

## ARDENT EXACTITUDE BASED AGRICULTURE USING SENSORS

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**ABSTRACT:** A new website to the farmers will be a very helpful thing in the today's scenario as agriculture is getting vanished in our today's world. This site will guide farmers across the country just with some basic knowledge about how to use the sensor and website for the better remote monitoring of the soil moisture in the fields automatically. Mainly, provides information about soil, cultivation methods, seasons etc in online. The website may give structure of techniques used for each different crops to the farmers and let them understand the cultivation method to be adopted for that. The trends of the crops act so that these will be pretty important to the users who access these via the Internet. This project provides automatic remote monitoring of soil moisture day/night mode and also to check the water level of soil whether they are normal/abnormal using sensor technology. This helps for the precision agriculture and improves efficiency by using microcontroller named arduino uno embedded circuits.

### Keywords:

Remote monitoring, arduino uno, sensor technology, precision, Automatic irrigation.

## I. INTRODUCTION

Effectual management of pastoral processes requires field data acquisition systems as well and specific sensors to evaluate growth condition of the yields. Even though this prerequisite to achieve effectiveness on the market, most of Portuguese greenhouses services do not pay or explore the full abilities of modern digital technical systems. This fact is related to some factors, such as the cost and the difficulty to control and assimilate the available solutions. But today, development of new technologies bring out accuracy and

precision in agriculture sector by low cost effective circuits.

The very traditional method is used to personally go on site and monitor the agriculture. The improved system uses wireless sensors for the precision agriculture by the involuntary monitoring the soil moisture thereby facilitating automatic irrigation for the plants where there is intense lack of water. That is, controlling manually is generally not so accurate so we are inspired to use the automatic sensing methods which minimizes the manual involvement by

farmers, which is why we are using micro controller Arduino Uno (ATmega328P) and also to improve the quality.

The proposed system provides to the crops an ideal green house environment by the sensor and embedded systems. This system is used for optimizing the water resources for agriculture. The sensor information that can be make sure that the crops get the required condition in terms of water content.

Adopting the technology based on embedded Arduino Uno and web service technology, it designed a set of low cost ,low power consumption, flexible instinctive humidity monitoring system of soil .

Our project is mainly for farmers, they work hard and hard not only every day time but also every night in the field. Even in the night time also they have to monitor the field manually and irrigate the field land at some intervals. Inversely, there occurs a problem that if the farmer forget to switch of the irrigation pumps cause the crops may get harmed and water wastage that severely effects on the agriculture. So to resolve these problem we are owing to come forward with the project of automatic irrigation using embedded electronic devices, sensors and web based technology.

## II. RELATED WORKS.

- Sonali and team introduces a paper on the topic of monitoring wireless sensor network using android based smart phone Application [3]. Their

project integrates technologies such as centralized omputing and android programming for the development of the application.

- “Wireless monitoring of soil moisture, temperature & humidity using zigbee in agriculture [4]” is the paper introduced by Prof C. H. Chavan and group propose their hardware system that consists of 8 bit AVR, Blue tooth module, Temperature, soil moisture sensors and LCD. They point out that these system has low power consumption and low cost which one can afford .
- Prabha and her group presented a paper on real-time atomization of agricultural environment for social modernization of Indian agricultural system using Arm 7 [5]. They reveal their success advantage that the system uses both wireless , wired technologies and ARM controller for the better working of monitoring operation on the agriculture environment and also it involves precautions to be taken for crop to growth for modern agriculture.
- M.Munnira Sulthana, E.Ramakalaivani and A.V.S. Elavarasi presents their paper which includes design and the application of a Wireless Sensor Network that monitors the air temperature, humidity and ambient light intensity in a yield

ground and from isolated places on the topic of wireless sensor network for remote monitoring of crop field [7].

- Angel C & Asha S researched and presented paper on the topic “ a smart environment in agricultural irrigation technique” [6]. Their research deals to develop a smart environmental for agriculture by providing proper monitoring of irrigational parameters right time and by remote sensors. They also pointed out the for reducing energy use and expenses.

### III. IMPLEMENTATION

Implementation is the inevitable part which decides the success of the entire system. This is the phase that gives the best confidence to the users about how their system is efficient and powerful in their system implementation than the effective deployment of previous technologies. The module part consists of mainly three crucial sections, They are admin, dealer and former.

#### 1. Administrator

#### 2. Dealer Profile Creation

#### 3. Former Profile Creation

##### Administrator

The administrator plays a major role in customizing web services and thereby helping users to gather information according to their own needs. The admin can login to the website using his username and password. Once the

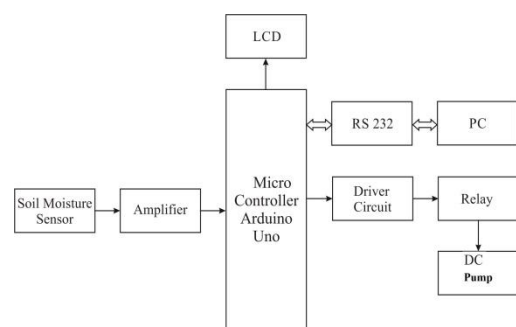
admin has logged in, he can add, delete or update several dealer, former and information needed by the registered visitors of the website.

##### Dealer Profile Creation

Users can create an account in the website by providing various details such as username, password, dealer name, email, aadhar, mobile, city, address etc. He writes information on the database and can be stored to the database.

##### Former Profile Creation

Former can create an account in the website by providing various details such as username, password, former name, email, mobile, city, address etc... The personal details provided by the dealer are crucial for information gathering by the former.



**Fig1:Block Diagram**

#### (a) ARDUINO UNO

Arduino/Genuino Uno is a microcontroller board based on the [ATmega328P](https://www.arduino.cc/en/Main/arduinoBoardUno). It has 14

digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz quartz crystal, a USB connection, a power jack, an ICSP header and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started.



**Fig2: Arduino UNO**

#### **(b)LCD DISPLAY**

The LCD's are lightweight with only a few millimeters thickness. Since the LCD's consume less power, they are compatible with low power electronic circuits, and can be powered for long durations.

Liquid crystal displays (LCDs) have materials which combine the properties of both liquids and crystals. Rather than having a melting point, they have a temperature range within which the molecules are almost as mobile.

#### **IV. CONCLUSION AND FUTURE WORK**

In our future work, the software executes successfully by fulfilling the objectives of the project plus additional changes in its implementation. Further extensions to this system can be made required with minor

modifications. We have planned to design and develop an effective service to protect users' data privacy by employing biometric finger print techniques by using distinctive identification fingerprint sensors applications .As further future enhancement we can add on extra features such as video upload/ download , language translators which helps one to know the informations in their own comfort languages, and also can include offline telecommunication that provide offline calling services and also messaging services via offline.

Precision agriculture provides farmers the ability to apply crop inputs more efficiently than traditional procedures. It provides greater quality crops without harming the environment, "doing the right thing in the right place at the right time" is the durable article of this system. The proposed system is very low cost model where the real-time environmental data is transmitted to remote area using sensor. The farmer uses the received data to switch the events of the field. Automatic monitoring and irrigations helps to precision and accuracy in agricultural environment and helps in the amplification of farming to the great magnitude.

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