**LITERATURE SURVEY**

**1.**

**TITLE:**Smart Agriculture Using IoT

**AUTHOR:**Kanumuri Dinesh Varma

**YEAR:**2019

**HARDWARE COMPONENTS:**Arduino UNO,soil moisture sensor,temperature and humidity sensor,acoustic sensor.

**SOFTWARE:**Arduino IDE, C/C++.

**APPLICATION:**

* Water and nutration monitoring.
* Soil monitoring.
* Crop health monitoring.

**ADVANTAGES:**

* Large forms can be covered by a limited number of farmers.
* It is time saving,monitoring and providing the conditions which are required for plants is easy by this process.

**DRAWBACKS:**

* There could be a wrong analysis of weather conditions.

**CONTENT:**

In this article the possibility of wireless sensors and IoT in agriculture is highlighted.In addition some challenges are expected to be tackled while integrating this technique with the traditional methods of forming.It makes the farming smarter to meet the expection in future.

**2.**

**TITLE:**Automation and protection of agriculture land using IoT

**AUTHOR:**Vaishnavi.s,varsha.o.m,yashaswini.v,poorvika.v.m

**YEAR:**2021

**HARDWARE COMPONENTS:**Arduino mega,DHT11 sensor,PIR sensor,water level sensor,buzzer,needle rotator.

**SOFTWARE:**Arduino IDE, C/C++

**APPLICATION:**

* PIR sensor allow you to sense motion,atmost always used to detect whether a human has moved in or out of the sensor range.
* Rotator is used to avoid the animals entering to the field.

**ADVANTAGES:**

* This project will be more helpful for the farmer’s welfare.
* The farmer can monitor the field condition from anywhere.

**DRAWBACKS:**

* Devices are to be altered according to the farmer, it will involve equipment which will be expensive in large manner.

**CONTENT:**

In this paper, it is proposed to develop a smart agriculture system that make use advantages of cutting edge technologies such as arduino, IoT and wireless sensor network. The paper aims at making use of evolving technology i.e) IoT and smart agriculture using automation.

**3.**

**TITLE:**Smart farming,crop protection and fertilizer prediction using IoT.

**AUTHOR:**Jessica dias,mansvisave,smit chaudhari,yash churi.

**YEAR:**2020

**HARDWARE COMPONENTS:**DHT11 sensor,soil moisture sensor,motion sensor,motor pump,node mcu, buzzer,jumper wires,relay,arduino uno.

**SOFTWARE:** Arduino IDE,C/C++

**APPLICATION:**

* Internet can help to improve solutions to many traditional agricultural problems such as yield optimization,drought response,soil aptitude, irrigation and pest control.

**ADVANTAGES:**

* This project help a farmers in protecting their orchards and fields and save them significant financial losses and will save them from yhe unproductive efforts that they endure for the protection their fields.

**CONTENT:**

The purpose of this paper is to explore the development of an internet of things(IoT) application for crop protection is a method pf preventing animals from entering a crop area.The proposed solution will be developed by establishing a distributed wireless sensor network.

**4.**

**TITLE:**IoT based smart agriculture aiming to achieve sustainable goals.

**AUTHOR:**dewan md nur anjum ashir

**YEAR:**2021

**HARDWARE COMPONENTS:**Arduino UNO,Temperature sensor,humidity sensor,animal detector.

**SOFTWARE:**Arduino IDE,C/C++

**APPLICATION:**

* sensors installes on the farm capture data such as moisture,fertilizer,temperature,humidity,acidity and illamimation and provide real time data about the land, crop,live stock and equipment.

**ADVANTAGES:**

* Increase the agricultural yield and income for farmers starting from the smallest level.
* Achieve higher levels of productivity.

**CONTENT:**

This research is expected to provide a path to the IT practitioners,governments and developing agencies on how technological intervention can provide a more sustainable agricultural world.

In this research,IoT based agriculture system for tracking,monitoring,automating and analyzing and farming land conditions. Increase the quality and quantity of the crops while optimizing the humans labour and utilizing a decision support system for agriculture.

**5.**

**TITLE:**Internet of things for smart agriculture technologies,practices and future direction.

**AUTHOR:**partha pratim ray

**YEAR:**2017

**HARDWARE COMPONENTS**: Arduino uno,soil sensor,gas sensor,rain sensor,temperature sensor,humidity sensor.

**SOFTWARE:**Arduino IDE,C/C++.

**APPLICATION:**

* During rainy season , rain sensor will detect rain to prevent the drop damage.

**ADVANTAGES:**

* Deponds on the moisture and temperature data received by the cloud, we can balance the parameter to the required levels by using fans and pumbs.

**CONTENT:**

In this paper , it review various potential IoT applications and the specific issues and challenges associated with IoT deployment for improved farming.

**6.**

**TITLE:**IoT based smart farming system

**AUTHOR:**mushtaqulla baig, shiram B singh, pradeep B,unnathi

**YEAR:**2021

**HARDWARE COMPONENTS:**Arduino UNO,PIR sensor,Temperature sensor, soil moisture sensor,ultra sonic sensor,LCD,voltage regulater,GSM module,relays,power supply adapter

**SOFTWARE:**Arduino IDE,C/C++

**APPLICATIONS:**

* System can be used in various farm lands.
* System can be used in green housefarming**.**
* System can also be used in gardening **.**
* It can be used in precision farming **.**

**ADVANTAGES:**

* Increased production and its quality.
* Water is used effectively.
* Remote monitoring.
* Automatic controlling of irrigation .

**CONTENT:**

This undertaking is a follow up to a past method whose highlight features incorporate keen water system with excellent control and insightful basic leadership in terms of exact continous field information which regulator temperature, moisture and soil dampness of a particular crop.

**7.**

**TITLE:**Smart agriculture using IoT

**AUTHOR:**Jayakumar R,karthikeyan,naveen perumal m,methini

**YEAR:**2019

**HARDWARE COMPONENTS:**Arduino uno,Ethernet shield ,soil moisture sensor,infrared sensor,voltage regulator,GSM,motor driver.

**SOFTWARE:**Arduino IDE,C/C++

**APPLICATION:**

* It can be used as a home automation controller by adding a few more 240 volts relays.
* Automatic irrigation of plants.

**ADAVANTAGES:**

* This idea will improve the crop yield and manage them.

**CONTENT:**

The main objective of this project is to improve the crop yield and thereby meet the demand. This project remotely measure and monitor water moisture levels in the soil ensure that crops are getting optimal water resources. This idea will improve the crop yield and manage them.

**8.**

**TITLE:**IoT based smart precision agriculture in rural areas

**AUTHOR:**B.sneha,M.vinothini,Y.deepika

**YEAR:**2020

**HARDWARE COMPONENTS:**PIR sensor,Arduino,soil moisture sensor,sound module,rasberry pi

**SOFTWARE:**Arduino IDE,c++

**APPLICATION:**

* Crop and soil monitoring.
* Insect and plant disease detection.

**ADVANTAGES:**

* Increased production and its quality.
* Water is used effectively**.**

**CONTENT:**

The purpose of this project is to give the farmer a complete irrigation system using the internet of things.It may be a challenge to shape a value efficient automatic irrigation system to scale the waste from backwater.It is important to provide different criteria in order to decide the successful amount of water for palnts.

**9.**

**TITLE:**IoT based smart agriculture monitoring system

**AUTHOR:**Bhumika Garg,Jasleen Kaur,Mahima Parashar

**YEAR:**2019

**HARDWARE COMPONENTS:**NodeMCU,DHT11 sensor,soil moisture sensor, GPS module,relay,motor

**SOFTWARE:**Arduino IDE,blynk

**APPLICATION:**

* System can be used in green house.
* System can also be used in gardening.

**ADVANTAGES:**

* Increased production and its quality.
* Automatic controlling of irrigation.

**CONTENT:**

The highlighting feature of this project is that it measures the different agricultural parameters affecting the yeild and it also use a GPSmodule to get the information about the location.This module focuses on the utilization of IoT in agriculture and the solutions proposed in this paper will improve farming methods.Increase productivity and lead to effective use of limited resources.

**10.**

**TITLE:**Smart crop production using arduino

**AUTHOR:**Varshini B.M,sushma A.V

**YEAR:**2021

**HARDWARE COMPONENTS:**Arduino UNO,GSM module,smoke sensor,PIR sensor,soil mosture sensor,buzzer

**SOFTWARE:**Arduino software IDE

**APPLICATION:**

* This crop production can be best utilized by farmers so that they can obtain live data various parameter.

**ADVANTAGES:**

* water converstion weather predictions and soil moisture sensorallow for for water use only when and where needed.

**CONTENT:**

This paper focus on proposing a system which detects the intruders monitors any suspicious activity and then reports to the owener of the field.It acts an adaptable system which provides a practicable system to the farmers for ensuring complete saftey of farmlands from any attacks or trespassing activities.

**11.**

**TITLE:**IoT based smart agriculture monitoring system

**AUTHOR:**Harika pendyala,Ganesh kumar rodda,Anooja mamidi,Madhavi vangala

**YEAR:**2021

**HARDWARE COMPONENTS:**Soil misture sensor, temperature sensor,relay pump,IoT(wifi-module ESP8266)

**SOFTWARE:**Arduino IDE,Thing speak website

**APPLICATION:**

* The benifits as mentioned like water saving and labour saving are required the maximum in current agricultural sate of affairs.

**ADVANTAGES:**

* It is easy to maintain and cost is resonable to purchase.
* It has advantage to observe the status on smartphone or laptop using internet the information is up to date in absence of farmer.

**CONTENT:**

This system minimize the human efforts simplifies techniques of farming and helps to gain smart forming.The smart forming can also help to grow the market for farmer with single touch and minimum effort.

**12.**

**TITLE:**Smart agriculture monitoring system using IoT

**AUTHOR:**P.Perema,B.Sivasankari,M.Kalpana,R.Vasanthi

**YEAR:**2019

**HARWARE COMPONENTS:**Soil moisture sensor, temperature sensor,PIR sensor,Arduino UNO

**SOFTWARE:**Arduino IDE,c++

**APPLICATION:**

* The internet of things technology in agriculture could have the greatest impact for increase the productivity.

**ADVANTAGES:**

* The crop damage using predators is reduced.
* IoT works in different domains of forming to improve the efficiency water management control of insecticides and pesticides.

**CONTENT:**

The paper described the agricultural growth is enchanced with increase in the productivity system.The farmers can monitor the field conditions from anywhere.IoT based smart farmingis highly efficient when compared with conventional approach.

**13.**

**TITLE:**Smart agriculture using IoT

**AUTHOR:**Rupesh kumar

**YEAR:**2019

**HARDWARE COMPONENTS:**Arduino uno,rain sensor,LM35,humidity sensor,soil moisture sensor,GPRS,LCD.

**SOFTWARE:**Arduino IDE,C/C++

**APPLICATION:**

* Measuring temperature of a particular environment.
* Detect rain and protect the crop.

**ADVANTAGES:**

* simple and easy to install and configure.
* It is time saving the human error elimination in adjusting available soil moisture levels.

**DRAWBACKS:**

* Require additional power source for LCSs.

**CONTENT:**

The smart agriculture being proposed via this project is integrated with arduino technology.breadboard mixed with various sensors and live data feed can be obtained online from using android application and by sms and also by e-mail. The project being proposed is tested on live agriculture fields giving high accuracy over 98% in data feeds.

**14.**

**TITLE:**IoT based smart agriculture system

**AUTHOR:**Arka ghosh,sayan dalui,bhaswati chakraborty,srija basu

**YEAR:**2022

**HARDWARE COMPONENTS:**Arduino uno,soil moisture sensor,LCD screen,ESP-01,DHT 22,DC motor.

**SOFTWARE:**Arduino IDE,C/C++

**APPLICATION:**

* The farming monitoring system can be used for destiny factors of agriculture.
* Computer imaging.

**ADVANTAGES:**

* This could limit human intervention in farming sports.
* It helps fpr animals management.
* The farmer can known carlier about the negative climate situations.

**CONTENT:**

The aim of the project is to improve the agriculture system by introducing IoT sensors which are capable of providing imformation about agriculture fields.we have proposed an IoT and smart agriculture system using automation.

**15.**

**TITLE:**IoT based smart agriculture aid system using raspberry pi.

**AUTHOR:**priyanka bhardwaj,adarsh srivastana,abishek kumar pandey,abhishek singh,bhartendu tripathi.

**YEAR:**2021

**HARDWARE COMPONENTS:**capacitive soil moisture sensor,humidity&temperature sensor,micro submersible water pump,ph sensor,rain sensor,raspherry pi 3.

**SOFTWARE:**python based

**APPLICATION:**

* Raspberrt pi3 is a development board in the pi series.
* It also has terrific processing speed making it suitable for advanced applications.

**ADVANTAGES:**

* with more features develop in IoT these system can be made efficient,more stable,much faster with accuracy .

**CONTENT:**

A smart agricultural aid system works automatically and uses different sensors along with rain sensor to timely water the crops without human interference and also will test soil quality using a PH sensor. So the main motive is to design accurate system check the nature of the soil that provides all the proper nutrients.

**16.**

**TITLE:**IoT in agriculture crop protection and power generation.

**AUTHOR:**Anjana, charan kumar,monisha,sahana.

**YEAR:**2020

**HARDWARE COMPONENTS:**Aurdino,humidity sensor,IR sensor,rain sensor, node MCU,moisture sensor.

**SOFTWARE :**C program

**APPLICATION:**

* Monitoring and controlling of greenhouse through telegram app.
* Voltages generated by solar panels used n battery storage.

**ADVANTAGES:**

* Microcontroller checks for threshold conditions
* Rainwater collected during rainy season

**DRAWBACKS:**

* The application of excessive pesticide to plant cause harmful impacts.
* The implementation of open roof greenhouse is high initial cost.

**CONTENT:**

This article deals to extend the efficiency of the yields and limit the cost of rural practices.Various sensor nodes are deployed at specific locations.It consists of rainwater harvesting technology method implemented along with crop safety.

**17.**

**TITLE:**IoT Based crop monitoring from animals.

**AUTHOR:**K.B Pavan Kumar,T.Bhavitha,s.karishma,M.pavithra,M.prasanth kumar

**YEAR:**2019

**HARDWARE COMPONENTS:**Aurdino,PIR sensor,speaker,lcd,node MCU.

**SOFTWARE:**C and c++ programming.

**APPLICATIONS:**

* Security application like triggering the alarm.
* works on solar panel or batteries,AC mains.

**ADVANTAGES:**

* locaions flexibility,no need of human.
* high reliability and long life time.

**DRAWBACKS:**

* The problem of crop vandalization by wild animals become major social problem.

**CONTENT:**

This paper presents the development of internet if things application for the crop protection to prevent animal intrusions in crop field.A repelling and monitoring system is provided to prevent damages in agriculture from wild animal attack.

**18.**

**TITLE:**Crop monitoring and crop protection using IoT.

**AUTHOR:**R.Prema,Naga sravanthi,lakshmi priya

**YEAR:**2020

**HARDWARE COMPONENTS:**Aurdino mega,fire sensor, gas sensor,DC fan,GSM module,motion sensor.

**SOFTWARE:**Embedded c, aurdino ide

**APPLICATIONS:**

* Simple clear programming environment.
* Fencing.

**ADVANTAGES:**

* Has intelligence to avoid fire accidents and animals attacks in field.
* By using IoT,we can monitor and control entire with large distance.

**DRAWBACKS:**

* Financial losses more.
* Embedded developed system will not harmful to animals but animals interferance day by day.

**CONTENT:**

This document introduces the IoT-based agricultural production system to stabilize the supply and demand of products while developing sensors for growth and production.This document focuses primarily on farm monitoring and security.

**19.**

**TITLE:**Smart crop protection system from animals and fire using arduino.

**AUTHOR:**Srikanth.N,Aiswarya,kavitha.H.M

**YEAR:**2019

**HARDWARE COMPONENTS:**Arduino UNO,PIR sensor,smoke sensor,motor,GSM.

**SOFTWARE:**C and C++ programming.

**APPLICATIONS:**

* Wild animals detected by using wireless networks.

**ADVANTAGES:**

* It is helpful in achieving better crop yields thus leading to economic well being.
* It help farmers in protecting their orchards and save from financial losses.

**CONTENT:**

This proposed paper of automatic crop protection system from animals and fire.This is a arduino UNO based system using microcontroller.This system uses motion sensor to detect wild animals approaching near the field and smoke sensor to detect fire.

20.

**TITLE:**Implementation of IoT based smart crop protection and irrigation system.

**AUTHOR:**Ipseeta Nanda,sahithi chadalavanda madepali swathi,Lizina khatua.

**YEAR:**2021

**HARDWARE COMPONENTS:**Raspberry pi,PIR sensor,web camera,ultrasonic sensor,LDR sensor,temperature sensor humidity and moisture sensor used.

**SOFTWARE:**MATLAB,python.

**APPLICATIONS:**

* When moisture content is low, the sensor planted makes water pumps to turn on.
* Equipment usage water system control over android telephones.

**ADVANTAGES:**

* Farmers will have an accurate crops yield.
* It helps to preserve and cash by reducing human labour.

**DRAWBACKS:**

* Due to electrical fencing which leads to animals death.
* low productivity due to crop destruction and crop damage.

**CONTENT:**

This paper yields a monitoring procedure for farm saftey against animals attacks and climate change conditions.It describes the aqua utilization according to field parameters in the cultivation field.The result will be generated on a catalog of mobile of person to take the necessary action.