

## IOT BASED CULTIVATION USING AURDINO

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**Abstract:** The internet of things shortly known as IOT, is a system of interrelated computing devices, mechanical and digital machines, objects and the ability to transfer data over a network which doesn't require human-to-human or human-to-computer interaction. IOT plays a crucial role in the smart irrigation. The smart irrigation process involves in the reading the values from the sensors and taking up the data to estimate the difference in the soil. The automation in the monitoring is the major factor that improves the yield of the efficient crops. In India more than 50% of the agriculture never reaches the customer estimation, so this IOT helps to achieve that target. The feature of this paper involves the monitoring of the temperature in the environment, humidity in the soil, PH value sensor and IR sensor which helps to detect the movement in the fields. There is a GSM module installed in the system which sends the message to the farmer's mobile device if there is any change in the ordinary values pre-installed.

**Key words:** IOT, FARMING, GSM TRACK, SOIL VALUES

### NOMENCLATURE

**PH SENSOR:** It helps to keep the track of the PH values in the soil that is required for check the balance of acidic or alkaline levels necessary .

**Soil Moisture Sensor:** It is also known as a humidity sensor in some cases, this sensor takes up the values of dielectric constants checks up the moist level in the soil.

**Infrared Sensor:** An infrared sensor is an electronic device, that emits in order to sense some aspects of the surroundings. An IR sensor can measure the heat of an object as well as detects the motion.

### INTRODUCTION

Internet of things helps various devices and sensors to send data over the network, which helps to take the action at the exact time. IOT helps humans to make their work easier in which it doesn't require human-computer interaction. It all will be done automatically with the pre-installed algorithm.

This also used to produce high quality products in whatever field it is being installed, it will be also used in many industrial works to check the grading of the product and helps to pack the things which make the work a lot easier.

In the smart agriculture IOT is used to take the data from the soil such as the temperature around it and the PH values in the soil and to notify any movement in the fields using the IR sensor and takes up the real-time data updating methods using the GSM module, that alerts the farmer and make him to take the action in the perfect time.

The main thing the IOT is helpful when there is a lack in the supplements for the crop or there is a sudden unpredictable weather conditions like a flood or a heavy rain, the changes in the pre-installed values alert the farmer to take necessary precautions. In the recent times the market retail side of customers expects the high quality crops in the lowest budget possible, this IOT helps the farmer to invest in the low price and helps to yield the crops in the highest quality that make to go through the profitable sales in the market.

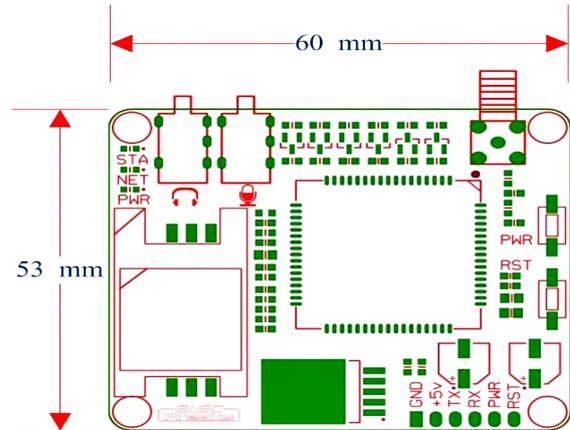
### PROPOSED SYSTEM

In order to save the crops from divesting conditions which are being common in these days, the farmer needs to take care a lot of things which can't be done in time. There's a lot of loss in investment that leads to life loss. For all these problems this IOT is a life saver, this is just a

one time investment which can be covered from the profit of the better yield produced over a given area.

The right use of pesticides and maintaining of the correct values in the soil will gives the perfect yield. Soil moisture and soil PH values are taken to the reading and displayed over the machine and if the SIM slot is registered then the message about the information will be sent over to the mobile device. That will be keeping on updating the farmer on daily changes in the fields and helps it to recover fast and there is a temperature sensor involves which tell us the around temperature and an another sensor known as humidity sensor that will be updating upon the moisture level in the soil and when these two sensors ( temperature and humidity) readings are noted down and if there is an abnormality in the reading it will alert the farmer that there is no enough soil moisture required for that field in that temperature and so the action is taken place to save the crop not to die. There is an another sensor known as IR sensor which detects the movement of the big things like human or animals then it will give an update about the movement and makes to realize the security threat. This one time investment will save thousands of bucks and help a lot to yield out the high quality crop from a lowest investment possible.

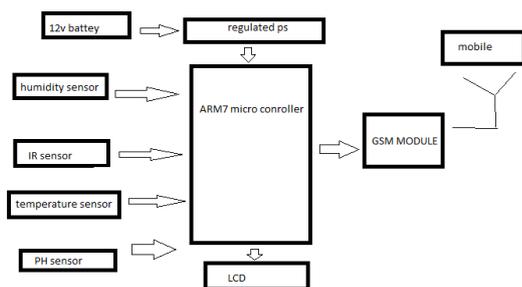
**ARM7 MICROCONTROLLER**



**PH SENSOR**



**PROPOSED SYSTEM BLOCK DIAGRAM**



**TEMPERATURE SENSOR**



## EXISTING SYSTEM

In this existing system the idea behind which comes across the monitoring of the soil moisture takes place, and the monitoring needs to be noted each and every time by going to the place where the device is installed and it takes a lot of time to note the data and analyze

## FUTURE ENHANCEMENT

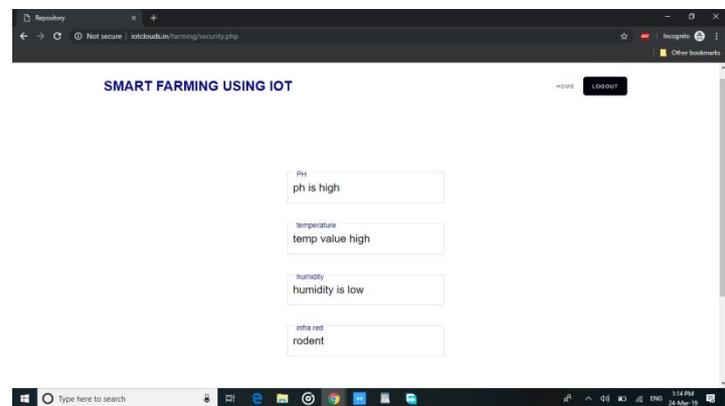
The development of this technology helps farmer to take care of their own land without having the middle hops and making the deals straight forward and makes them guaranteed in the high quality yield.

The farmer does not need to take the soil to the lab which sometimes maybe located in the distant areas, this help to check the minimum values that will be sufficient for a period of time without taking to the lab each and every time.

Some of the farmers might not be having knowledge on all these nutrition basics, so this will enhance the development of the crop by letting what to do alert to the farmer in their own language. Even though the farmer does not have the knowledge about the lab testing results this technology helps him by saying what care need to be taken at what time.

## Result

The hardware is interfaced with all the sensors in the board. The sensor data will be taken by the farmer and checks up to the daily needs. The following are the results viewed on the web page and also the data can be sent to the farmer if they're mobile number is registered via message. It clearly gives us the information regarding the sensor level, at what time crop conditions is been changing and date too. By this data, it becomes easy for a common man to understand.



## CONCLUSION

Today farming is implanted with propel benefit like GPS, sensors that empower to convey to each other dissect the information and likewise trade information among them. IT gives benefit in the type of cloud to farming. Agriculture cloud and IT benefit gives a unique expertise administration to agriculturists with respect to development of yields, evaluating, manures, illnesses detail strategy for cure to be utilized Scientist chipping away at agriculture will give their revelations, recommendations in regards to advanced methods for development, utilization of manures can get the historical backdrop of the district.

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