculture field plays important role increasing production in agriculture , plants as well as reducing man power effort where water availability and fertilizer requirement .Irrigation is artificial application of water to the soil for growing crop in India irrigated area present consists 36% of net sown area, agriculture sector present 84% all water uses. The remaining uses domestic and industrial etc. 3% to 6% respectively. Indian agriculture depends on monsoons which depends on nature not a reliable source of water so there is need of drip irrigation system growing of crop in the innovative manner water to the farms according to their moisture , temperature and soil type fertilizer mixing , in overall using this loss of water can be reduce using drip. This paper gives review of agriculture depends on environmental parameter such as soil relative humidity soil temperature soil moisture PH of the soil automatic irrigation management is proposed in this project

OVERVIEW OF THE SYSTEM



Drip irrigation system most efficient among all the irrigation method and it can be use large variety of crop especially in vegetables orchard crops trees and plants. Drip irrigation also known as micro irrigation a drip irrigation is minimize the use of water and fertilizer by allowing water to drip slowly to the roots of plants a large quantity of water can be save the soil moisture is kept at an optimum level with frequent irrigation. Drip irrigation results in a very high water application efficiency of about 90-95 per cent. The high efficiency of drip irrigation results from two primary factors. The first is that the water soaks into the soil before it can evaporate or run off. The second is that the water is only applied where it is needed, (at the plant's roots) rather than sprayed everywhere. Fig. 4 shows an internal part of drip system.



Block diagram of proposed input unit

The block diagram of proposed input unit shown above fig. 01 it consists of different type of sensing unit such as soil moisture sensor to measure water contents of soil temperature sensor detects to measure the presence of water in air, pressure regulator sensor to be selected for maintaining the recommended pressure



Block diagram of proposed output unit

Output of the sensors are converted to analog using Digital to Analog (D/A) Converter at the transmitter input side and converted back to digital using Analog to Digital (A/D) Converter at the receiver output side. Multiplexer sometimes called Data selector is a combination logic circuit that selects one of 2n input and route in to the output. The data obtained from different types of sensors are transmitted to the multiplexer using wireless sensor network.

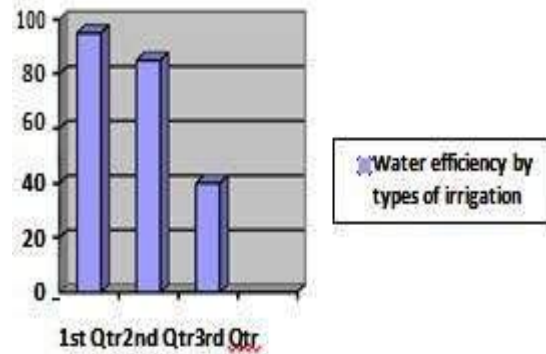
DRIP IRRIGATION SYSTEM:

Among all the irrigation methods, the drip irrigation is the most efficient and it can be practiced in a large variety of crops, especially in vegetables, orchard crops, flowers and plantation crops. Drip irrigation also known as micro irrigation & is an irrigation method which minimizes & is an irrigation method which minimizes the In drip irrigation, water is applied near the plant root through emitters or drippers, on or below the soil surface, at a low rate varying from 2 - 20 lit res per hour. The soil moisture is kept at an optimum level with frequent irrigation. Shows the overview of drip system installed in area.

Three type of irrigation system

- Surface irrigation
- Sprinkler irrigation
- Drip irrigation

Below graph 01 shown the efficiency of water usage by these methods. In which drip irrigation uses less water compare to other.



| S.No. | Types of irrigation method | Efficiency of water use (%) |
|-------|----------------------------|-----------------------------|
| 1. | Drip irrigation | 90% - 95% |
| 2. | Sprinkler irrigation | 80% - 90% |
| 3. | Surface irrigation | 30% - 40% |

Graph 01 Efficiency of water usage by different irrigation method

Below graph 02 show the installation cost for different irrigation method surface irrigation requires accurate land leveling regular maintenance and high leave of farmers organization to operate the system

ADVANTAGE:

- It can concluded that modern use of electronic, Electrical ,Chemical and Mechanical system will be very advantage for better agriculture output
- Reduce the man power efforts
- Large amount of water save

DISADVANTAGE:

- This system depends on water availability

APPLICATION:

- Vegetable gardens
- House estate
- Garden beds
- Corporate business park

RESULT AND CONCLUSION:

In this paper a wireless automatic drip irrigation using labview and GSM technology implemented and applied to irrigate trees, the develop irrigation several commercial agriculture production low cost and reliable operation this application sensor based site specific irrigation has some advantage such as

preventing moisture stress of trees diminishing of excessive water usage and ensuring of rapid growing weeds. It is concluded that modern use of electronic,electrical,Chemical and Mechanical system will be very advantage for better agriculture output/

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