



**AKHIL BHARATIYA MARATHA SHIKSHAN PARISHAD'S
ANANTRAO PAWAR COLLEGE OF ENGINEERING & RESEARCH**

Sr. No. 103, Parvati, Pune - 411 009.

Tel.: 020-24218901/8959 Tele Fax : 020-24213929

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NAAC ACCREDITED, DTE CODE :- EN 6794, AISHE CODE :- C-41484

Savitribai Phule Pune University Identification No. PU/PN/Engg. / 441/2012,

INNOVATION CLUB PROJECTS

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Akhil Bharatiya Maratha Shikshan Parishad's
Anantrao Pawar College of Engineering & Research



Record No.: ADM/D/036B
Revision: 00

DoI: 2/01/2023

Internal Correspondence For Department

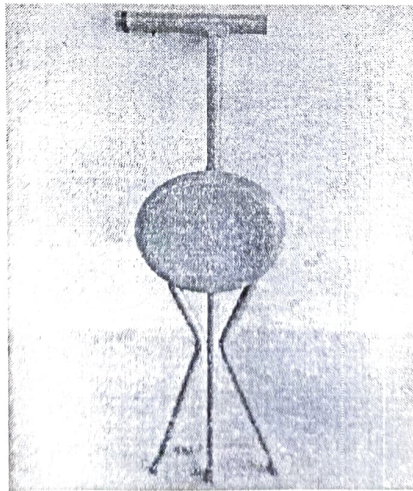
To,
The Principal
APCOER, Pune

Project Status Report

Name Of Project- Stick With Seat



Name of Project Coordinator- Prof.A.R.Wankhade and G.E.Kondhalkar

It is a simple stick which can be used for walking and as a chair when rest is needed by an individual. This will be helpful for senior citizen, farmers and any individual while travelling. This product is designed to keep primary focus on Senior Citizens and farmers.



FEATURES

- LIGHT WEIGHT
- FOLDABLE
- STABLE AND COMFORTABLE
- RECHARGABLE LED TORCH
- AVAILABLE IN DIFF. COLOURS

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BENEFITS

- EASE OF HANDLING
- WALKING WITH EASE
- STERDY YET LIGHT WEIGHT
- FARMER'S CAN USE THIS FOR REST IN FARM

Total 120 products sold-out till date. we have received feedback from peoples, according to feedback further research is going on to modify it.




Prof. A.R. Wankhade

Asst. W/S Superintendent



Prof. G.E. Kondhalkar

Head Of Department

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To,
The Principal,
APCOER, Pune-09.

Project Status Report

Name of the Project: Phenyl Liquid Production

Name of Project Coordinator: Dr. Balaji Selukar and Dr. Kashinath Munde

Phenyl Liquid is used for Cleaning and Disinfecting Different Types of Surfaces, Destroys Pathogenic Organism, Disinfecting Areas Covering Places Like Hospital, Nursing Homes, Drains, Toilets etc.



FEATURES

- Active against a wide range of bacteria & Microorganisms - Non-corrosive – Multipurpose

BENEFITS

- Useful for large size public places - Offers best sterilization practices for hospitals - Ease of handling




Prof. (Dr.) Balaji Selukar

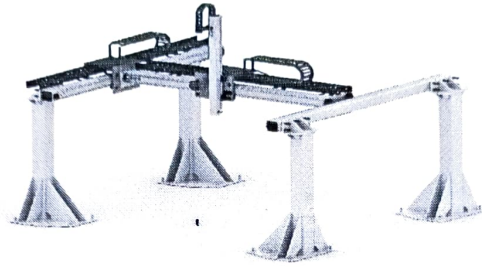
Email: balaji.selukar@abmspcoerpune.org

Contact no. +91 8208852108

Address:
Contact Details:
Website:

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Name of Research Project – “AGROWBOT”(Smart Polyhouse)

Name of Coordinator: 1. Prof. Ashish Pawar

2. Prof. Sampada Ahirrao .

Project Informaion: Smart polyhouse, also known as a smart greenhouse, is an advanced greenhouse that uses technology to optimize growing conditions for plants. The goal of a smart polyhouse is to increase crop yields and reduce resource usage, such as water and energy. Smart polyhouses are equipped with a variety of sensors and control systems that monitor and adjust the environment inside the greenhouse. The data collected by these sensors is analyzed in real-time to determine the optimal conditions for plant growth. Multipurpose agriculture Gantry Robot for surveillance, watering, pesticide spraying, disease detection of a crop in polyhouse. A Gantry system with X-Axis, Y-axis and Z-axis movement, useful tool for crop monitoring in a polyhouse. The gantry system consists of a track mounted on the ceiling of the polyhouse, with a Agrocar that can move along the track. The Agrocar can be equipped with sensors and cameras that can collect data on the plants and their growth. The gantry system can be programmed to move along the track at regular intervals, collecting data as it goes. This can help to provide a more complete picture of the conditions in the polyhouse, as the sensors can collect data from different areas of the greenhouse. The system can also be programmed to move to specific areas of the polyhouse where there may be issues with growth or pests, allowing for targeted monitoring and intervention.



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Project Completion Status:

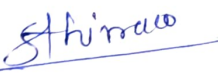
Sr no.	Task	Status
1	Mechanical structure of polyhouse ((Design and Analysis)	Part design completed, Assembly in progress
2	BOM List of polyhouse	Completed
3	Gantry design (X-axis-axis-Axis)	Prototype design in process, Design partly Completed Validation pending

Project Completion (Tentative) : Jun 2023 :Prototype



May 2023 – Complete Gantry System

Date: 15/05/2023.


 Prof. Ashish Pawar


 Prof. Sampada Ahirrao.


 Prof. G.E. Kondhalkar
 Head of Mechanical Engineering Department

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Plant Health Monitoring

Problem Statement:-

To identify plant image is faulty or not faulty.

Dataset:-

- First we create two classes that are faulty and not faulty.
- Then we take the not faulty plant and take all side of images of plant with different angles.
- Then we take the faulty plant and take all side of images of plant with different angles.
- For each class we collect the more than 100 images and the images are in jpeg format.
- Our focus more on quality of images.
- Faulty category of plant contains 171 images.
- Not faulty category of plant contains 152 images.

Language:-

- Python

Platforms:-

- Google colab

Front end:-

- Streamlit python library



Back end:-

- Deep Learning
- Tensorflow
- Keras
- Opencv

Algorithms:

- CNN(Convolutional Neural Network)

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S

Identification of Fault or Not Fault image



Please upload plant image

 Drag and drop file here Limit 200MB per file • JPG, PNG	<input type="button" value="Browse files"/>
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Please upload an image file

7

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Identification of Fault or Not Fault image

Please upload plant image

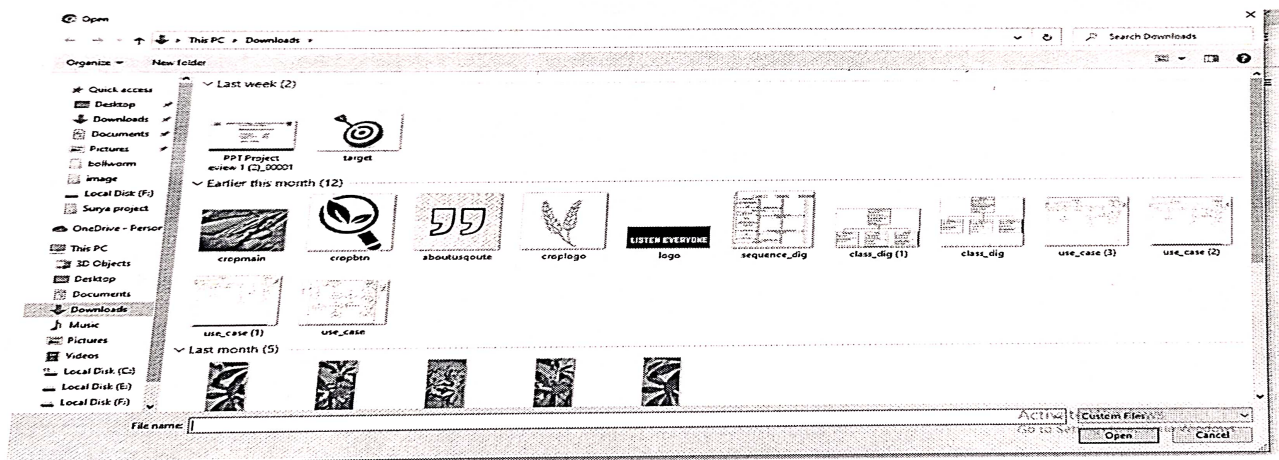


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Identification of Fault or Not Fault image

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- For success

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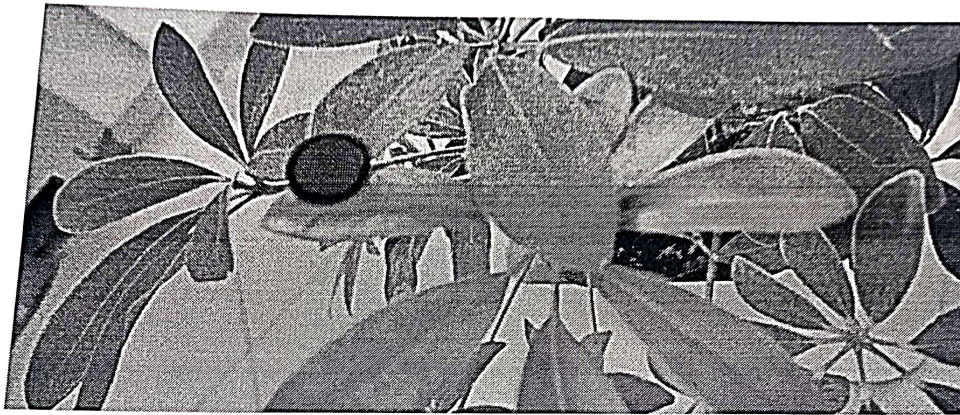
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IMG_20220930_130518.jpg 5.6MB



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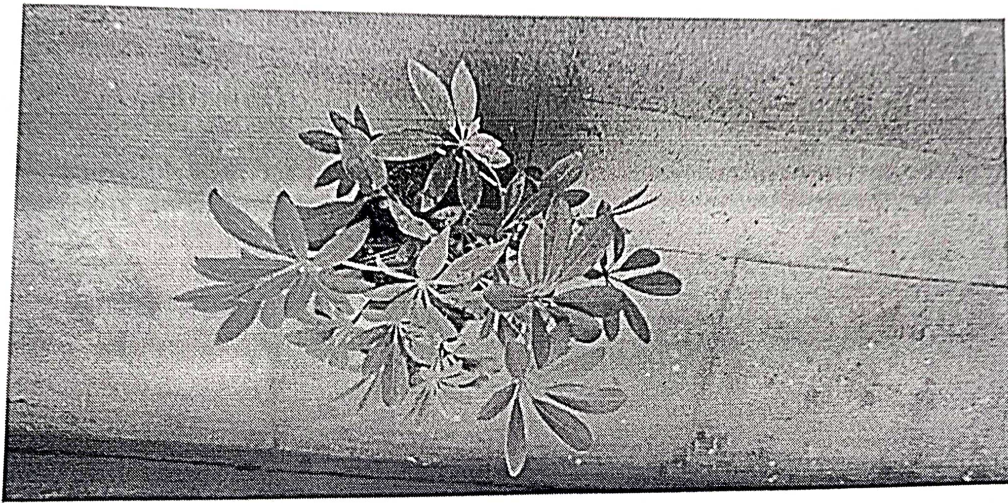


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IMG_20220930_112950.jpg 2.4MB



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
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 IMG_20220930_112950.jpg 2.4MB ×



This image most likely is: Faulty

Activate 
 Go to Settings



Project Completion Status: Completed.

Date: 22/5/2023

Rama Gaikwad

Prof. Rama Gaikwad
 Project In-charge and Head, Computer Engg

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Title of research project:	Design of Drones for agriculture application.
Name of the Coordinator	1. Kolambe Chetan Eknath 2. Dr. Munde Kashinath
Name of innovation member:	Mr. Sudarshan Natu

Introduction:

Unmanned Aerial Vehicles (UAV's) are the aircrafts that fly without any human being onboard. We are witnessing the advent of a new era of robots "Aerial Vehicles" that can autonomously fly in natural and man-made environments. They can be used in various areas such as agriculture, medical emergencies, disaster management, defense etc. Importantly they can provide access to areas that are hard to reach and/or dangerous. UAV's can be sent to investigate areas without risking human lives.

Multi-rotor is the next form of helicopters having more dynamic stability than helicopters. They play a predominant role in different areas like surveillance, military operations, fire sensing and some important areas having many complexities.



Several problems faced in existing systems are:

- 1) Costly: To deliver parcels from one place to other leads to increased fuel consumption and this thereby increases air pollution and expenditure.
- 2) Large amount of man-power: Transportation of goods is not limited to a particular area so, large number of skilled manpower is required for transporting parcels.
- 3) Topographical limitations: Topographical aspects may vary from place to place thus putting additional burden on human skills.
- 4) Human Endangerment: Emotions such as fear, nervousness and tension can lead to wrong decision which may result in fatal consequence.

The robotics application is currently evolving. Use of these robots in agricultural field is mostly very popular so many people try to do some robots which help them in agricultural field. A unique framework is offer by automated agriculture for robotics developments. Precision agriculture can be automated for primary and secondary agricultural tasks. The primary goal is to improve the agriculture production. The coupling between field workers and robots should be done in such a manner that humans should feel comfortable in the presence of robots. RI Systems is introduced to faces issues such as regulation, safety and comfort, flexible in this work.

Methodology:

- 1 Survey of farm and their applications
- 2 Demands of UAV
- 3 Study of UAV
- 4 Mechanism of Hexacopter
- 5 Frame Design
- 6 Design Analysis
- 7 Selection of motor
- 8 Selection propeller
- 9 Selection of material

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10 Manufacturing process selection

- i. 3D printing technology

11 Sprinkling system arrangement

- i. Selection of tank
- ii. Selection of pump
- iii. Selection of nozzle

1. Survey of farm and their applications:-

Firstly we have to survey the farm to study where we can reduce the man power with use of the Hexacopter. All the process have to study from the beginning i.e., poring the seeds to plant cutting, and selection of one of the process like Pesticides Spraying.

2. Demands of UAV:-

When we done with the survey we need to study demand of the UAV so how much time and labor work we can reduce.

3. Study of UAV:-

Though we study the both survey and demand we are going to study of UAV. All the components of UAV and their applications.

4. Mechanism of Hexacopter:-

When we are done with the study the components of Hexacopter and applications we are going to study the Mechanism of Hexacopter that is how it works.

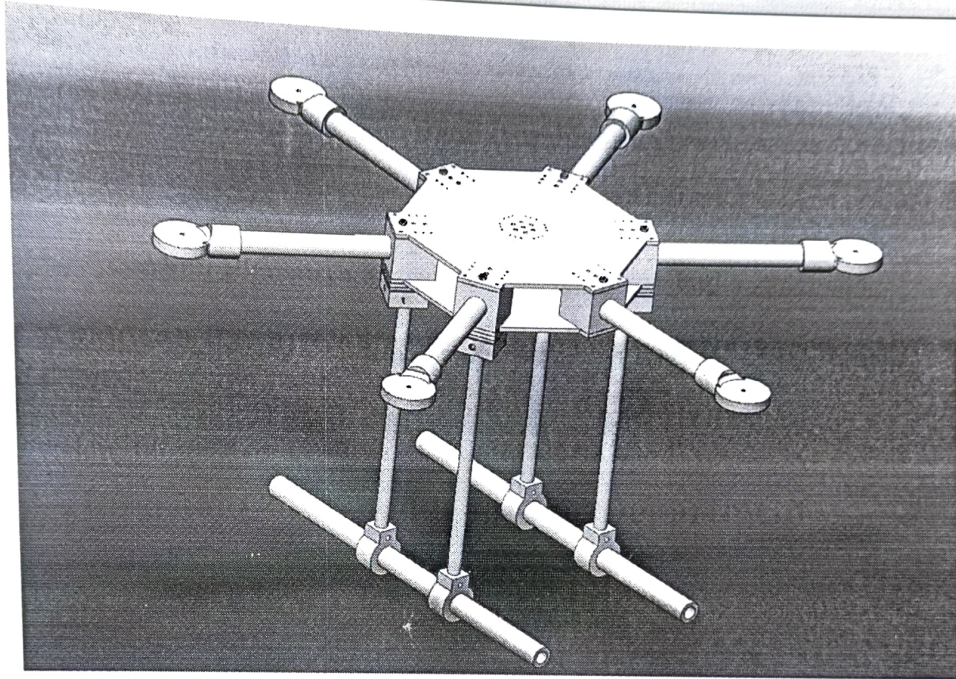
5. Frame Design:-

Designing of frame is one of the most important thing. In this we are going to design a frame which is used in Hexacopter in which we learn the major aspects like total load, thrust load, pay load and accordingly we design it.





Internal Correspondence For Department



6. Design Analysis:-

Analysis results in the weak point of the design and load or weight distribution within the design. If analysis results in fail design we are going to start a new design.

7. Selection of motor:-

As per analysis and weight approximation we are going to select the motor with required RPM with respect to the weight criteria.

8. Selection propeller:-

Propeller selection is important because of it will going to rotate and made a lift for the UAV. So light weighted and high strength propeller are going to be used.



9. Selection of material:-

Material Selection is major aspects in all parameters. We are going to select a material which having high strength but low weight. These properties are going to observed in the composite materials so we are selecting on of them like Carbon Fiber.

10. Manufacturing process selection:-

After Selection of process as suited for the design we are going to select the manufacturing process. One of the processes we are going to select from the following processes:

- Casting

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- Forging
- Welding
- Joining Processes
- 3D Printing

11. Sprinkling system arrangement:-

In this system we are going to select the following components:

- i. Selection Of tank:
As per volume and weight criteria we are select the tank for pesticides storage.
- ii. Selection of Pump:-
Selection of pump leads to minimum discharge of pump. This is because of lower discharge of liquid leads to good spraying.
- iii. Selection of Nozzle:-
Nozzle that we are going to use have to spray in all direction with increase in velocity of pesticides.

Electronic Equipment's identified:

1. Flight Controller:-

Flight Controller is essential component which is used to control the flight of the unmanned aerial vehicle. We select the advance flight controller PIXHAWK 2.4.8 32 bit. Which is having the control for 6 channel unmanned aerial vehicle i.e. for hexacopter. It can be operated on battery having range 2S to 6S.

2. Transmitter and receiver:-

Transmitter and receiver is a component which is used for the operating the hexacopter from starting to stopping of the hexacopter. It's having two components one is transmitter who transmits the signal and second one is the receiver who receives the signal. We use the RADIOLINK AT 10 model.

3. Brushless Motors:-

BLDC motors are used for generating lift for unmanned aerial vehicle. We are using 1120KV motors which having capacity to overcome thrust of 820 grams per motor. 6 READY TO FLY 1120KV motors are used in hexacopter.

4. ESC:-

ESC electronic speed control is used to control the rpm of the individual BLDC motors which is connected to the flight controller. 6 Simhonk 30A ESC are used for operating 6 individual motors.

5. Propeller:-



Propeller converts the motor torque into thrust force. As per motor specification 1045 designation propeller are used.

6. Battery:-

Battery a component which is going to use as power source to all components. ZOP LI-POLY batteries are used having capacity of 5000 mah to 6000 mah as per requirement.

7. Power Module:-

Power module a component which distribute the power taken from the battery to all components. APM Pixhawk Xt60 model power module is used.

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8. Battery Charger:-

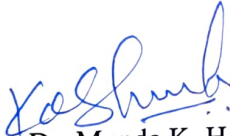
3S ZOP li poly battery is chargeable after discharging so we used a charger RADIOCRAXE LI-POLY charger.

Project Completion Status:



1. Frame design ----Completed.
 2. Frame Manufacturing---- In Process.
 3. Electronic components-----Selection done and Purchased.
 4. Connection of electronic component ----- In Process
- Project Completion Status (Tentative) ----- October 2023

Date: 19/05/2023


Prof. Kolambe C. E.


Dr. Munde K. H.


Prof. Kondhalkar G. E.

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Date: - 12/05/2023

Name of Project- Agrowsense for polyhouse

Name of Coordinator- Prof. Vaishali Bhimte

Agrowsense sense and measure various environmental parameters such as soil Moisture, Soil temperature, Humidity.




Information from the sensors is transmitted to the arduino board. The arduino board consists of microcontroller which is responsible for controlling and switching on/off of the motor on which water sprinklers can be attached. Sensor values from arduino are transmitted to the GSM-GPRS SIM900A modem.

Project Completion Status- Work in Progress

Project Completion Date (Tentative)-June 2023


 Vaishali Bhimte
 Coordinator


 Dr. Soojey Deshpande
 E&TC, Head of Department



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Ref. No. : APCOER/PO/017/2022-23

Date: 18 /06/2022

To,
Proximal Soilsens Technologies Pvt Ltd
D-203 Marvel Citrine, Kharadi
Pune, Maharashtra, India 411014
Phone No. +91 7045997267

Subject: Purchase Order for Soilsens Station –Classic for polyhouse

Reference: Your Quotation No. SS/22-23/Q009 dated 02/06/2022

Respected Madam,


With reference to above mentioned quotations and subsequent discussion with our officials we are pleased to place a purchase order for **Soilsens Station –Classic (polyhouse)** of following Configuration. You are requested to deliver goods as early as possible as per the terms and conditions stated below.

Sr. No	Item Name	Quantity	Per Unit	Total
1	Soilsens Station -classic	1	34,899	34,899/-
	Packaging, Shipping, Installation Charges			2,000/-
			Subtotal	36,899/-
			Discount	3,400/-
			Gross	33,499/-
			GST	6,029.98/-
			Total	39,528/-


Amount in Words: - Thirty Nine Thousand Five Hundred Twenty Eight Rupees Only.



Terms & Conditions:

1. The subscription charges for SoilSens Station will begin from the second year, which includes sim charges/cloud charges.
2. AMC is not available for Soil moisture sensors.
3. The warranty period is 1 year for electronics or manufacturing defects.
4. Warranty doesn't cover any physical damage.
5. Installation is optional and will be provided on additional charges. We help you with remote installation.
6. Delivery will be made after 4 weeks once the PO is received. (depending on the silicon chips availability)
7. 50% of the payment is advance and 50% within two weeks of the product delivery.
8. Quotations are valid for 30 days from the date of issue. Prices can fluctuate because of fluctuations in silicon chip market.
9. Installation charges: depends on the location and accessibility. (as per actuals)
10. Downtime of the system due to climate, lack of network availability or any other reason beyond our control can't be accounted as Soilsens failure.
11. API charges aren't included. SIM charges included.


Principal
Anantrao Pawar College of
Engineering & Research
Pune – 411009




General Secretary
A.B.M.S Parishad ,
Pune – 411009

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Title of Project	APCOER_AgrowFan
Name of Coordinator	Prof. Sharad S. Jagtap
Name of Innovation Member	Dr. Ashok Saraf

INTRODUCTION:

This project aims to create a temperature control system using an ESP8266 microcontroller, DHT11 temperature and humidity sensor and a DC motor used as fan. The system will detect the ambient temperature using the DHT11 sensor and uses that information to control the speed of the fan using the ESP8266 microcontroller. The system will maintain a consistent temperature range and provide real-time temperature readings.

The project will be low-cost, easy to build, and require minimal maintenance. The system can be used in a variety of settings, such as homes, offices, and industrial facilities, to create a more energy-efficient and effective cooling system. Additionally, the project can be a fun and educational way to learn about microcontrollers, sensors, and motor control.

This project is useful where you have to find the temperature and humidity in the air. This project can print the values of the temperature and humidity on the serial monitor screen. When to provide the power to the nodemcu then the sensor starts working and continuously print the values on the serial monitor. dht11 sensor with esp8266 is a good combination for IoT projects. The temperature values are in degrees Celsius and the humidity values are in percentage. We use the read temperature function for taking the readings of the temperature and read humidity function for taking the values of the humidity. The thing about this sensor is that it is easy to use and small in size also. It can calculate the humidity and temperature with the help of electrodes present inside its plastic casing. Check the IoT weather monitoring project made by us using a nodemcu board.

Objectives are

1. To check the detect temperature whether it is low or high comparing to set temperature in nodemcu esp8266. Temperature can be detected in real time and display in LCD display. Motor is on when the temperature is crossed the limit set by nodemcu esp8266.
2. To monitor various environments and machinery, power plants, and manufacturing



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PROJECT WORKING

The following components will be required for this project:

ESP8266 microcontroller

The following libraries will be required for programming the

ESP8266 microcontroller:

- ESP8266WiFi.h

To build the system, follow these steps:

1. Connect the DHT11 sensor to the ESP8266 microcontroller using the breadboard and jumper wires.
2. Connect the DC motor fan to the ESP8266 microcontroller using the breadboard and jumper wires.
3. Connect the power supply of relay to the ESP8266 microcontroller to control the fan speed.
4. Program the ESP8266 microcontroller using the Arduino IDE and the required libraries.
5. Test the system by measuring the temperature and adjusting the fan speed as needed.



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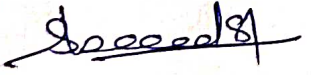
COMPONENTS:


- DHT11 temperature and humidity sensor
- DC motor fan
- Breadboard
- Jumper wires
- Relay
- ESP8266

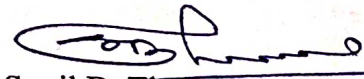
Project Status:

1. Components tested and Implemented circuit on breadboard.
2. Results displayed on serial port.
3. Simulation done.
4. Components of more precise features not purchased
5. Implementation is in Progress.

Date: 10/06/2023


Prof. Sharad S. Jagtap
Asst. Prof.
E & TC Department


Dr. Soojey R. Deshpande
HOD,
E & TC Department


Dr. Sunil B. Thakare
Principal,
APCOER, Pune





Akhil Bharatiya Maratha Shikshan Parishad's
Anantrao Pawar College of Engineering & Research



Record No.: ADM/D/036B
Revision: 00

DoI: 02/01/2023

Internal Correspondence For Department

Title of Project	AgrowRain
Name of Coordinator	Prof. Sharad S. Jagtap
Name of Innovation Member	Dr. Ashok Saraf

Introduction:

A Rain Detection System can be built by interfacing **Nodemcu with Rain Sensor**. The sensor will detect any rainfall falling on it and the ESP8266 board will sense it and can perform required actions. A system like this can be used in many different fields, such as agriculture and automobile fields. **Rainfall detection** can be used to automatically regulate the Irrigation process. Also, continuous **rainfall data** can help farmers use this smart system to automatically water the crop only when absolutely required. Similarly, in the automobiles sector windshield wipers can be made fully automatic by using the rain detection system.

Home Automation Systems can also use rain detection to automatically close windows and adjust room temperature. In this tutorial, we will build a basic **rain sensor using Nodemcu**.

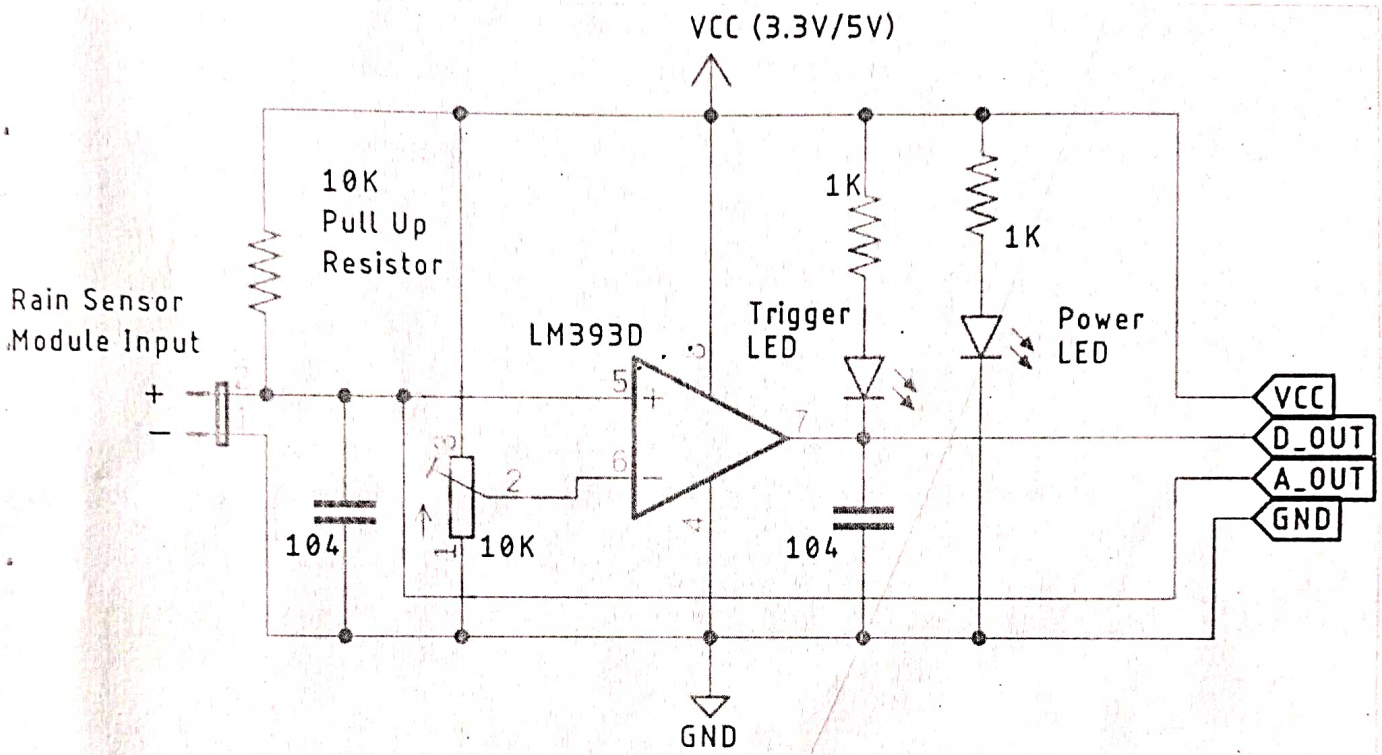
METHODOLOGY:

We can see factors such as rainfall, temperature, humidity, and amount of light. Also, the specialty is that we can monitor all this over the internet. So, it is clear that this project is a creation of IoT technology. Also, we can do this project at a low cost and use it for farms and greenhouses.

When rain drops falls on the sensor, it creates a conducting path and trigger the 555 Timer IC. Once the timer IC is triggered, it will activate the alarm. The biggest advantage of using rain sensor in the circuit is that it is relatively cheap and highly reliable. You don't need to rush for purchasing the one in fact, you can make rain sensor at home. So, before starting with the project, let me brief about the design, circuit diagram, working and application of rain sensor.



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Rain Sensor Working

When there is no rain, the resistance between the wires of rain sensor will be very high and there will be no conduction between the wires on sensor. When the rain drop falls on the sensor, it will form a conductive path between the wires and the resistance between wires will decrease. At this point, the wires on sensor board will start conducting current.

COMPONENTS:

Rain sensors are typically made up of several components, including:

Sensor Surface: The sensor surface is the part of the rain sensor that comes into contact with the rain. It can be made of various materials such as glass, plastic, or metal and is designed to detect the presence of water droplets.

Control Unit: The control unit is responsible for processing the signals from the sensor and triggering the appropriate response, such as activating windshield wipers or closing a sunroof. It is usually located in the car's interior, near the windshield.



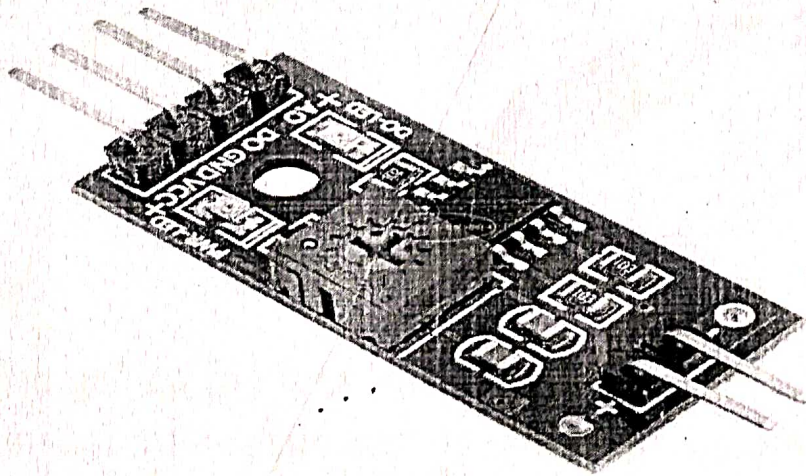
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Wiring Harness: The wiring harness connects the rain sensor to the control unit and other components in the car. It is usually a bundle of wires with connectors that plug into the appropriate sockets.

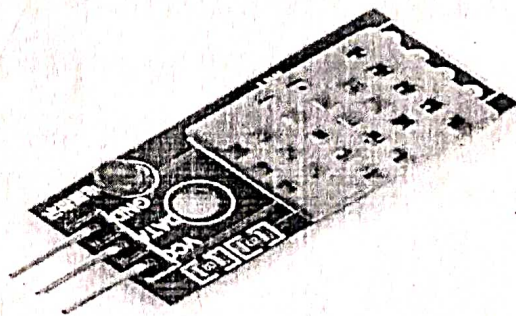
Mounting Bracket: The mounting bracket is used to attach the rain sensor to the windshield. It is usually made of plastic or metal and is designed to hold the sensor securely in place.

Housing: The housing encases the rain sensor and protects it from the elements. It is usually made of plastic or metal and is designed to be water-resistant.

In addition to these components, some rain sensors may also include a heater element to prevent the sensor surface from icing over in cold weather conditions. Some sensors may also include a light sensor that adjusts the sensitivity of the rain sensor based on the ambient light conditions.



I2C Module



DHT11



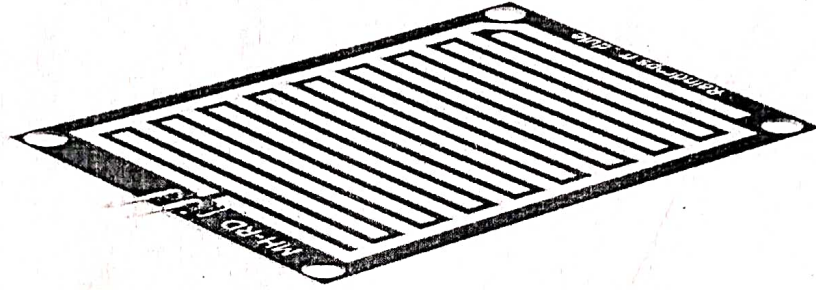
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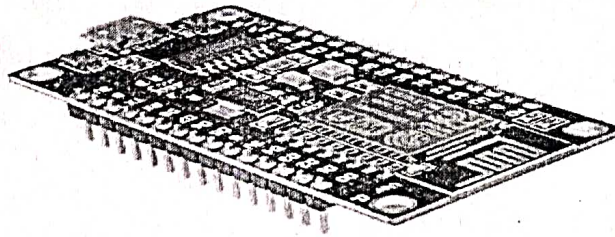
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Revision: 00

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Rain Sensor



NodeMCU

Project Status:

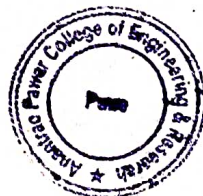
1. Components tested and Implemented circuit on breadboard.
2. Results displayed on serial port.
3. Simulation done.
4. Components of more precise features not purchased
5. Implementation is in Progress.

Date: 10/06/2023

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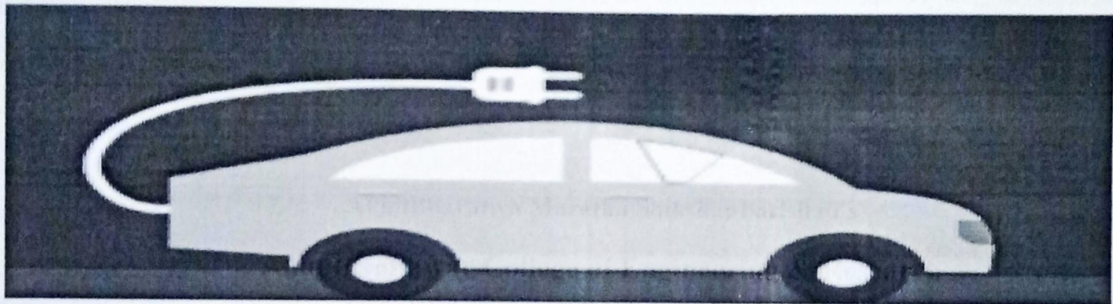
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Revision: 00

DoI: 02/01/2023

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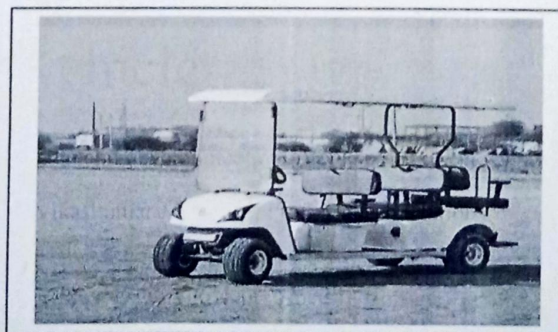


EV Campus vehicle

Name of Research Project – Design and development of e Vehicle (Six Seater) for Campus Visit

Name of Coordinator : 1. Prof. Vikaskumar Mehtre 2. Prof. Mahesh Kumbhare

EV Campus Vehicle will provide ease of movement within the campus for all the faculties and management. With the advantage of cost saving it will also help maintain clean environment, less noise pollution and smoother ride compare to Conventional (petroleum) energy vehicles.





Address: Sr. No. 103, Parvati, Pune- 411 009,

Contact Details:

Tel: 020-24218901/8959, Tele Fax:- 020-24213929

Website:

<http://www.abmospcoerpune.org>, Email : abmspcoe@yahoo.com

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Internal Correspondence			

FEATURES

Zero pollution
Park assist cameras
30 minute rapid charging capability
Automatic wipers and lights
Economic growth

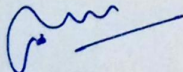
BENEFITS

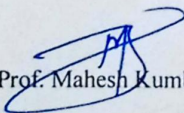
Eco-friendly
Cheaper to run
Easily affordable
Low maintenance
Better Performance.
To rise Job employability

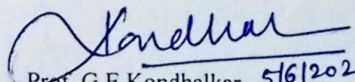
Project Completion Status: 1. Design of Chassis	Completed
2. Design of Suspension System	Completed
3. Dynamic Analysis of Complete Body	Work in Progress

Project Completion (Tentative): September 2023 Chassis Manufacturing
 December 2023 – Complete e- Vehicle



Date: 06/05/2023


 Prof. Vikaskumar Mehtre


 Prof. Mahesh Kumbhare


 Prof. G.E. Kondhalkar 5/6/2023
 Head of Mechanical Engineering Department

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 Contact Details: Tel: 020-24218901/8959, Tele Fax:- 020-24213929
 Website: <http://www.abmspcoerpune.org>, Email : abmspcoe@yahoo.com

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	Record No.: ADM/D/036B Revision: 00	DoI: 02/01/2023	
Internal Correspondence For Department			

Date: 06/05/2023

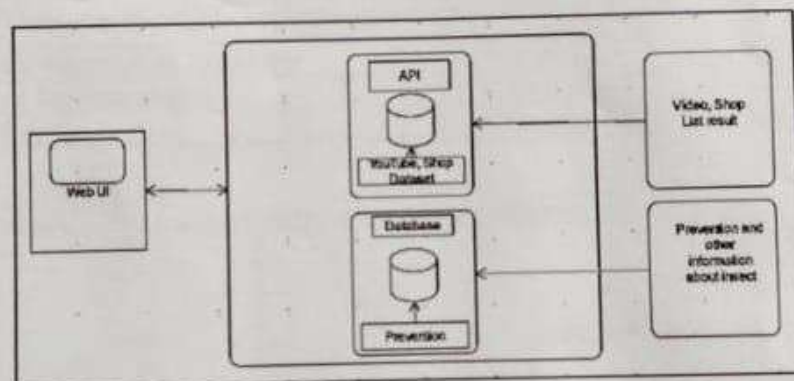
RESEARCH PROJECT DETAILS

Name of Project: Identification and prevention of pest on crops

ABSTRACT

Our aim is to provide farmers with a method to detect and prevent pests at an early stage. By doing so, farmers can take preventive measures to minimize the negative impact of pests on their crops. We recognize the importance. In order to prevent any potential harm, we are developing a user-friendly application that offers an optimal solution for dealing with pests. The application will be designed to enable users to effectively manage.



ARCHITECTURE



DETAILS OF COORDINATOR'S

Student's Participated	Faculty Coordinators
SAHARSH GAVAS GAURAV RANGNE SURYAKANT JAMBHALE SAKSHI DHOLE	Prof. Anil Lohar Prof. Pranjali More

Address: Sr. No. 103, Parvati, Pune- 411 009,
 Contact Details: Tel: 020-24218901/8959, Tele Fax:- 020-24213929
 Website: <http://www.abmspcoerpune.org>, Email :abmspcoe@yahoo.com

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PROJECT FEATURES


Sr No.	Project Features
1	Pest Detection
2	Weather Forecast
3	Near By Shop
4	Organic Controls
5	New Farming Technique's Information


PROJECT COMPLETION STATUS:-

Sr.	Type of Work	Status
1.	Data Collection	Completed
2.	Image Processing Algorithm Implementation.	Completed
3.	Improving Accuracy of Algorithm	Completed
4.	Front End Implementation	Completed
5.	Integration	Completed

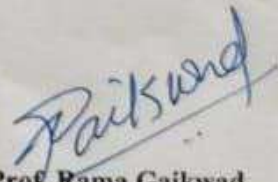
Project Completion (Tentative) : December 2023 – Complete KRUSHI PEST

Date: 06/05/2023


Prof. Pranjali More
 Project Guide,
 Computer Engineering Dept.


Prof. Anil Lohar
 Project Guide,
 Computer Engineering Dept.




Prof. Rama Gaikwad
 Head of Department
 Computer Engineering Dept.

Address: Sr. No. 103, Parvati, Pune- 411 009,

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Record No.: ADM/D/036B
Revision: 00

Dol: 21/01/2019

Internal Correspondence For Department

To,
The Principal
APCOER, Pune

Subject: Testing of KY-036 Metal Touch Sensor for Polyhouse.

Respected Sir,

Following is the testing report of Sensor.

Name of Sensor: KY-036 Metal-touch sensor module

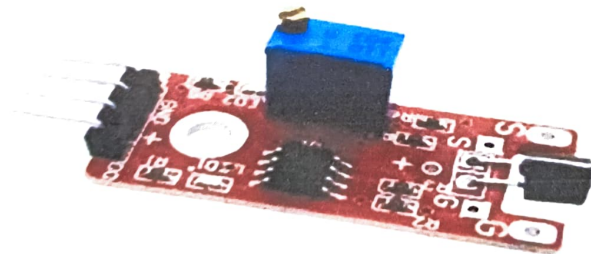
KY-036 metal touch sensor is a type of switch that triggers whenever the metal spike of the sensor is touched by a conducting body like human body.



This module has 4 header pins +5V, GND, D0 / (Digital Output), A0 / (Analog Output).

Tested By: Prof. S. M. Veer

Image of Sensor:

KY-036



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Hardware Requirements

- Arduino Uno
- Metal touch sensor
- LED
- Resistor(220 ohms)
- Breadboard
- Jumper wires
- USB type A to B cable

Procedure:

Connect the Sources

- Connect the 5 V pin of the arduino uno board into the top/bottom slot of the breadboard. The connections here are horizontally connected making it an ideal for the sources.
- Connect the GND pin of the arduino uno board into the top/bottom slot of the breadboard but make sure not to place them together as this will short circuit the board and may damage.

Connect the LED

- Connect the anode (+) of the LED to a 220 ohm resistor that is connected to pin number 7 of the arduino uno board. This resistor will protect the LED from oversupply of current.
- Connect the cathode (-) of the LED to the common ground.

Connect the sensor

- Connect the + pin of the metal touch sensor to the voltage source (+) in the breadboard.
- Connect the GND pin of the metal touch sensor to the common ground (-) in the breadboard.
- Connect the D0 (digital pin) of the metal touch sensor to pin number 9 of the arduino uno board.



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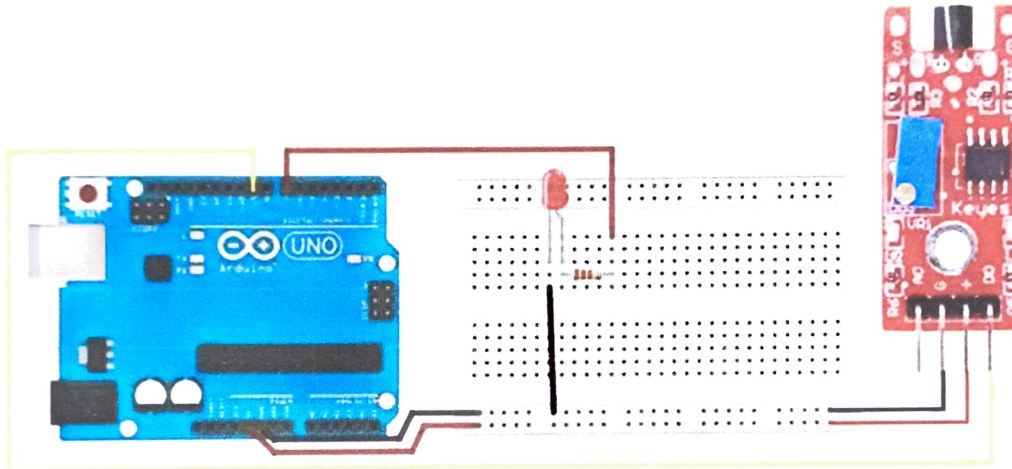


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Final connection diagram



Programming

- Connect the Arduino board to your computer by using the USB type a to b cable.
- Once connected, open the arduino IDE and go to Tools > Board: > select Arduino / Genuino Uno.
- Copy the code below and paste it into your own sketch in the arduino software.



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Code 1

```
constintanalogInPin = A0;  
constintanalogOutPin = 9;  
intsensorValue = 0;  
intoutputValue = 0;  
void setup() {  
Serial.begin(9600);  
}  
void loop()  
{  
sensorValue = analogRead(analogInPin);  
outputValue = map(sensorValue, 0, 1023, 0, 255);  
analogWrite(analogOutPin, outputValue);  
Serial.print("sensor = ");  
Serial.print(sensorValue);  
Serial.print("\t output = ");  
Serial.println(outputValue);  
delay(100);  
}
```



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Code 2 for testing

```
int ledpin = 7;
int touchpin =9;
int value;
Void setup ()
{
pinMode(touchpin, INPUT);
pinMode(ledpin, OUTPUT);
}
void loop ()
{
value = digitalRead (touchpin);
if(value == HIGH)
{
digitalWrite (ledpin, HIGH);
}
else
{
digitalWrite (ledpin, LOW);
}
}
```



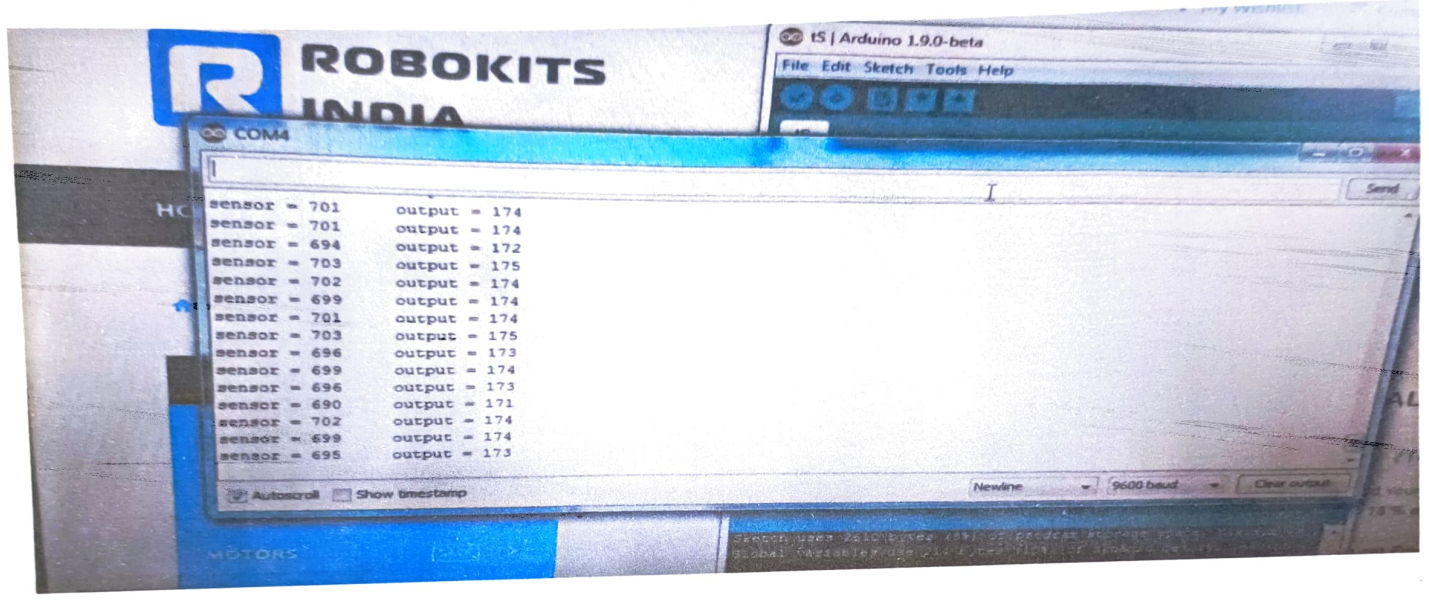

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Observation:-

- If we touch the base of the transistor with our fingers, this should turn the LED on and output value is reduced (Shown in above window) to indicate that the sensor has been triggered.
- Remove your finger away from the sensor; this should turn the LED off, indicating that the sensor is not touched.
- If we try to use a metal wire or plate or something conductive and let it touch the base of the transistor, this should also make the LED turn on because the metal wire is a conductive like our body.
- The metal touch sensor is connected to the arduino uno board as the input to detect any electrical connectivity and the LED is set as the output. Once the sensor is touched by a conducting body, it will trigger the switch then sends that data into the arduino uno board and thus turning the LED on.

Conclusion: (Please mention conclusion with respect to application in polyhouse)

We can find out animal and human movement when it touches the crop.

S.M. Veco
Project Head
S.M. Veco

S.M. Veco
HOD, E&TC