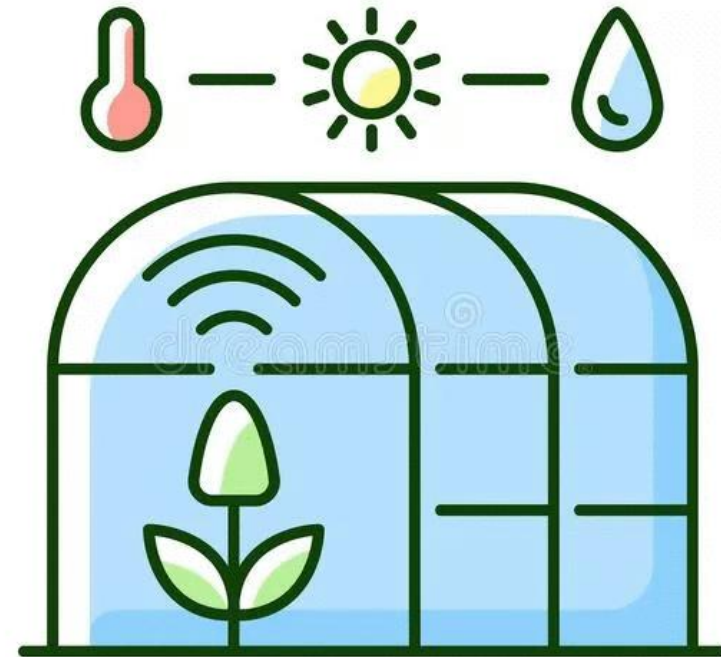


Smart Greenhouse

- **Names :** Ansam Shtaiwi
Donya Hamadneh
- **Supervisor :** Eng. Haya Samaneh





Outlines

- Introduction
- Motivations
- Constrains
- Letireture Review
- Used Tools -> (IOT)
- Project Sections :- Software Part(website)
- Hardware Part
- About ThingSpeak
- Result and descussion
- Conclusion and Future Work

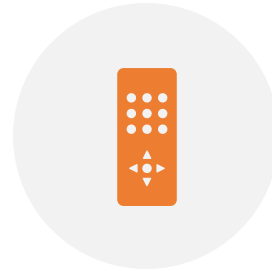
Introduction



GREENHOUSE



WEBSITE



REMOTE
CONTROL



SENSORS

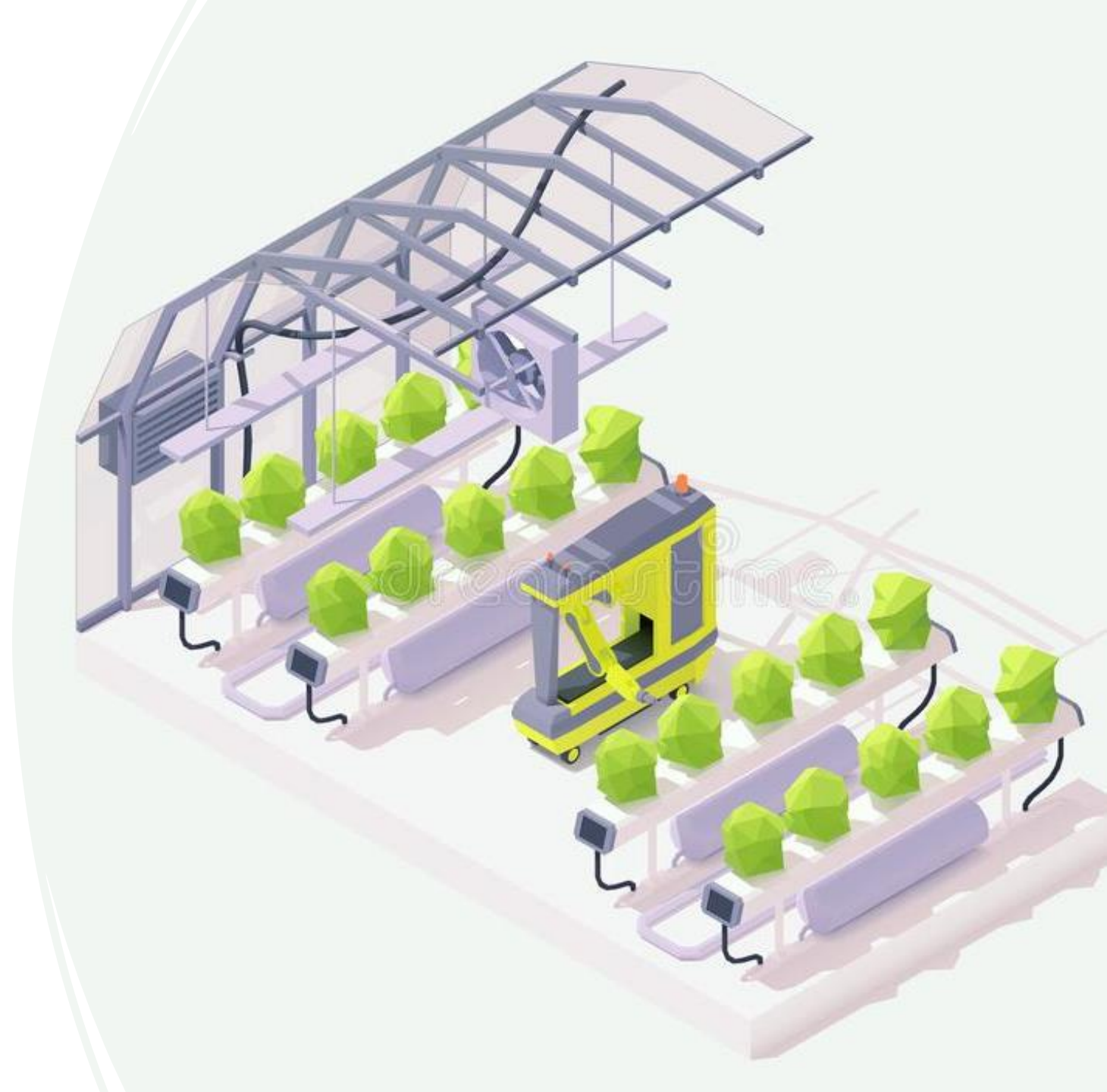
Motivation

- Effort
- Not in Palestine
- Improve crops
- Save time & water



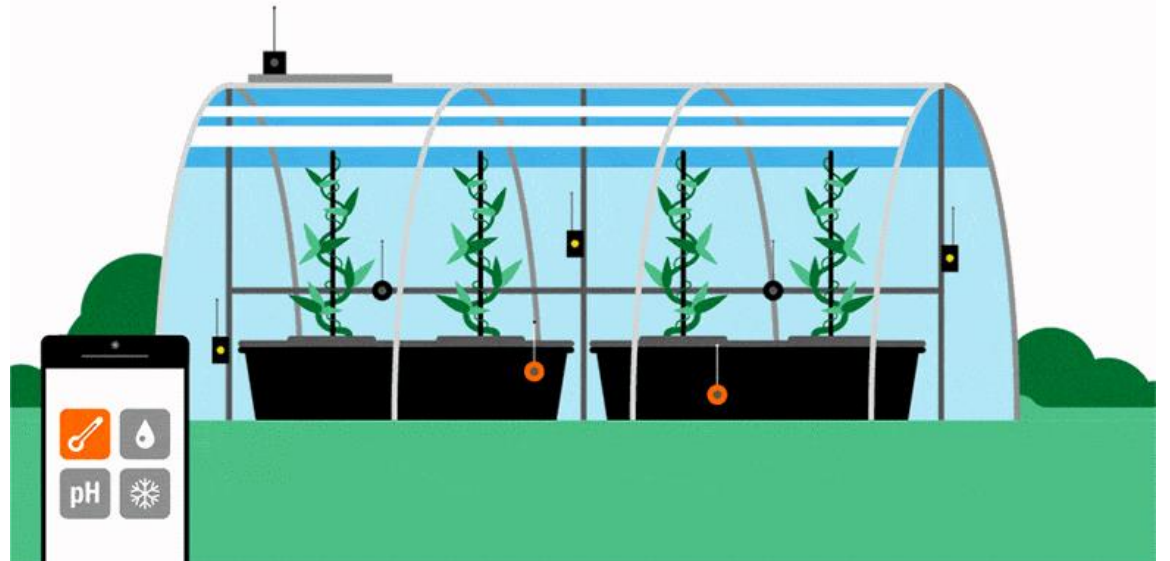
Constrains

- Corona virus
- Difficult to presence all components
- Arduino & IOT was new
- Weak Internet



Literature Review

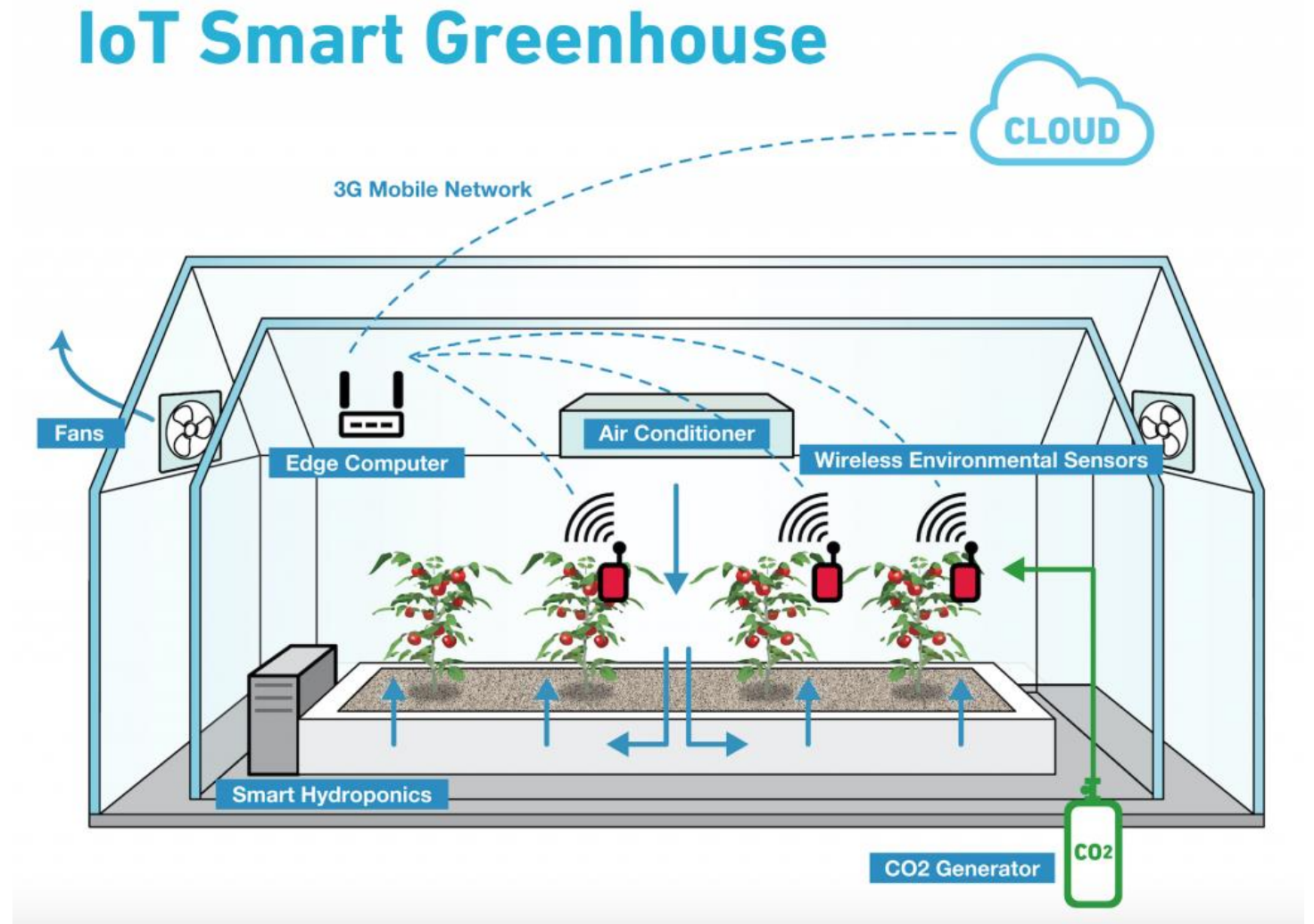
- Does not currently exist in Palestine
- Control the water pumps
- Located in technologically countries
- System in Gaza
- NNU Projects



Used Tools

Hardware Components:-

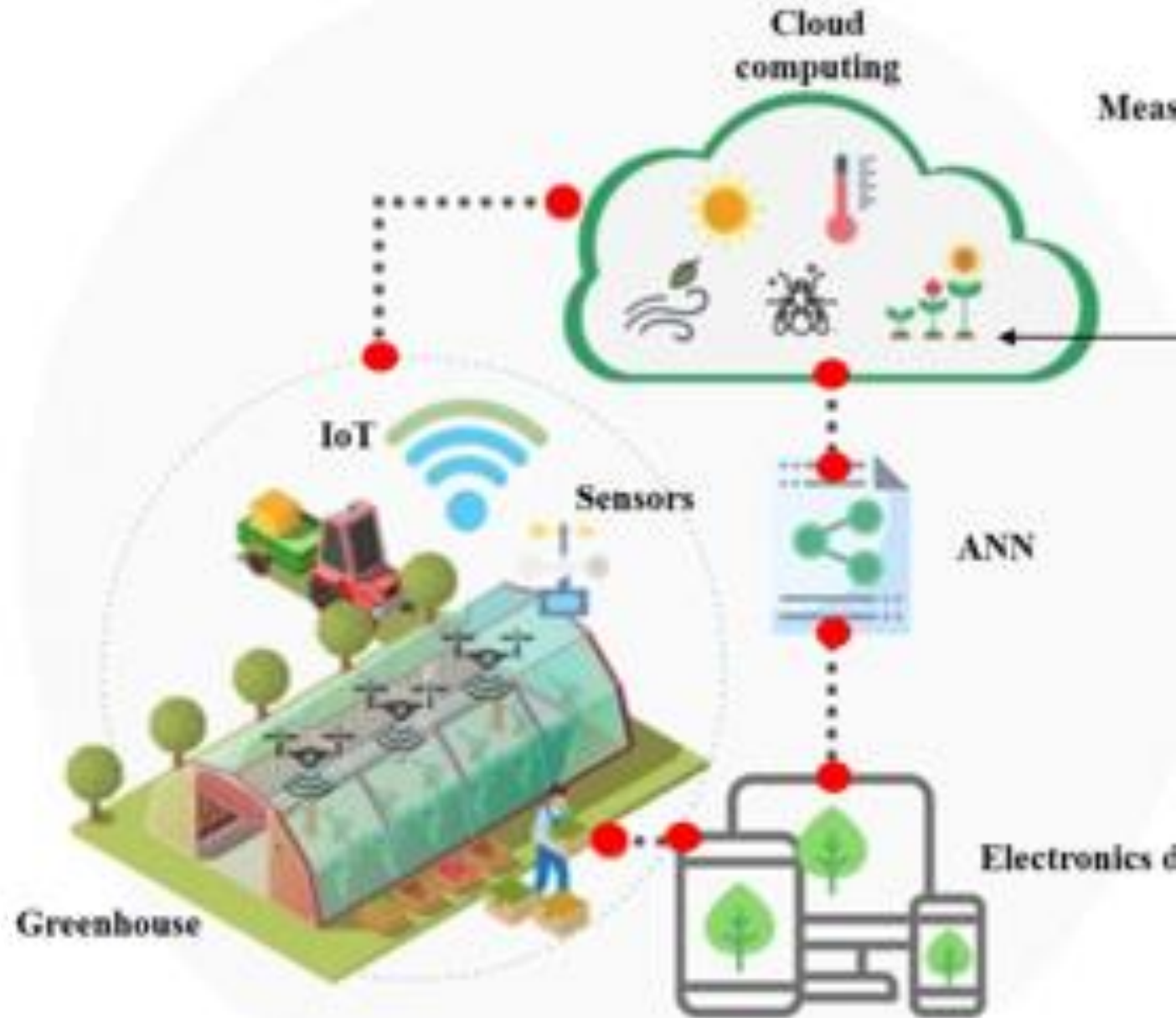
- Arduino UNO
- WIFI module(esp8266)
- Sensors(DHT22, LDR, Soil Moisture, MH water sensor)
- Peltier, fans, pumps, LEDs, cd rom/window, CPU cooler, power supply relays, wires.



Used Tools

Software developed

- Arduino IDE
- Wamp
- MySQL Database
- Thingspeak server
- Fritzing



- What IOT
- IOT Apps

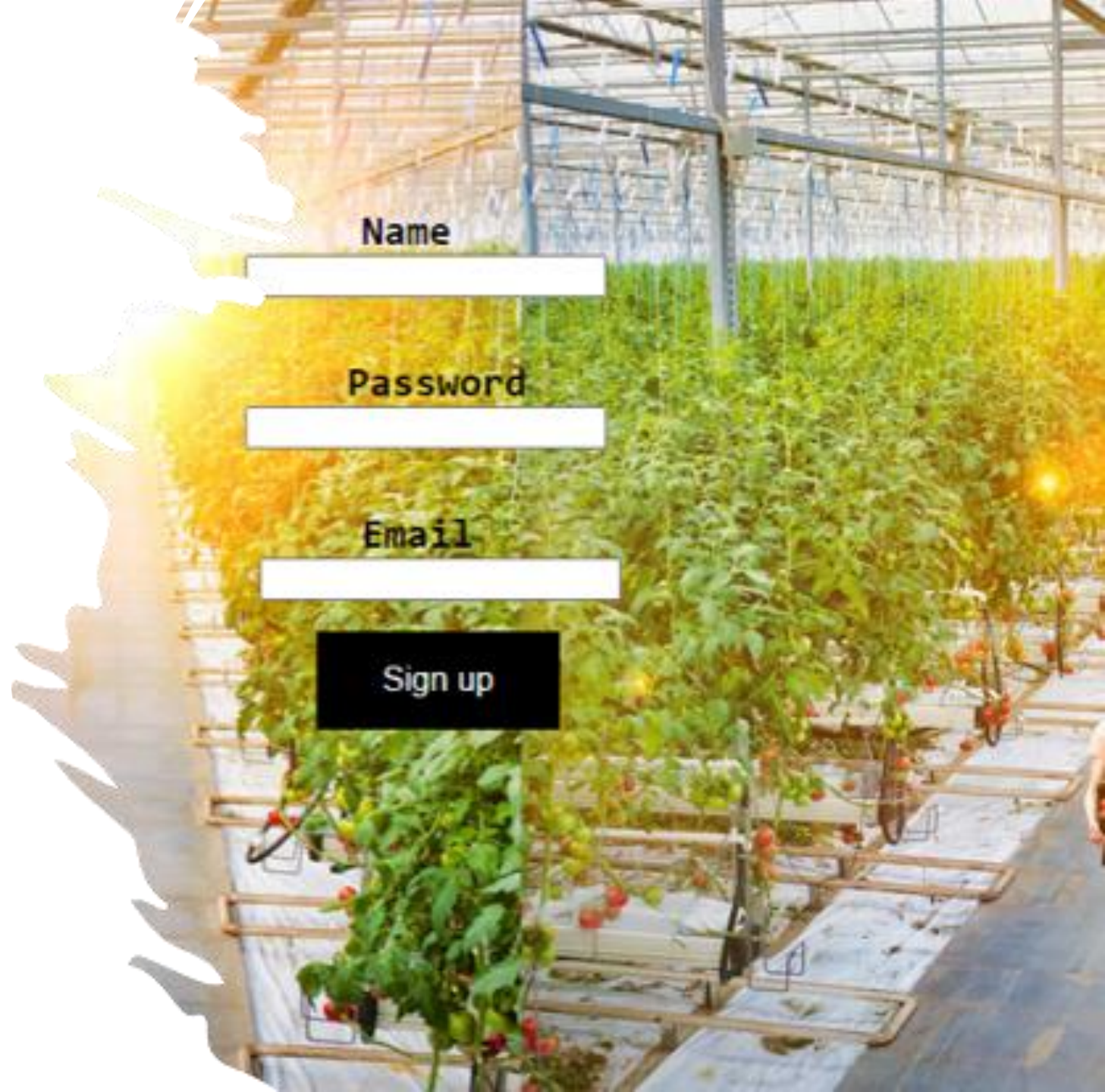


Software Part (Website)



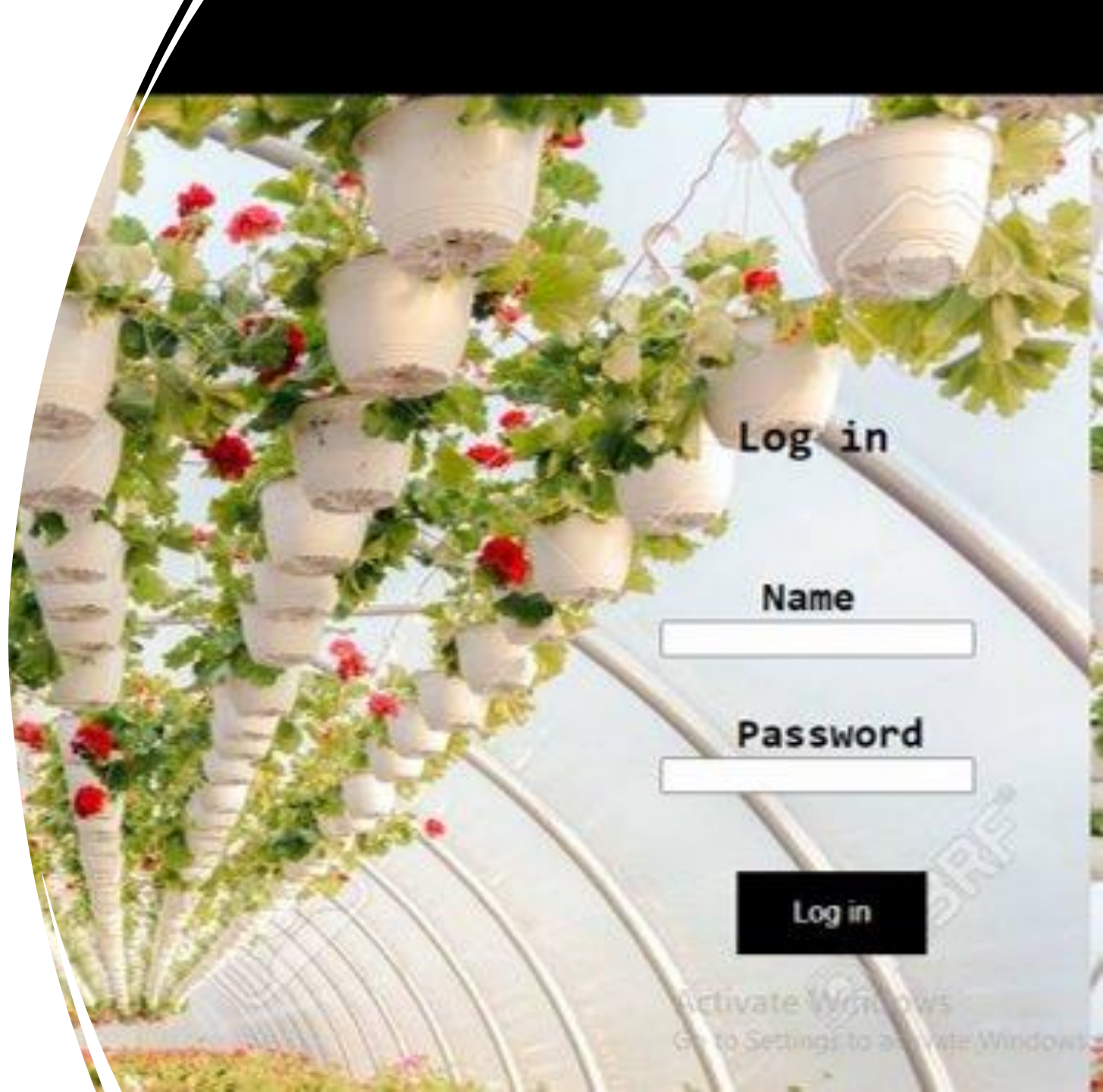
Sign Up Page

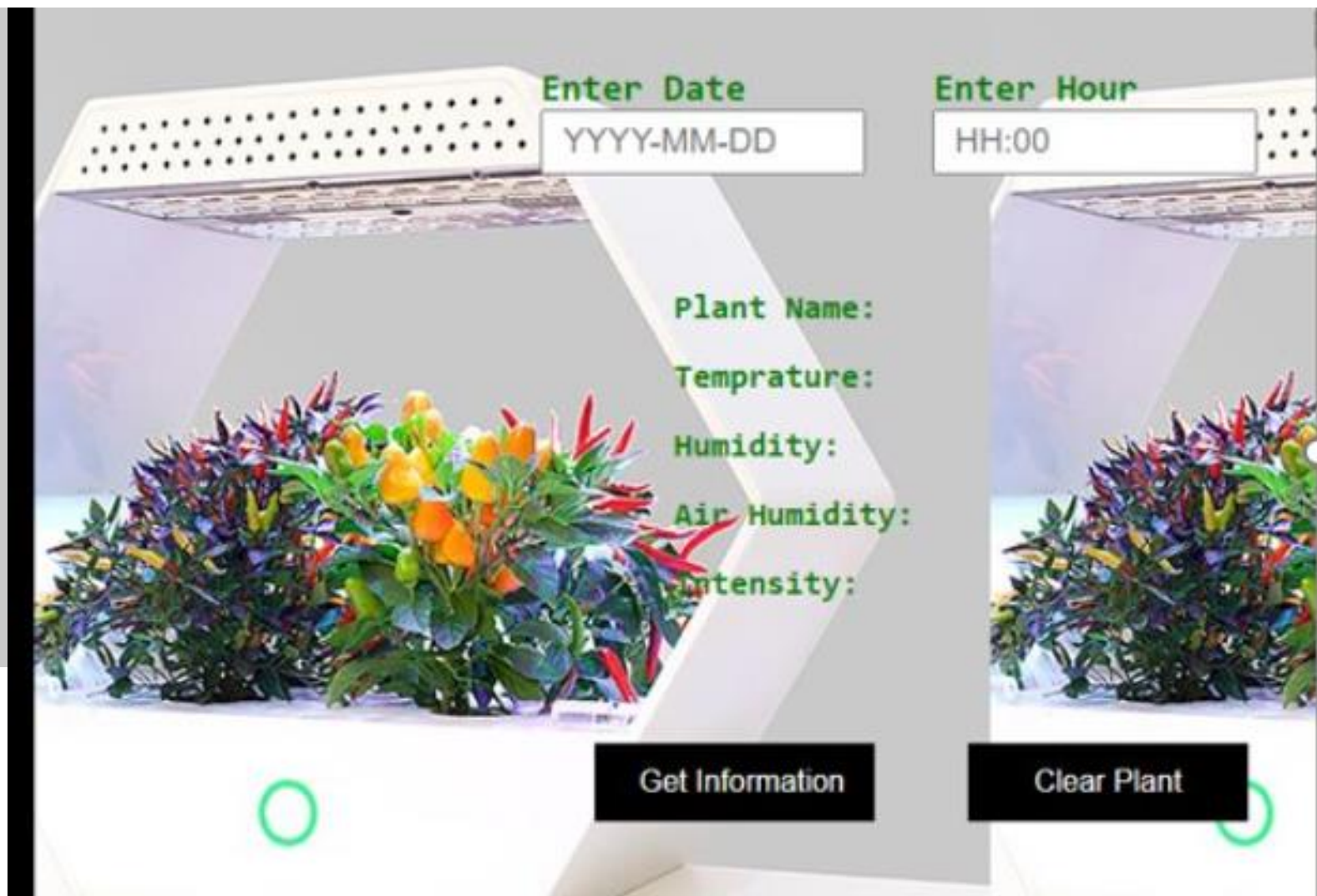
- Name
- Password
- Email



Login Page

- Name
- Password





Monitoring Page

Plant Name:

Min Air Humidity:

Min Temperature:

Max Air Humidity:

Max Temperature:

Min Intensity:

Min Humidity:

Max Intensity:

Max Humidity:

Submit

انقر لإضافة نص

New Plant

- Suitable conditions for plants

Delete Plant

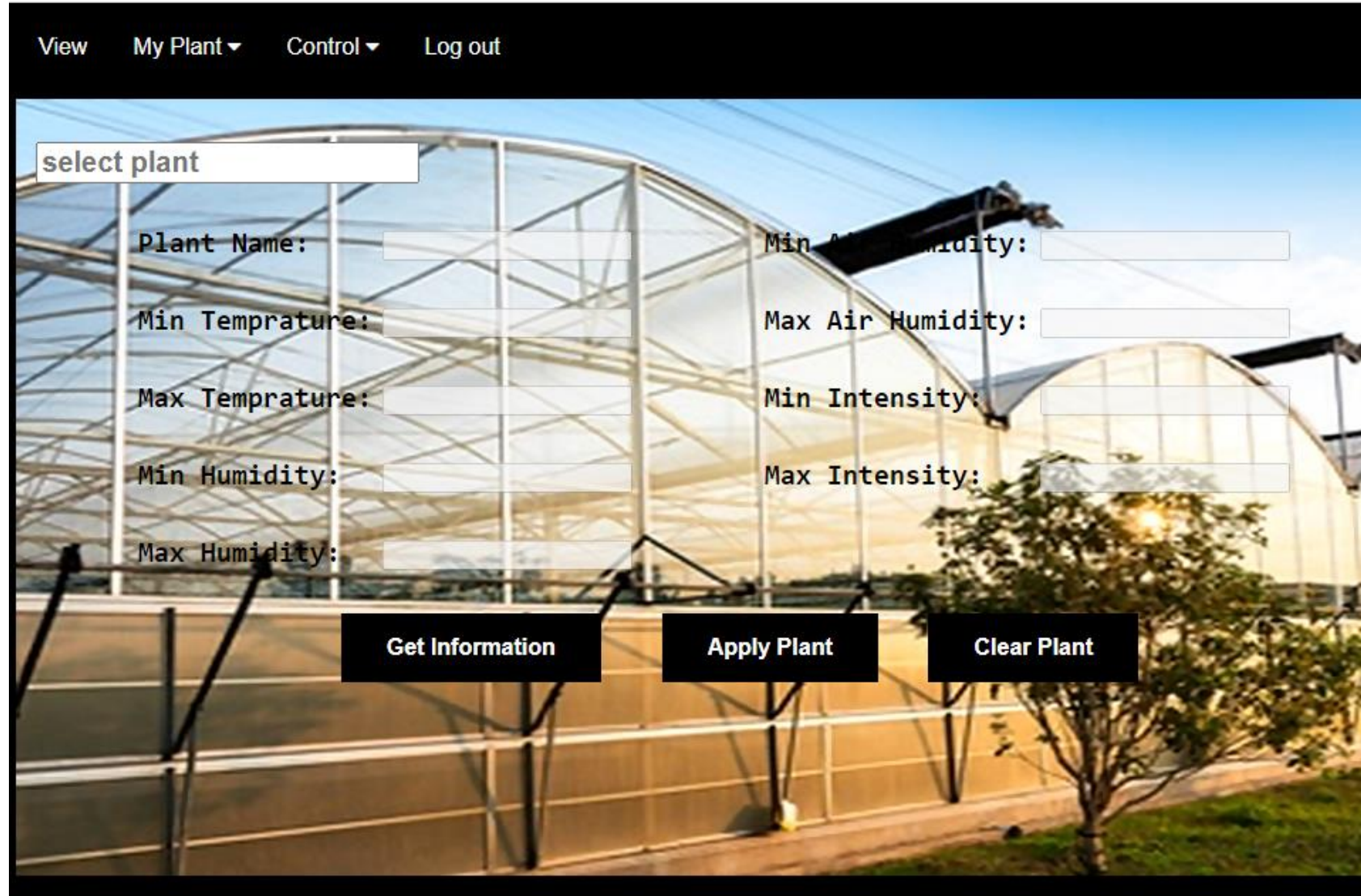
- Plant name





Control Manually Page

Automatic Control



View My Plant Control Log out

select plant

Plant Name:

Min Temperature:

Max Temperature:

Min Humidity:

Max Humidity:

Min Air Humidity:

Max Air Humidity:

Min Intensity:

Max Intensity:

Get Information Apply Plant Clear Plant

Login DataBase

+ Options

adminname	password	email ▼ 1
donya	1234	donya@gg.com
Donya	12345	do.ham@aa.com
ansam	0000	ansam@gg.com
Ansam	013579	a.sht@gg.com

	#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
☐	1	name	varchar(50)	ucs2_unicode_ci		No	None			 Change  Drop ▼ More
☐	2	pass	varchar(50)	ucs2_unicode_ci		No	None			 Change  Drop ▼ More
☐	3	email 	varchar(80)	ucs2_unicode_ci		No	None			 Change  Drop ▼ More

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
☐	1	plantname 	varchar(80)	ucs2_unicode_ci		No	None		 Change  Drop  More
☐	2	mintemp	int(11)		No	None			 Change  Drop  More
☐	3	maxtemp	int(11)		No	None			 Change  Drop  More
☐	4	minhum	int(11)		No	None			 Change  Drop  More
☐	5	maxhum	int(11)		No	None			 Change  Drop  More
☐	6	minairhum	int(11)		No	None			 Change  Drop  More
☐	7	maxairhum	int(11)		No	None			 Change  Drop  More
☐	8	minintensity	int(11)		No	None			 Change  Drop  More
☐	9	maxintensity	int(11)		No	None			 Change  Drop  More

plantname	mintemp	maxtemp	minhum	maxhum	minairhum	maxairhum	minintensity	maxintensity
pepper	20	35	75	85	60	70	55	65
watermelon	21	40	55	65	75	85	65	75
Eggplant	21	25	24	36	85	94	47	56
cucumber	7	25	24	36	90	100	47	56
Tomato	21	29	55	65	85	95	75	85

Database
plant

	#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
☐	1	plantname	varchar(11)	ucs2_unicode_ci		No	None			Change Drop More
☐	2	temp	int(8)			No	None			Change Drop More
☐	3	hum	int(8)			No	None			Change Drop More
☐	4	airhum	int(8)			No	None			Change Drop More
☐	5	intensity	int(8)			No	None			Change Drop More
☐	6	hour	varchar(80)	ucs2_unicode_ci		No	None			Change Drop More
☐	7	date	varchar(20)	ucs2_unicode_ci		No	None			Change Drop More

+ Options

plantname	temp	hum	airhum	intensity	hour	date	▼ 1
Tomato	26	84	54	41	00:00	2021-06-04	
Tomato	27	12	60	36	18:00	2021-06-03	
Tomato	25	76	66	52	21:00	2021-06-03	
Eggplant	28	97	49	64	15:00	2021-06-01	
Eggplant	24	37	61	45	09:00	2021-06-01	

Date info

Hardware part:



- **Sensors**
- **Devices**
- **Connectors**
- **Circuits**
- **Greenhouse Model**
- **ThingSpeak**
- **Final Model**

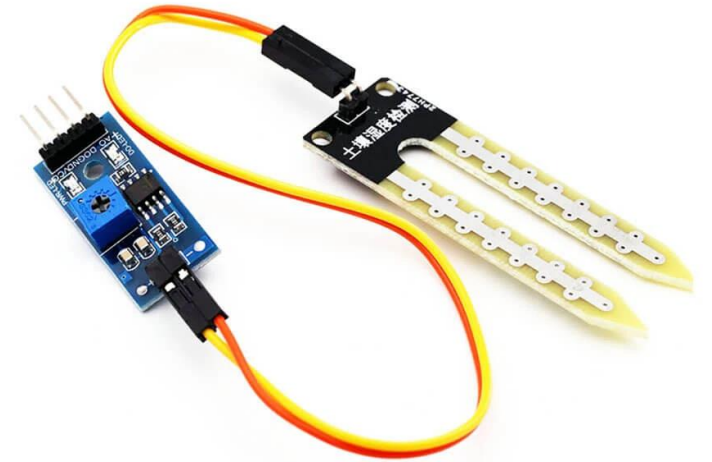
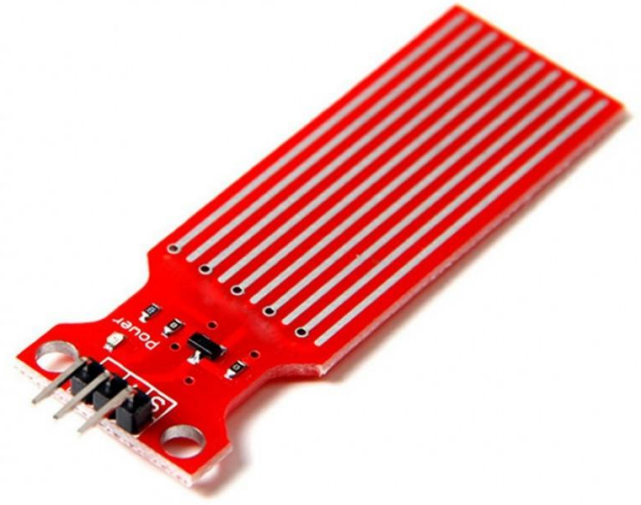
Sensors

- DHT Sensor
- LDR



Sensors

- Soil moisture sensor
- Water Sensor



Devices

- Peltier unit
- Fans



Devices

- LED strip
- Pumps



Devices

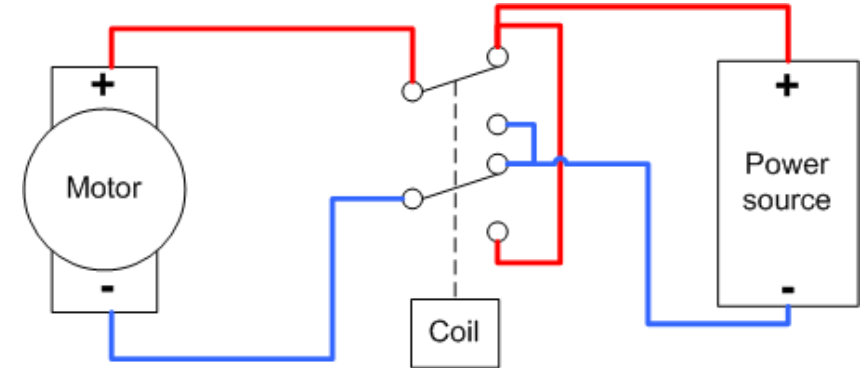
- CPU cooler
- CD ROM



Devices

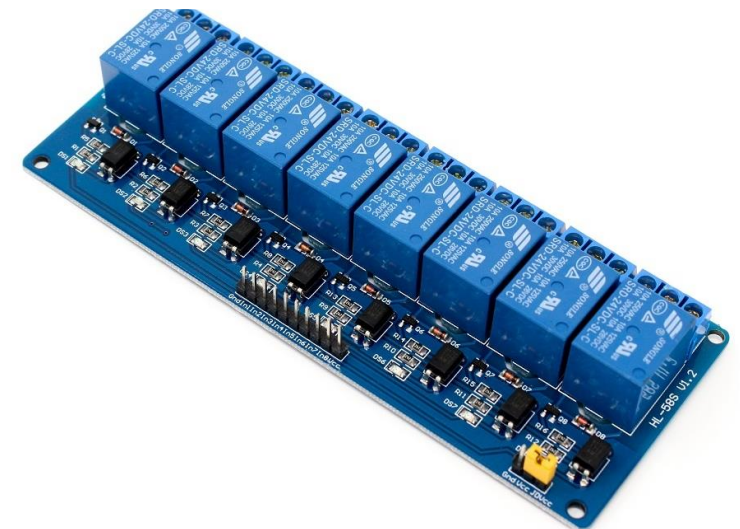
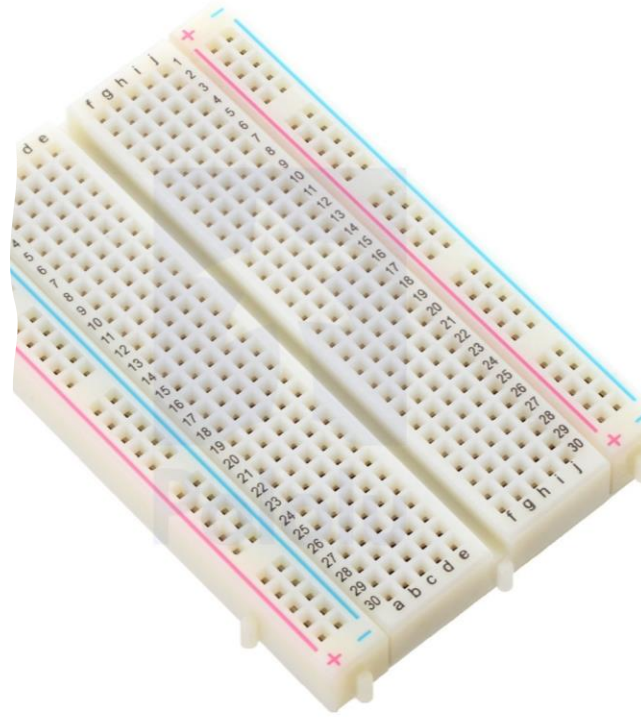


- CD ROM



Connectors

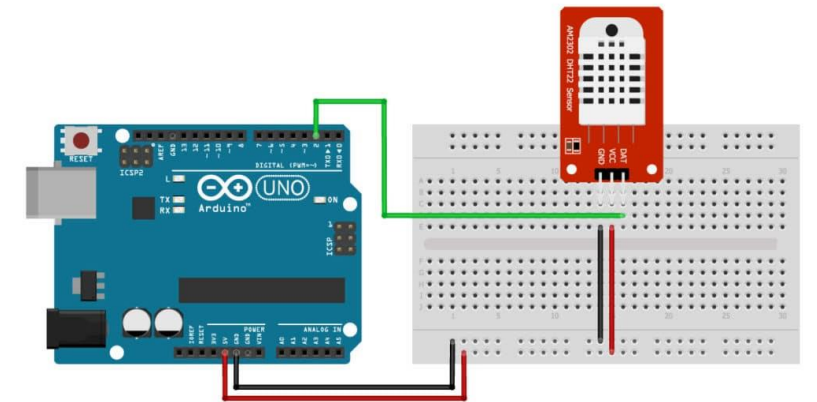
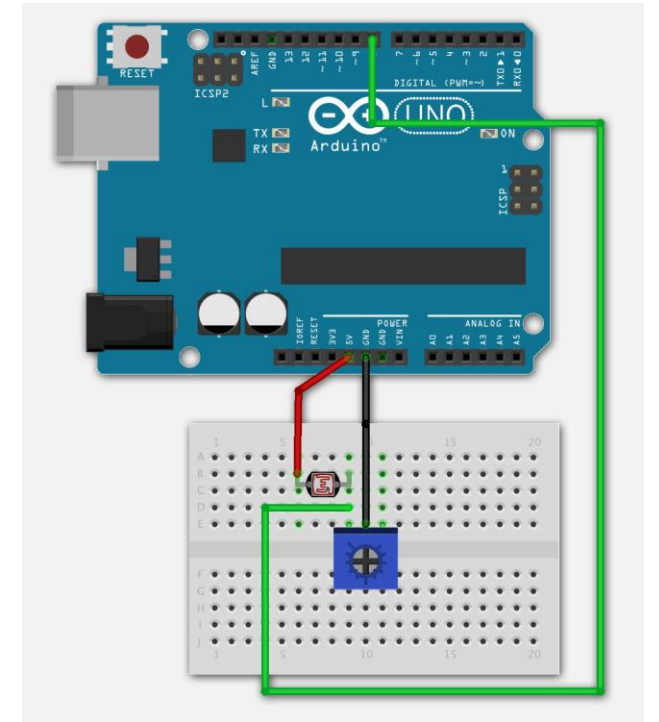
- Arduino UNO
- 8Channel relays
- Breadboard
- WiFi module ESP8266



Circuits

Sensor Circuits

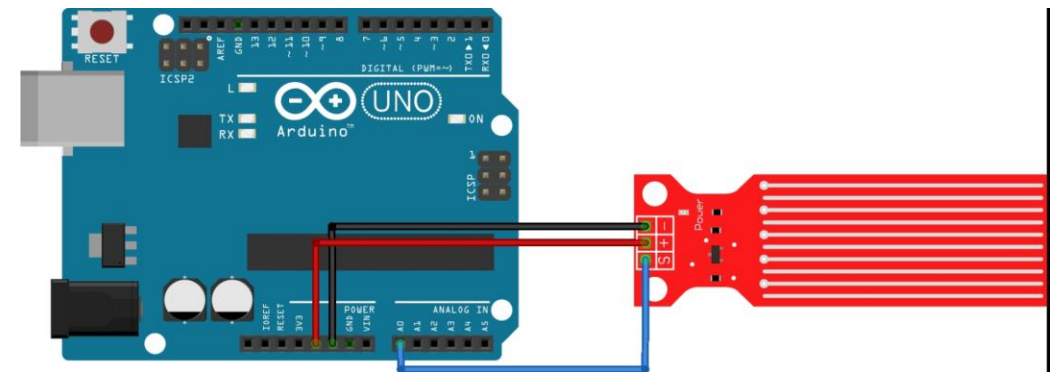
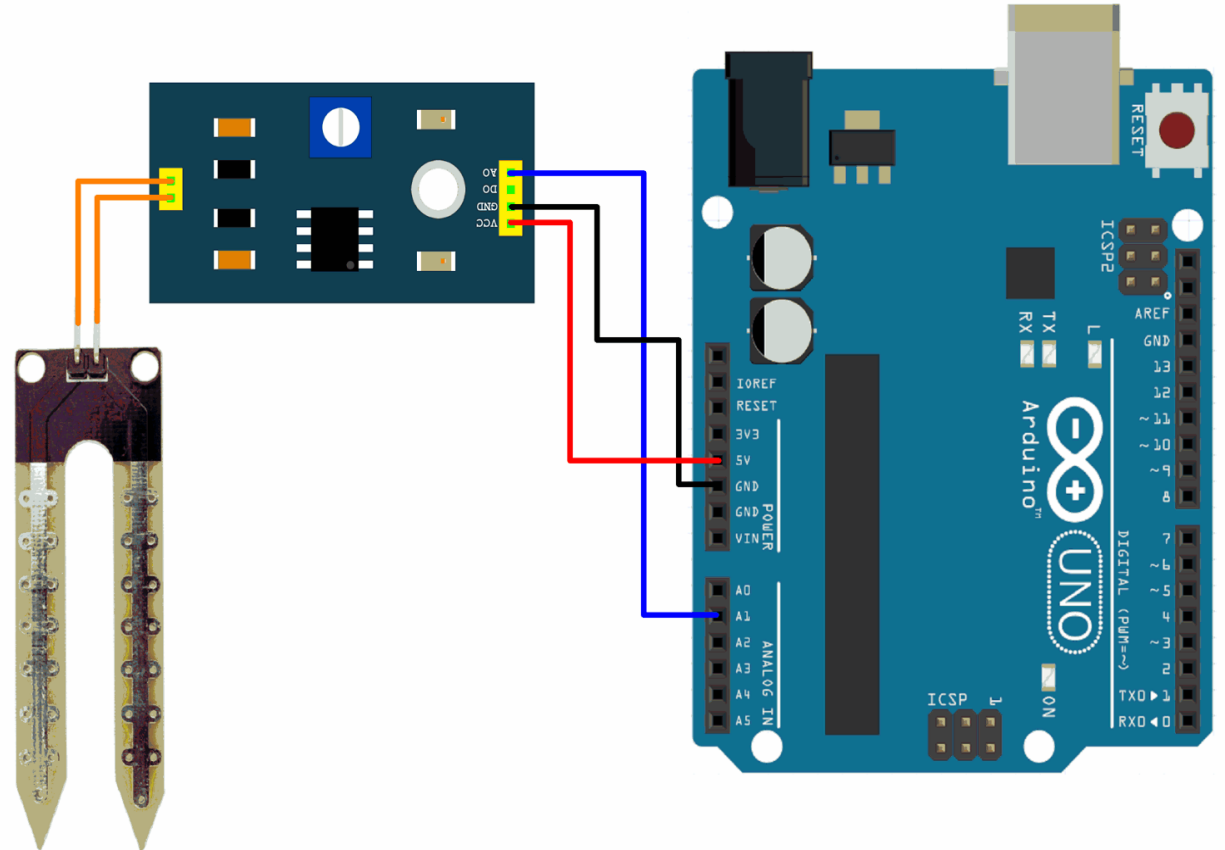
- LDR Circuit
- DHT Circuit



Circuits

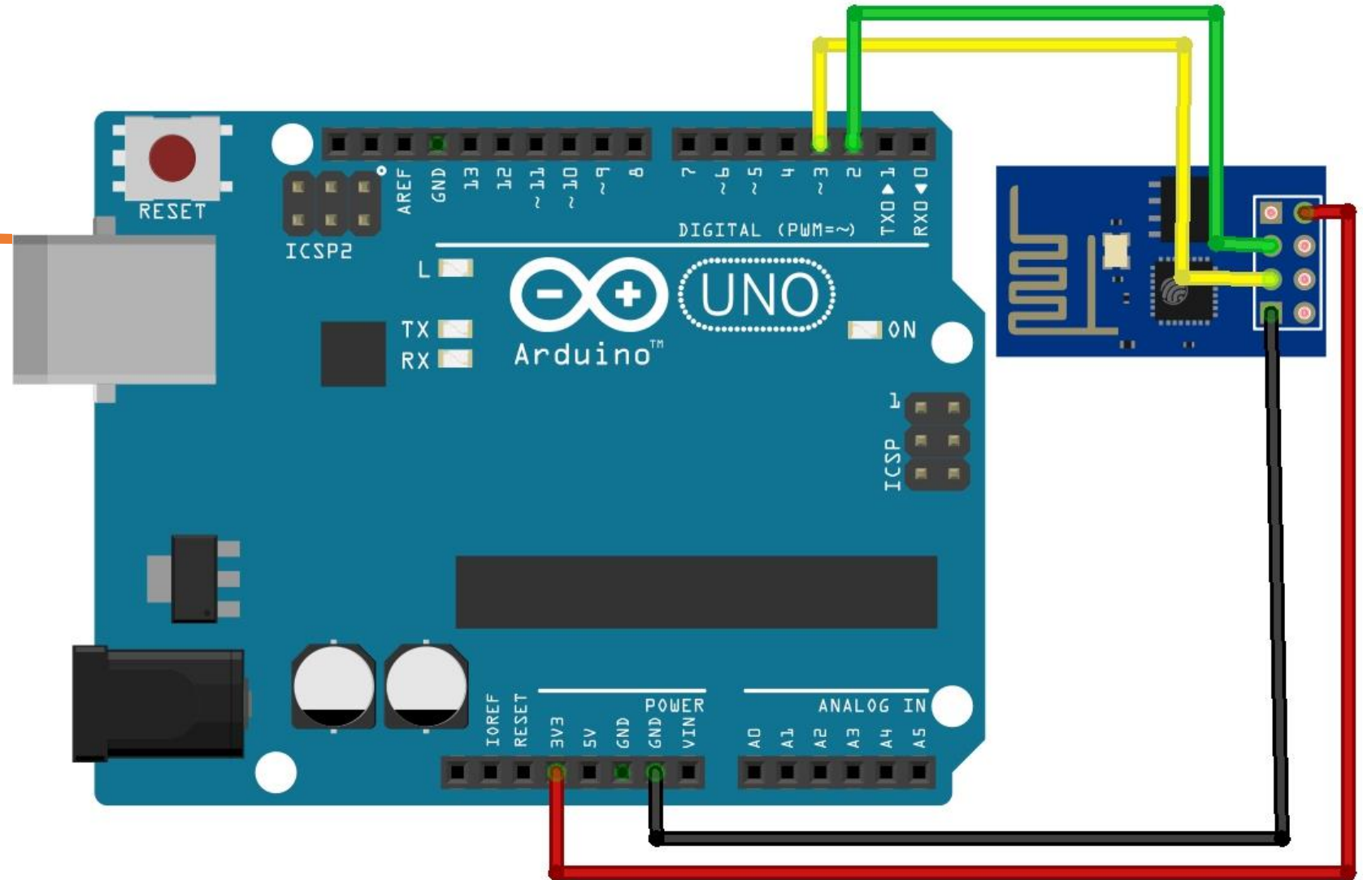
Sensor Circuits

- Soil Moisture Circuit
- Water Sensor Circuit



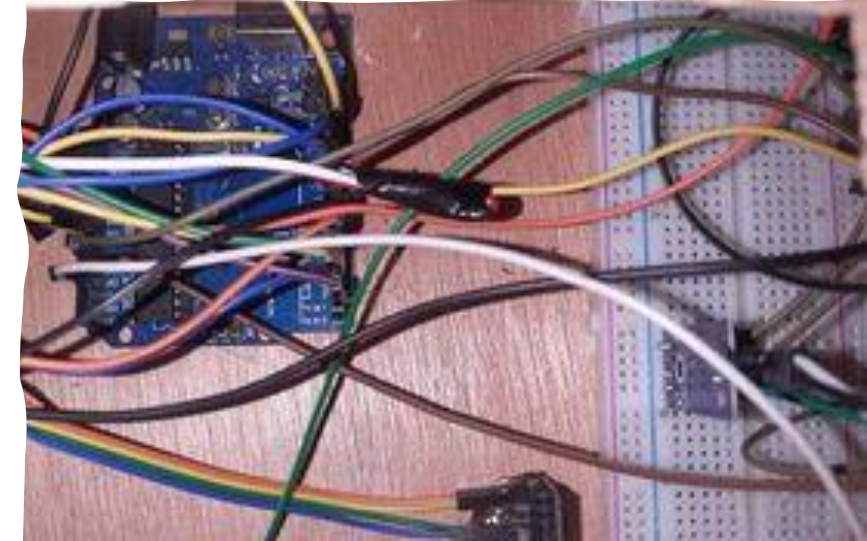
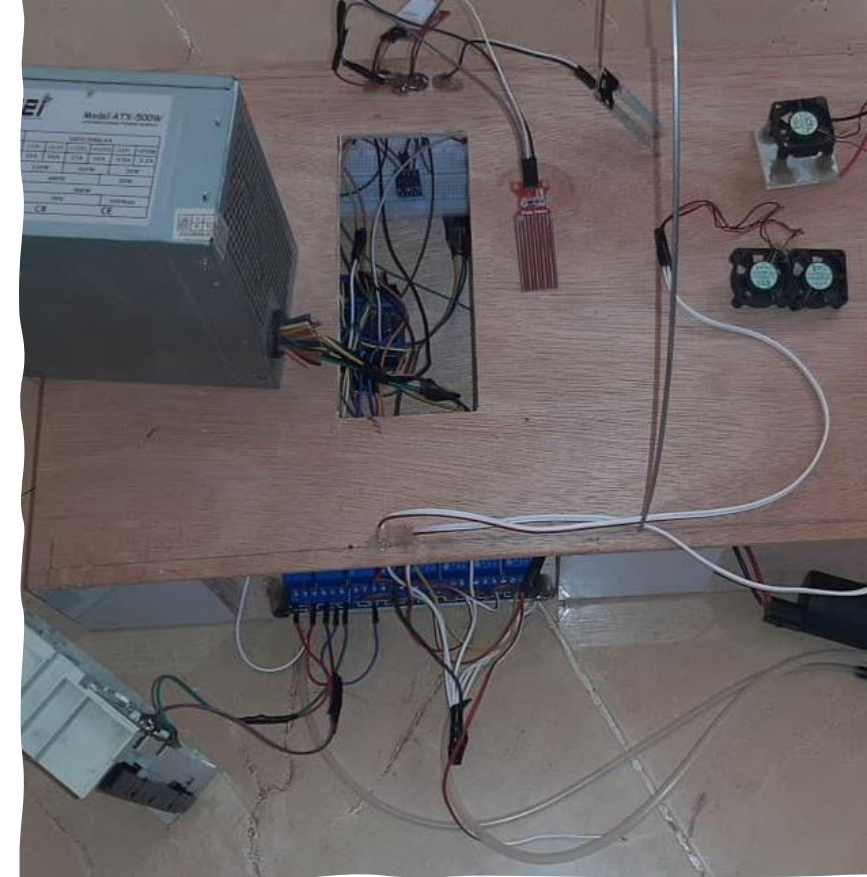
Circuits

- WiFi Module Circuit

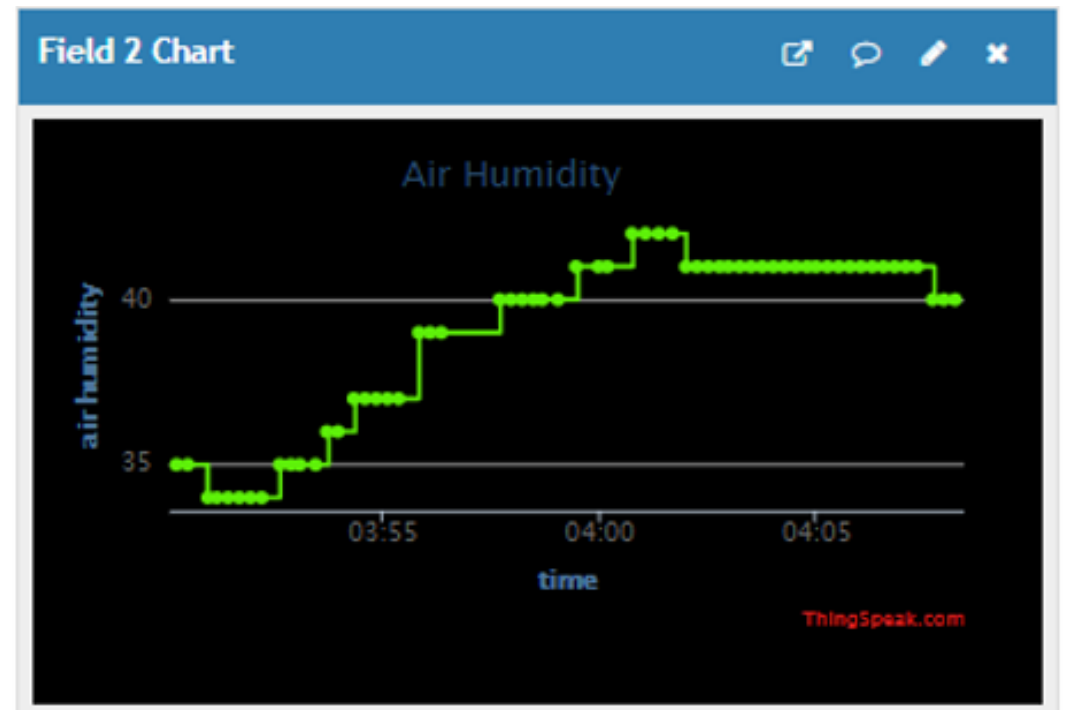
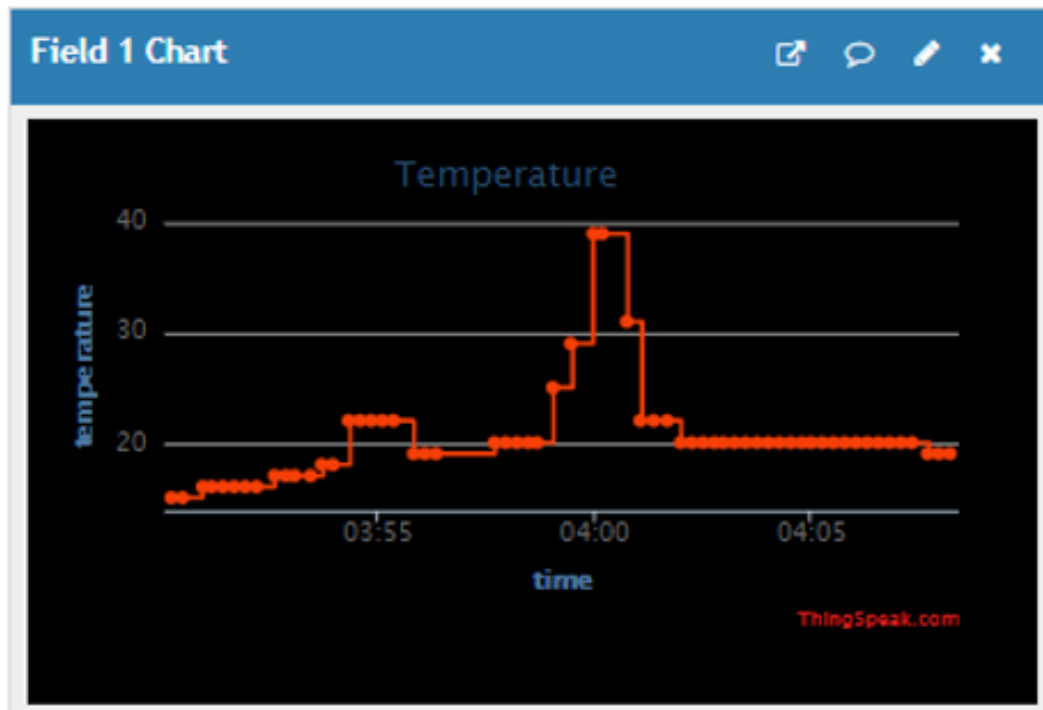


Circuits

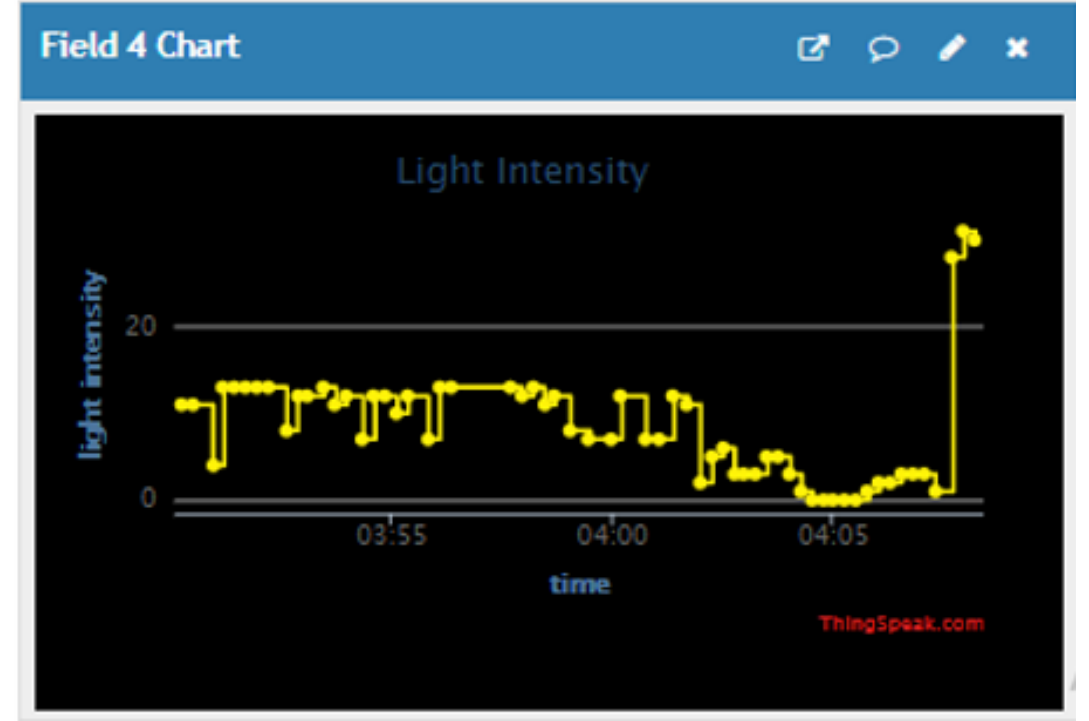
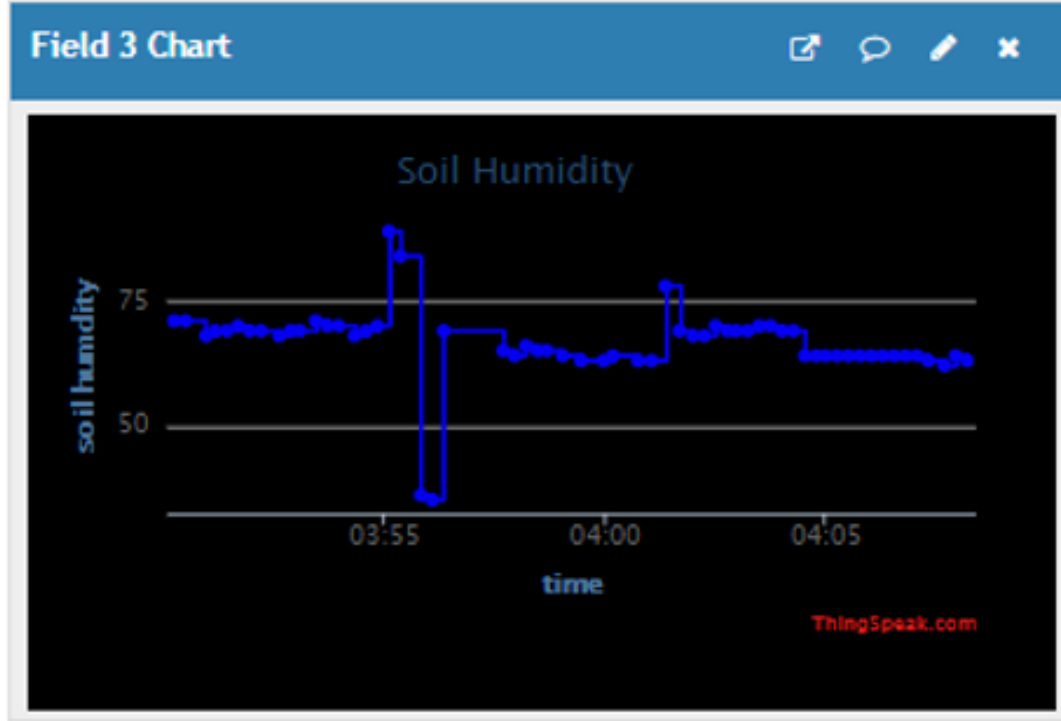
- Final Circuits



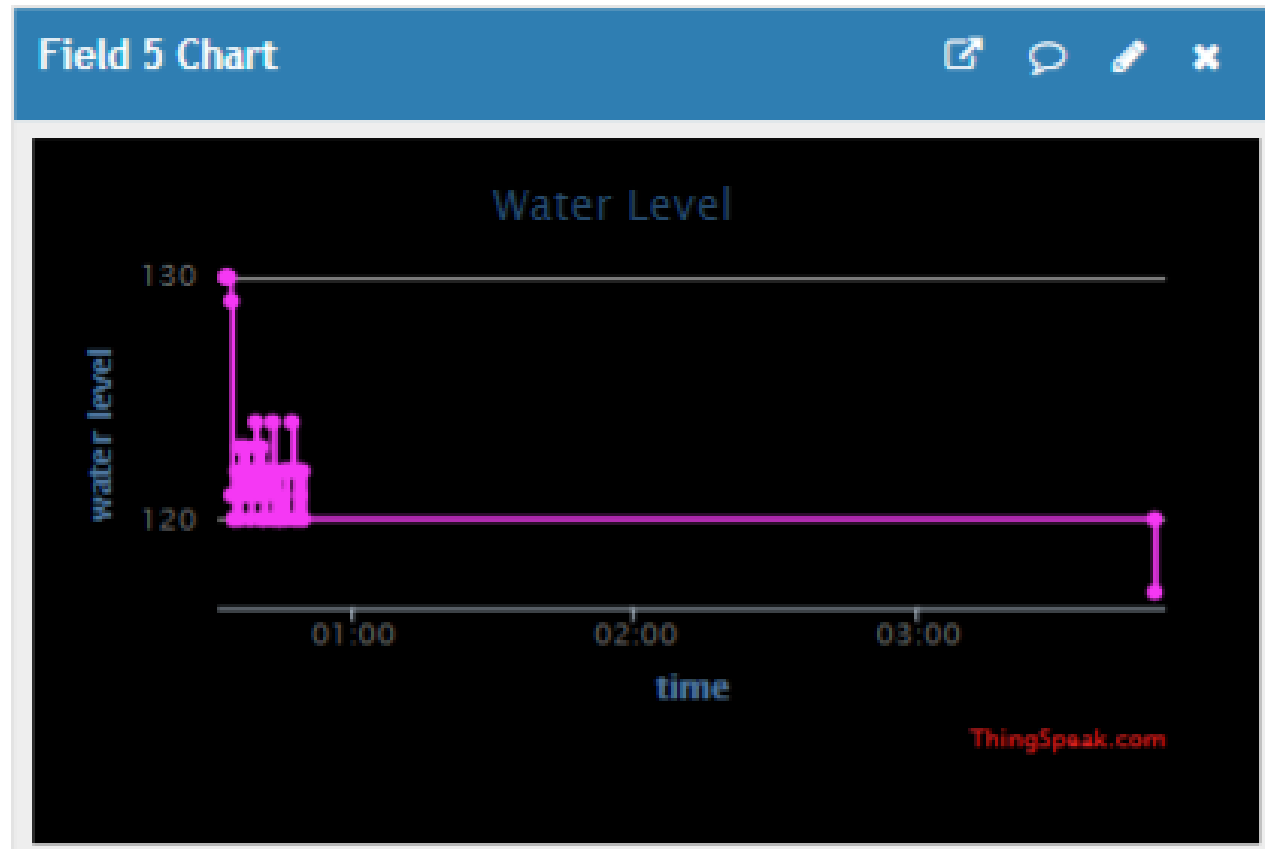
ThingSpeak



ThingSpeak



ThingSpeak



Greenhouse Model



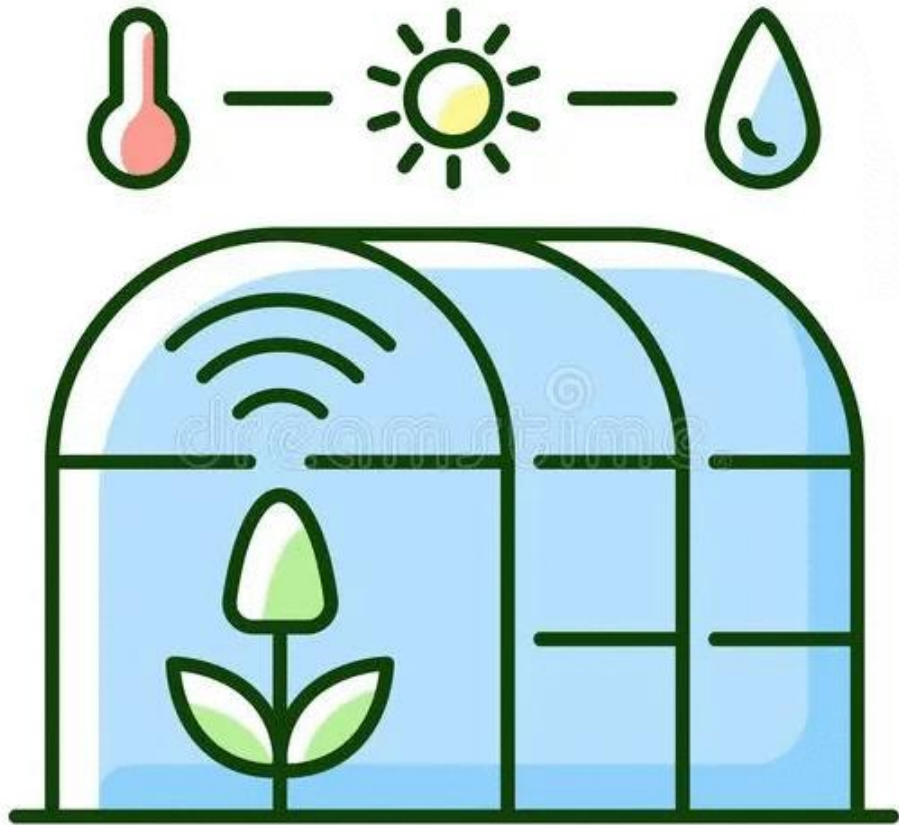
Result and Dscussion

- Crop safty
- Improve products
- Easy control
- Perfect climate
- Save time, effort and water



Conclusion

- For Palestine
- Help farmers
- Remote control
- Manual & Automatic
- User friendly website



Future work

- Digital image processing and artificial intelligence
- fertilization system
- Disease prediction

Thank You

