GeeksforGeeks
A computer science portal for geeks

Custom Search

Geeks Classes   Login

Write an Article

Crop monitoring and smart farming using IoT

The Idea: Farming in India is done using the mundane ways. The fact that most of our farmers lack proper knowledge makes it even more erratic. A large portion of farming and agricultural activities are based on the predictions, which at times fail. Farmers have to bear huge losses and at times they end up committing suicide. Since we know the benefits of proper soil moisture and its quality, air quality and irrigation, in the growth of crops, such parameters cannot be ignored.

We, therefore, have come up with a new idea of crop monitoring and smart farming using IoT. We believe that our concept will be a benchmark in the agribusiness due to its reliability and remote monitoring. Our idea tries to digitalize farming and agricultural activities so that the farmers can check on the requirements of the crops and accurately predict their growth. This concept will surely accelerate their business to reach new heights and also be more profitable. The implementation of our project largely depends upon the awareness among farmers, which, we believe will be easily created due to its numerous advantages.
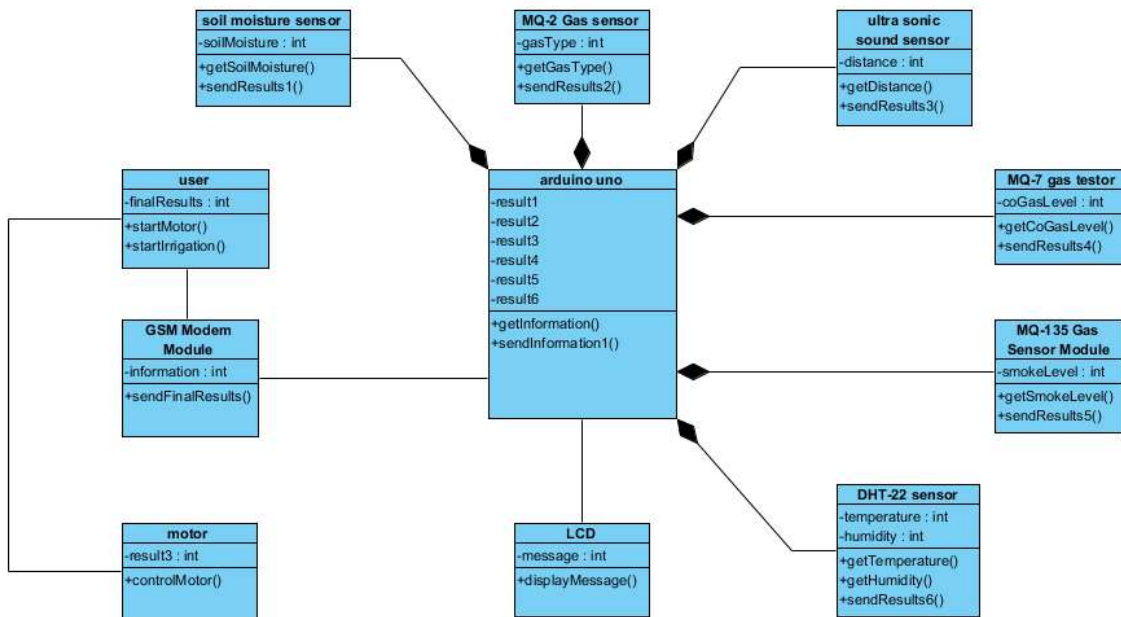
Features: The aim of this project is to introduce the latest technology into the agriculture business and better crop production by collecting real-time status of crop and informing the farmers about it.

The Features are:
1) SMS Notifications
2) Valuable information collection.
3) Detailed Data analysis
4) Cost effective
5) Easy to implement

Diagram:

Tools Used: Software used for the Project is ARDUINO 1.8.2 and the hardware required for the project is listed below:

1. Arduino Uno
2. Analog Soil Moisture Sensor
3. DHT22 Digital Temperature and Humidity Sensor
4. MQ-135 Air Quality Gas Sensor Module
5. MQ-7 Gas Tester Carbon Monoxide Detecting Sensor Module 4P 180mA 5V DC
6. MQ2 Gas Sensor, Methane, Butane, LPG, Smoke Sensor
7. Ultrasonic sound sensor
8. LCD 16×2 Alphanumeric Display(JHD162A)
9. Jumper Wires Male to Male, male to female, female to female
10. GSM Modem Module for Arduino
11. Batteries
12. Motor
    13) 1 kilo-ohm Resistances

Project Link: https://github.com/akshat0395/IoT_based_Smart_Farming/blob/master/Code.c

Research: We have gone through 17 research papers that were accessed from IEEE Xplore and Science Direct. The reviewed papers have helped us a lot in understanding certain parameters related to

agricultural activities. These papers have surely broadened our knowledge of agriculture. The various techniques and procedures used for the crop growth and the reliability of predictions were clearly understood. We came across a lot of relations between crop growth, soil moisture, soil quality and nearby environment. We have incorporated them into our system. Since practical values differ, we believe that with time our system will become more intelligent and provide with accurate results needed for the ideal crop growth.

Application: Our idea not only tries to mitigate the primitive techniques related to agriculture but also serve the community by opening new avenues for employment. The applications are extensive with easy implementation. The foremost function of our project is to monitor the crop growth using digital means. This will provide the accurate values of various parameters upon which the growth depends. Besides this, it will help the farmer to monitor more than one agricultural land at the same time. Since most of the monitoring is done remotely, it will help the farmer to gain information which is crucial for the business during his/her spare time. We plan to make it user-friendly by involving a simple GUI along with mobile messaging. Since monitoring through our system requires less manpower, people with physical disabilities can be employed for the monitoring of fields. Overall, our project idea is feasible, which can easily be implemented and has a wide scope in terms of its application.

This Project idea is contributed by:

Names: Akshat Mathur, Sankalp Jain

Email: akshatatstps@gmail.com, sankalpjain606@gmail.com

Contact No: +91-9414504823, +91-9805050962

Details: Computer Science students at the Jaypee University of Information Technology, Waknaghat-173234, Distt. Solan(H.P.)

Article Tags : Project ProGeek

Login to Improve this Article

Please write to us at contribute@geeksforgeeks.org to report any issue with the above content.

Recommended Posts:

MyHelper (Access your phone from anywhere without Internet)

Simple Chat Room using Python

Browser Automation Using Selenium

Program to remotely Power On a PC over the internet using the Wake-on-LAN protocol.

Generating Password and OTP in Java

Project Idea | Hand-Web Browser

Project Idea | myVision

Project Idea | Driver distraction and drowsiness detection system – DCube

Project Idea | WebQart.com

Project Idea | Go Solar Green

(Login to Rate)

0   Average Difficulty : **0/5.0**
        No votes yet.

☐ Add to TODO List

☐ Mark as DONE

Basic   Easy   Medium   Hard   Expert

Writing code in comment? Please use ide.geeksforgeeks.org, generate link and share the link here.
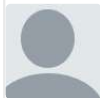
    Share this post!

0 Comments   **GeeksforGeeks**   ① **Login** ▾

♡ **Recommend**   ☑ **Share**   Sort by Newest ▾

    👤   Start the discussion…

        LOG IN WITH   **OR SIGN UP WITH DISQUS** ?

                            Name

                    Be the first to comment.

✉ Subscribe   ⅅ Add Disqus to your siteAdd DisqusAdd   🔒 **Disqus' Privacy PolicyPrivacy PolicyPrivacy**

▲

A computer science portal for geeks

710-B, Advant Navis Business Park,
Sector-142, Noida, Uttar Pradesh - 201305
feedback@geeksforgeeks.org

COMPANY
About Us
Careers
Privacy Policy
Contact Us

LEARN
Algorithms
Data Structures
Languages
CS Subjects
Video Tutorials

PRACTICE
Company-wise
Topic-wise
Contests
Subjective Questions

CONTRIBUTE
Write an Article
Write Interview Experience
Internships
Videos