



AUTOMATED GREENHOUSE



Agenda

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Our Mission and Vision

Our Sensors

Our Circuit Diagram

Our Maquette

Our Cost Analysis

Our Management Team

Our Moments





Introduction

In modern society, the consumption of fruits and vegetables has become the norm. A variety of fresh fruits and vegetables should be accessible at all times. However, the northern climate prevents the growth of certain fruits and vegetables, especially during winter.

This results in import from southern countries, which in turn has some drawbacks.



Our Mission and Vision

the goal of this initiative was to make it easier to grow food at home. this may be accomplished using an automated greenhouse. a greenhouse allows you to simulate a different environment and hence produce food that would not normally grow in the location. additionally, automating the greenhouse allows people to produce their own food or plants at home without having to continually monitor them. it can be reassuring to know that the plants are taken care of while one is on vacation or not around the house for a longer period of time. moreover, it is more feasible to make greenhouses automated instead of hiring paid humans.

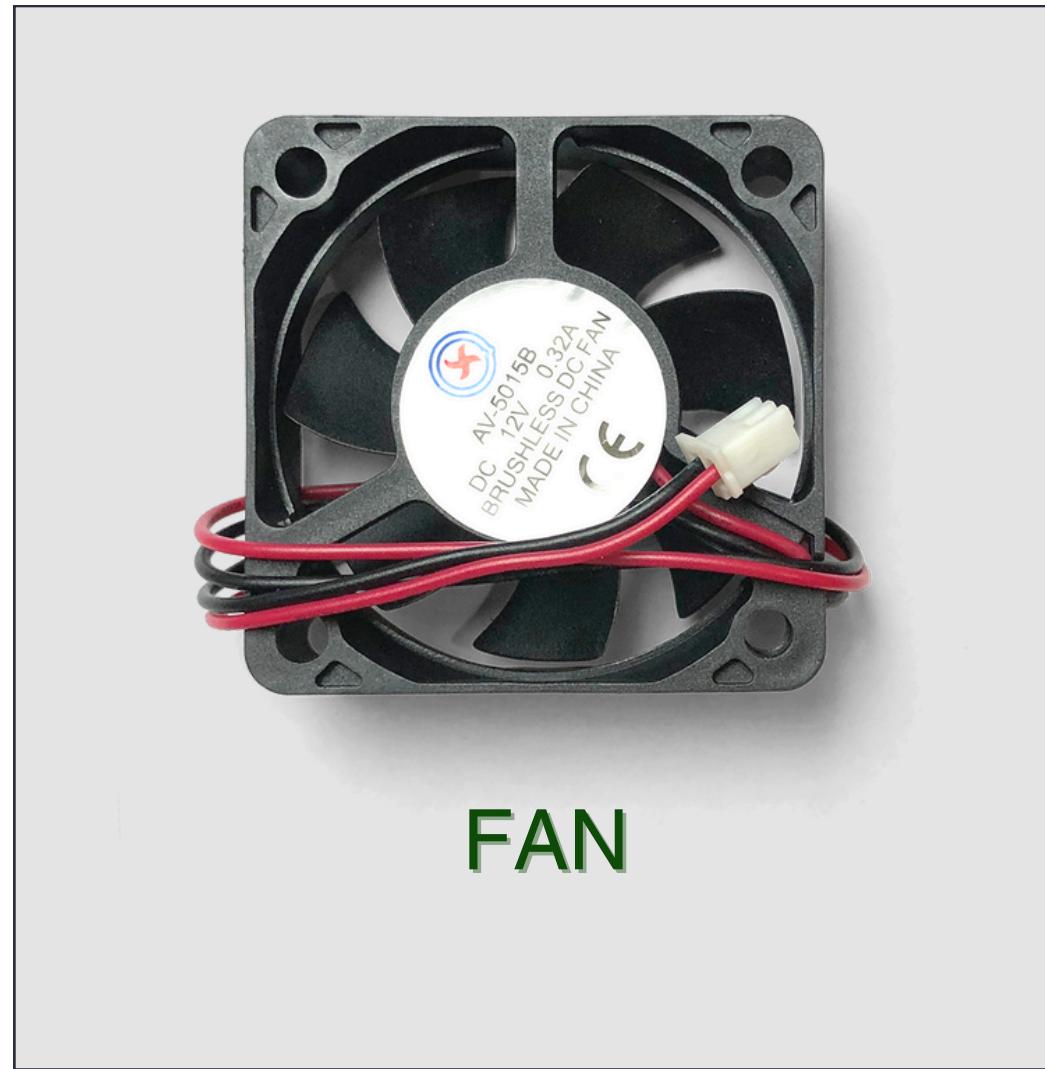


Our Sensors

Sensors used for this project



DHT11



FAN

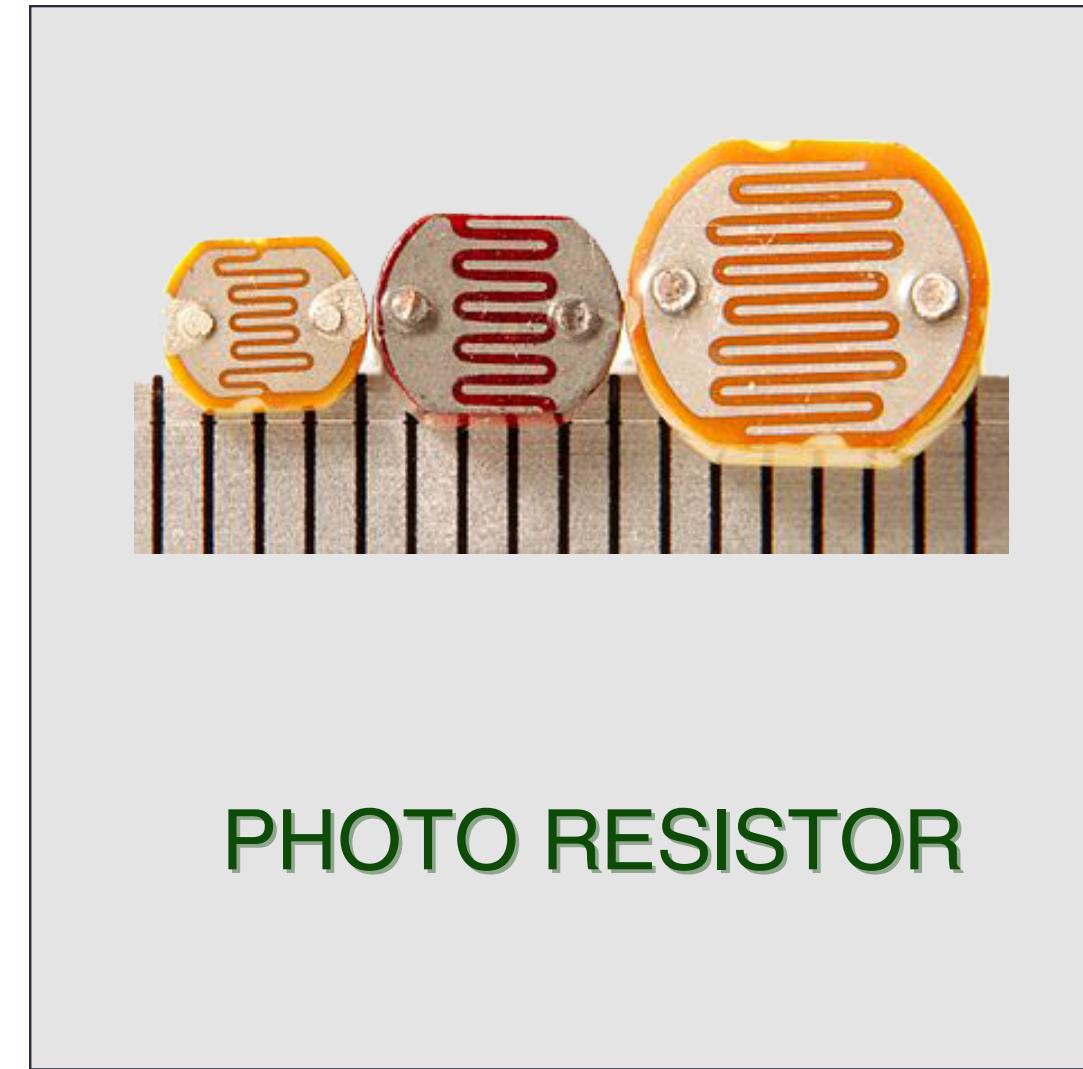


PHOTO RESISTOR



Our Sensors

Sensors used for this project

DHT11

This sensor measures the humidity and temperature. It can sense temp. from 0 c to 50 c and it also calculate Humidity range 20% to 80% construction of Temp. sensor: It consists of 'moisture holding layer' placed between two electrode and below lower electrode it have glass. Moisture holding substrate: Sense the humidity. the moisture affect the resistance in upper and lower electrode. by this change in resistance the humidity got determined

FAN

regulate the temperature
when it reach the limit

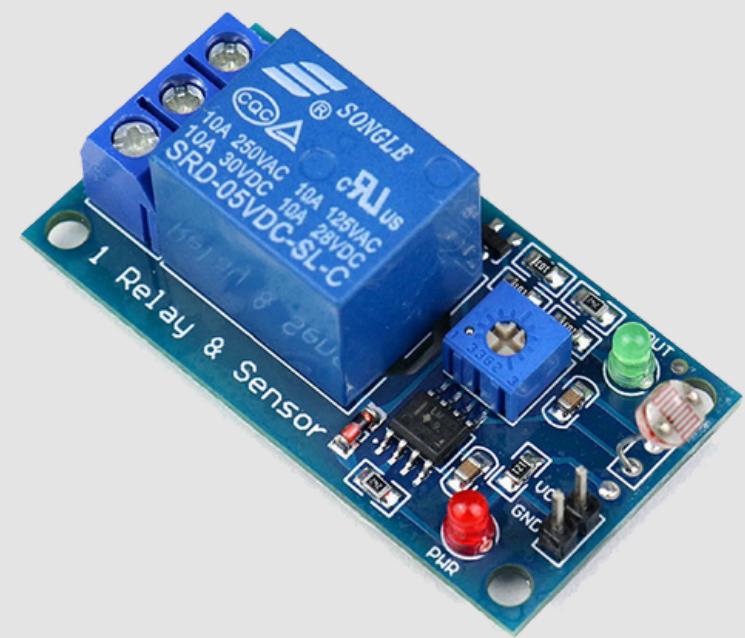
PHOTO RESISTOR

We use light dependent sensor to detect the light if there is no light the led strip will light up HOW ? In the LDR sensor there is semiconductor material like CdS (Cadmium sulphides) this materials with high light transport electrodes . When the light increase the resistance decrease.



Our Sensors

Sensors used for this project



RELAY



WATER LEVEL



BUZZER



Our Sensors

Sensors used for this project

RELAY

The relay sensor is to control the voltage of the led so we use the relay to light up the led strip by 5 volts from the Arduino instead of the 12v of the led strip so we can control the flow of electrical current in a high-power circuit with a low power circuit

WATER LEVEL

Ensures continuous water supply for irrigation pumps. Prevents pump operation when water levels are too low, protecting the pump from wasteful operation.

BUZZER

Real-time Monitoring: Continuously tracks water levels and sends alerts if levels are too low.
Durability: Built to withstand the agricultural environment.
immediate Alert: Ensures prompt response to low water levels, preventing pump damage



Our Sensors

Sensors used for this project



Our Sensors

Sensors used for this project

SOIL MOISTURE

Soil moisture is used to detect the amount of water in the soil, so it checks if it needs or not just to prevent it from dryness

WATER PUMP

if it detects low percentage of moisture, it enables the water pump otherwise it turns off the pump.

SERVO MOTOR

we used a laptop camera and integrated AI with it to protect crops from animals.

We used yoloV5 model for object detection.

On animal detection the door is closed using servo motor connected to the Arduino.

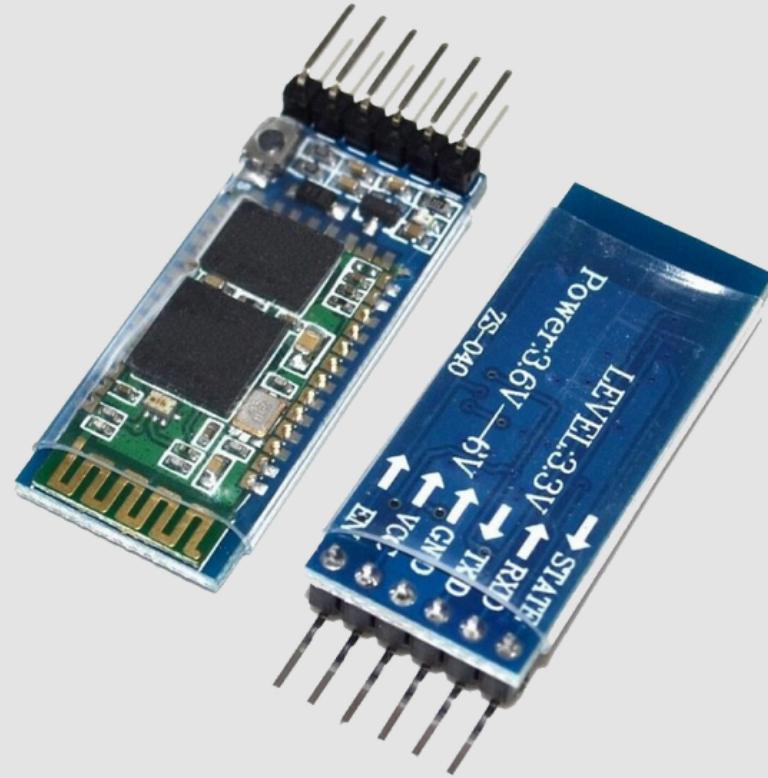


Our Sensors

Sensors used for this project



LAPTOP CAMERA



BLUETOOTH MODULE



Our Sensors

Sensors used for this project

LAPTOP CAMERA

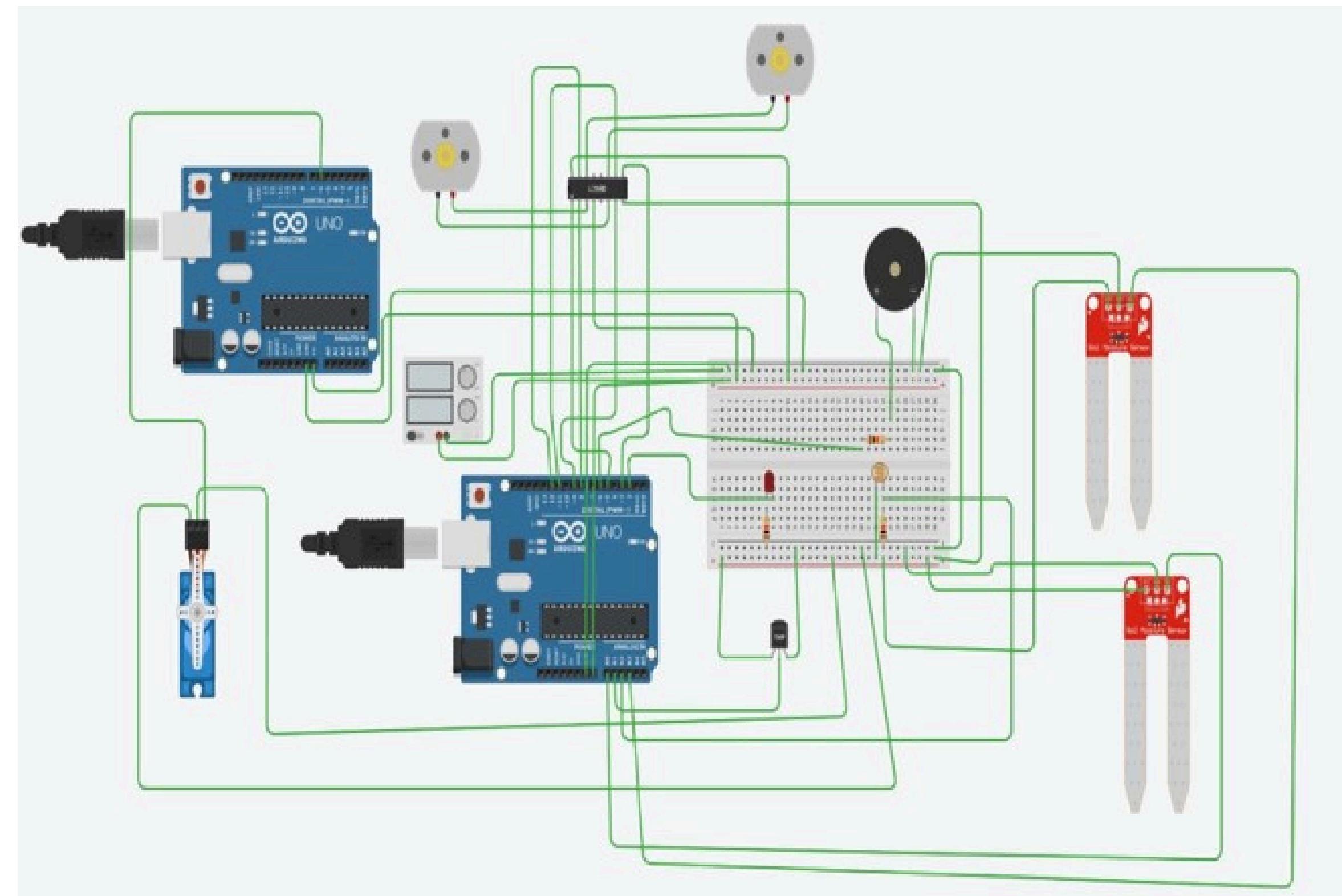
we used a laptop camera and integrated ai with it to protect crops from animals.

BLUETOOTH MODULE

we used hc05 to deliver DATA from our laptop to the Arduino wirelessly in case of animal detection.
HC05 uses UART protocol for communication.



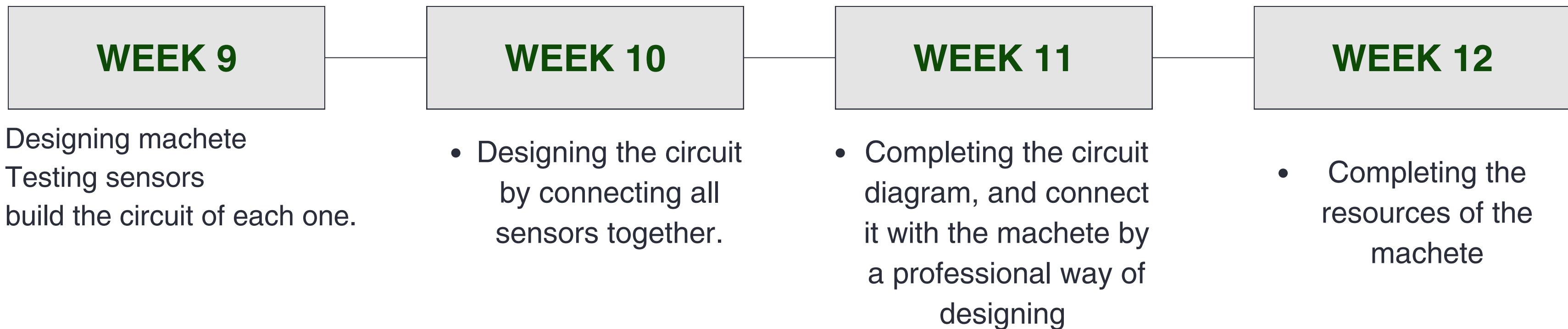
Our Circuit Diagram



Our Maquette



Our Cost Analysis



Our Cost Analysis

Water Pump	80
H-BRIDGE	85
TEMPERATURE SENSOR	60
ADAPTER 12V	100 X2
FAN	75
SOIL MOISTURE	60
PHOTO RESISTOR	20
5V RELAY	40

BUZZER	10
BLUETOOTH MODULE	250
MAQUETTE	500
LED STRIP	45
SERVO MOTOR	120
TOTAL	2300



Our Management Team



**Mohamed
Ayman**



**Mohaned
Mansour**



**Ahmed
Yasser**



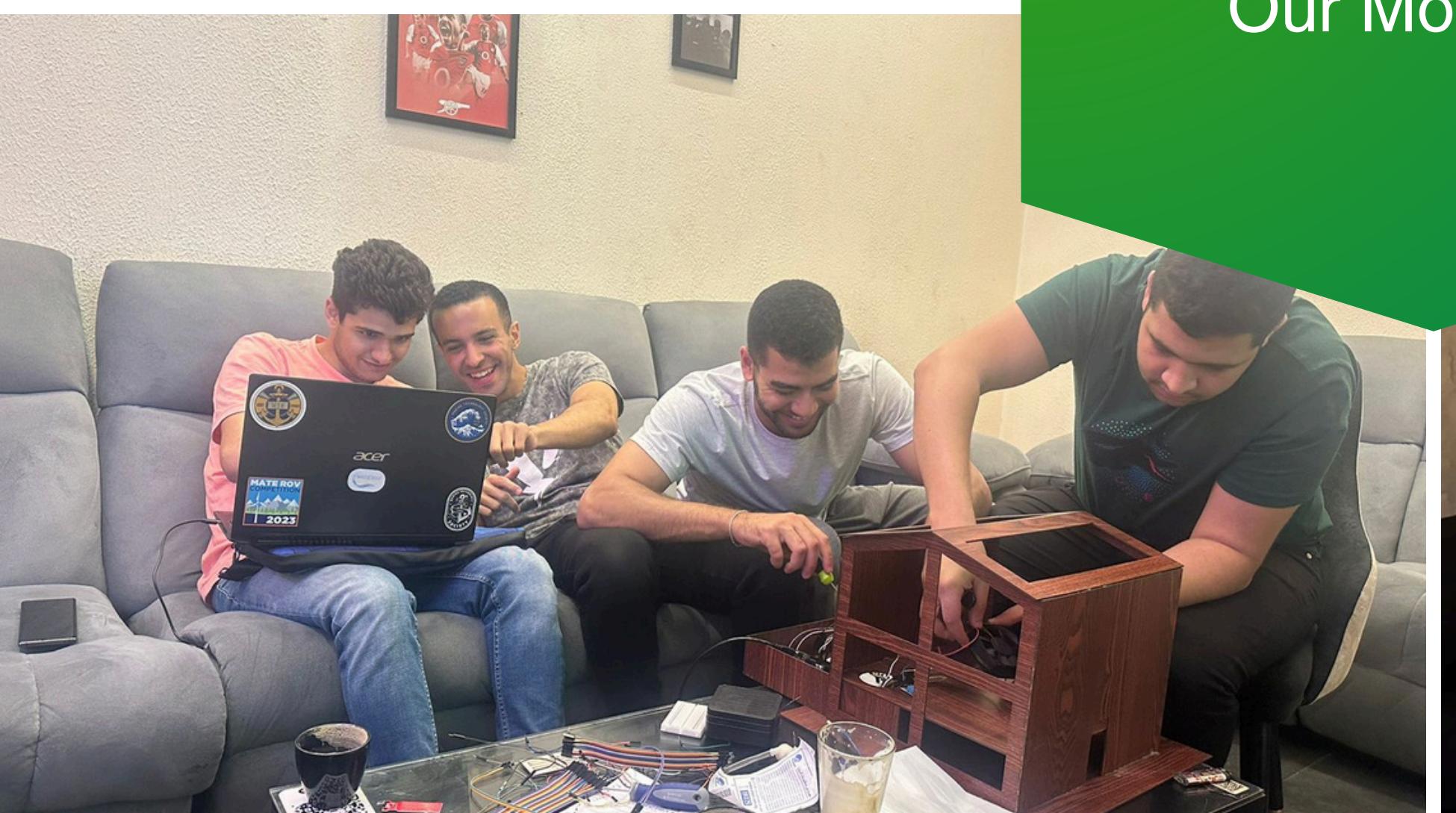
**Nabil
Tarrad**

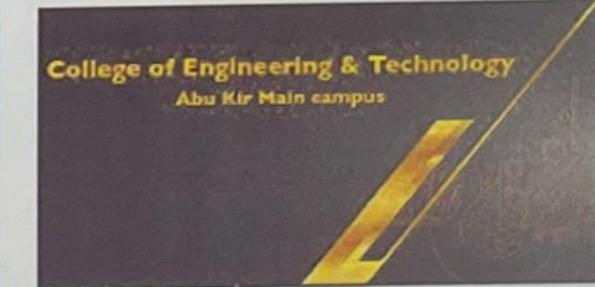


**Hazem
Tarek**



Our Moments





CERTIFICATE OF RECOGNITION

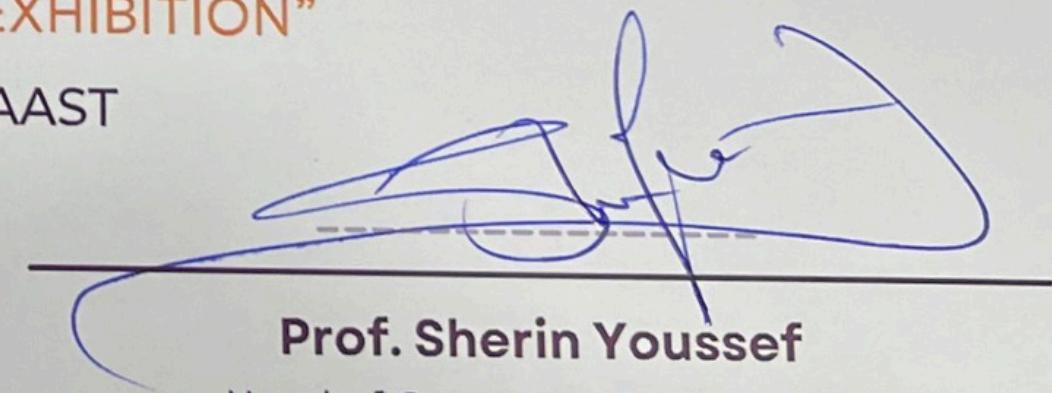
This certificate is proudly awarded to
**Ahmed Yasser, Hazem Tarek, Mohamed Ayman,
Mohanad Mansour, Nabil Taarad**

Project entitled

Automated Greenhouse

for Participating in the Student Data Acquisition Project Expo
“A ROBOT-BUILDING EXHIBITION”

6th June, 2024, AAST



Prof. Sherin Youssef

Head of Computer Engineering
Department, AAST main campus

Dear
DR Mohamed El Habrouk
DR Essam Seddik
Eng Reham Ahmed

,

We are writing as a team to express our heartfelt gratitude for your invaluable guidance and support throughout Data Acquisition Systems.

Your expertise, patience, and dedication have greatly enhanced our collective understanding and appreciation of the subject. We feel incredibly fortunate to have had the opportunity to learn from you, and we are deeply appreciative of the positive impact you have made on our academic journey. Thank you for your unwavering support and encouragement.

Warm regards,

