

Preparation of Papers for International Journal of Scientific Research and Engineering Development

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Abstract:

The project is similar to develop a mechanized irrigation system which lever the pump motor ON/OFF on discern the wetness content of the soil. In the field of tilling, use of proper method of rinse is important. The lead of using this method is to lessen human intervention and still make certain proper irrigation. The project uses an ARDUINO series microcontroller which is schedule to receive the input signal of diversified moisture condition of the soil through the discern adjustment . This is achieved by using an op-amp as comparator which acts as ally between the discern arrangement and the microcontroller. Once the controller receives this sign, it generates an output that drives a relay for set off the water pump. An LCD exhibit is also ally to the microcontroller to exhibit ranking of loam and water pump. The observe positioning is made by using two stiff metallic rods inserted into the field at a distance. Connections from the metallic rods are interfaced to the control unit. The concept is now enhanced by merging GSM(global system for mobile communication) technology, such that whenever the water pump switches ON/OFF, an SMS is convey to the anxious individual regarding the status of the pump. We can also control the pump through our mobile. We can get vigilant Trough ESP32 on mobile phone. solar photo voltaic cells are used in this system to avoid intervention in the main supply . this cells are linked to motor. while the supply is cut in this keep the constant supply.

Keywords — PV Cell (photovoltaic) , Arduino UNO (one in Italian), GSM (Global System for Mobile),Relay board, Soil Moisture Sensor.

1. INTRODUCTION

Irrigation is feigned procedure of watering plants in order to support their growth. Automatic irrigation system is irrigation that supplies water to crop plants or other plants on its own at some time intervals, depending on soil moisture and weather condition without farmer’s intercession. Automatic irrigation system refers to operation of system with minimum or no manual interruption apart from inspection and observe Almost every system (drip, sprinkler, surface) can be automated with help of devices such as timers, sensors etc. It makes irrigation process more efficient so that operators can concentrate on other important farming activities to improve crop yield. Otherwise, system like this may require huge capital to invest in, large scale farming requires some engineering expertise to plan, implement its operation. automatic irrigation system can also be defined as irrigation system that is operated by computerized controller and automatically with minimum manual participation and little or no human intervention automatic irrigation system is capable of supplying actual amount of water to vast area of land within a short of time.

2. Generall Block Diagram

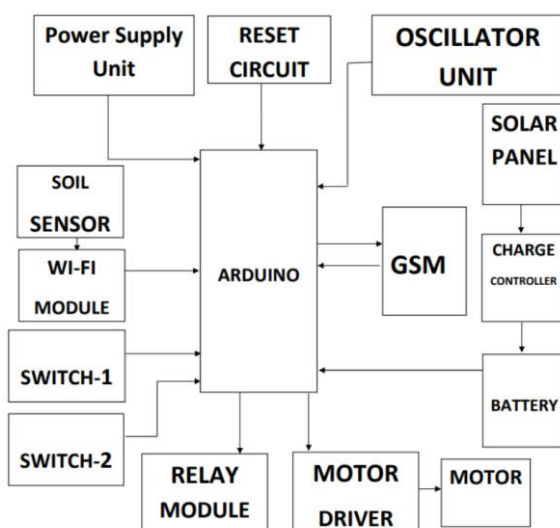


Fig No.1 Block Diagram Of Irrigation System

LITERATURE SURVEY

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3. SYSTEM DEVELOPMENT

A. hardware

- ARDUINO UNO R3
- GSM MODEM
- 16X2 LCD DISPLAY
- SOILMOISTURE SENSOR
- MANUAL SWITCHES
- RELAY BOARD
- AC PUMP

B. Software

ARDUINO UNO R3

1.Arduino uno R3

Arduino is a tool for making artificial intelligence that can aware and sway more of the substantial globe than your handled computer. It's an open-source substantial computing platform based on a simple MCU board, and a development territory for correspond software for the board. Arduino can be used to develop bilateral thing, taking insert from a diversity of switches or detector, and manage variety of illumination, motors, and other corporal outputs. Arduino projects can be stand-alone, or they can liaise with software running on your. The Arduino schedule speech is an execution of Wiring, a similar physical computing platform, which is based on the Processing intermedia plan environment.



Fig No.1.0 Arduino UNO

2. GSM Modem

A GSM modem is a exclusive type of floppy disk which receive a SIM card, and work over a donation to a mobile machinist, just like a mobile phone. From the mobile machinist viewpoint, a GSM floppy disk looks just like a mobile phone. When a GSM modem is affix to a computer, this allows the computer to use the GSM modem to transmit over the mobile network. While these GSM modems are most often used to furnish mobile internet connectivity, many of them can also be used for dispatch and collect SMS and MMS messages. A GSM modem can be a staunch modem device with a sequential , USB or Bluetooth connection, or it can be a mobile phone that provides GSM modem potential.



Fig No.2.0 GSM Modem

3. LCD Display

Liquid crystal display a type of display used in arithmetic watches and many movable computers. LCD displays utilize two sheets of isolate matter with a liquid crystal blend between liquid conviction the crystals to line up so that illumination unable to pass through them. Each crystal, therefore, is like a louvre, either authorize light to pass through or choking the light.



Fig No.3.0 LCD Display

C. Start Up

All implant systems have start-up cipher. Usually it incapacitate cut in , sets up the anodic, tests the computer (RAM, CPU and software), and then starts the petition code. Many implant systems recuperate from short-term power negligence by restarting (without recent self-tests). Renew times under a tenth of a second are ordinary. Many creator have found one of more hardware plus software-controlled LEDs useful to indicate fallacy during development (and in some instances, after product release, to produce troubleshooting diagnostics). A ordinary plan is to have the electronics turn off the

LED(s) at reconstituted, whereupon the operating system turns it on at the first opportunity, to prove that the equipment and start-up software have performed their job so far. After that, the software blinks the LED(s) or sets up light design during normal operation, to indicate program implementation progress and/or errors. This distribute to reassure most technicians/engineers and some customer.

Advantages

- a) The system is cheap in terms of equipment element and power consumption. The system helps in reduction of water and electricity.
- b) It can be applied in large agricultural areas.
- c) The system helps in labour problem when there are no labours to work and eradicates man power.
- d) System can be swapped into manual mode whenever required. It is convenient to all climatic conditions and all sorts of irrigation.

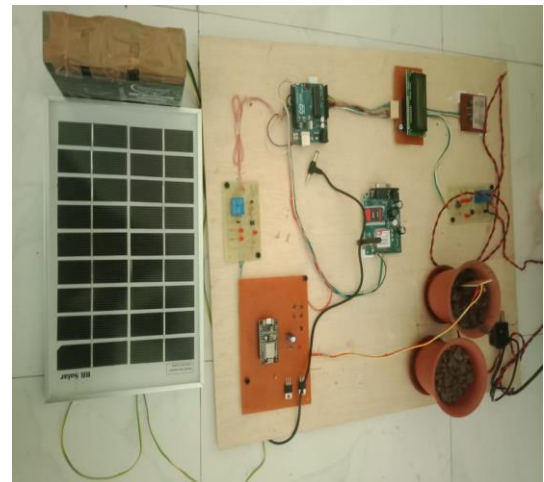
Disadvantages: -

- a) Difficult in case of failure of GSM modem
- b) Kit is to be protected from reaching water

Application: -

- a) Irrigation can be completed in fields, gardens, farms etc.
- b) It is effective for diversities of crops.
- c) The operating system application developed for this system can be used for household works such as tank depot.
- d) This system can be work automatically as well as manually

Actual Model: -



Actual Model

Actual Working: -

As Solar Panel Receives Energy it get stored into the batteries the battery probes is further driven to Arduino UNO board the circuit get started .As we put the Soil Moisture Sensor in dry mud it will detect the soil and send the message to motor so that it may get started we get text messages on our required phone through GSM we can also turn on and off the motor manually When the water reaches its desired value the motor will Automatically

CONCLUSION

Main applications for this project are for farmers and gardeners who do not have abundant time to water crops/plants . Project can be extended to green house where manual management is far and few in between. Collective with the principle of rain water harvesting, it could lead to massive water savings if applied in right way. In agricultural lands with severe shortage of rainfall, this model can be effectively applied to attain great results with most types of soil.

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