SIMULATION OF AN IoT BASED GREENHOUSE USING AR

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Benefits of An Automated Greenhouse

- Can Reduce the Labor cost
- Growers can remotely monitor
- Create ideal environments
- Increase quality and yield
- Save Time
- Increase Energy efficiency

RESEARCH PROBLEM

Why Don’t Go For an Automated one?

- High cost
- Difficulty in Introduction of this new concept
- Reluctant to invest money on unfamiliar technology
- Hesitance to embrace the technology

SOLUTION

SOLUTION

- **Simulating an IoT based greenhouse from an AR Application**
- **Give a Firsthand Experience**

Why Augmented Reality?

- Portable
- Cost effective
- Interactive experience

RESEARCH GAP

- As Per to several literature reviews there aren't any existing AR simulators for IoT Based Greenhouses.
- **EXIST** AR applications and IoT Based Greenhouses.
- But **No** any combinations

MAIN OBJECTIVE

- **Simulating an IoT based Greenhouse which gives a firsthand experience to the farmers who are having TRADITIONAL greenhouses.**

Simulate What?

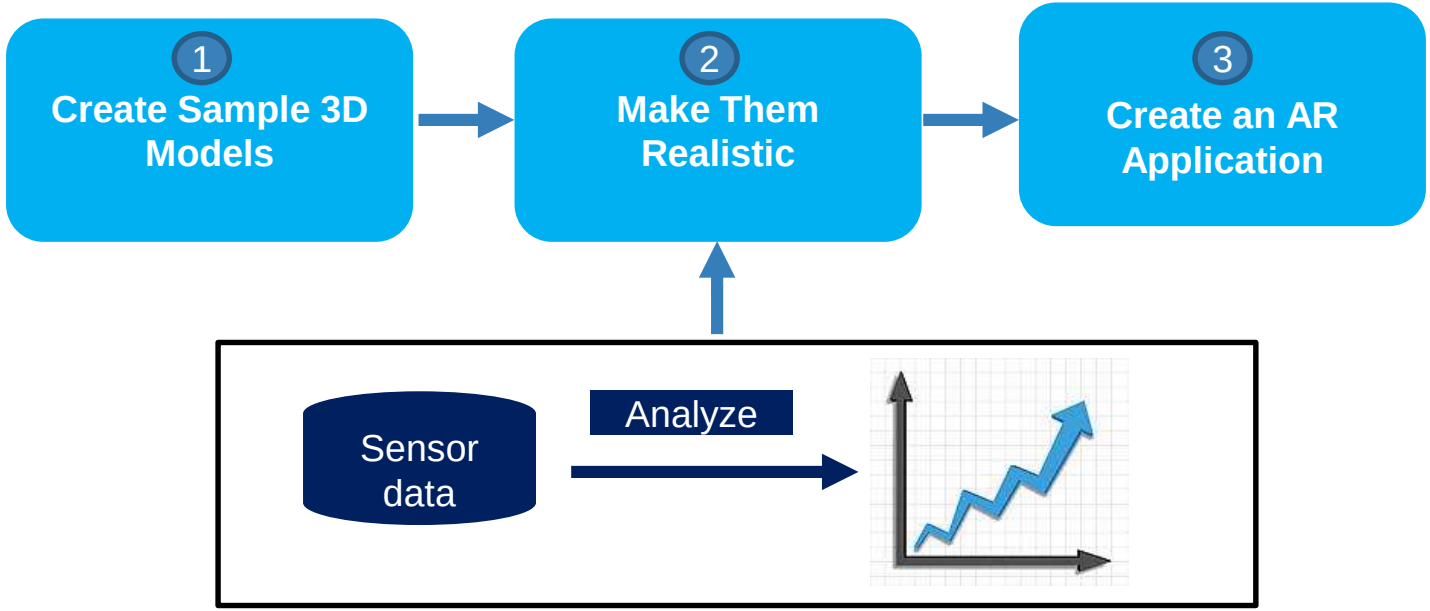
Firsthand experience would be given on following factors.

- **Temperature**
- **Humidity**
- **Light**
- **Soil Moisture**

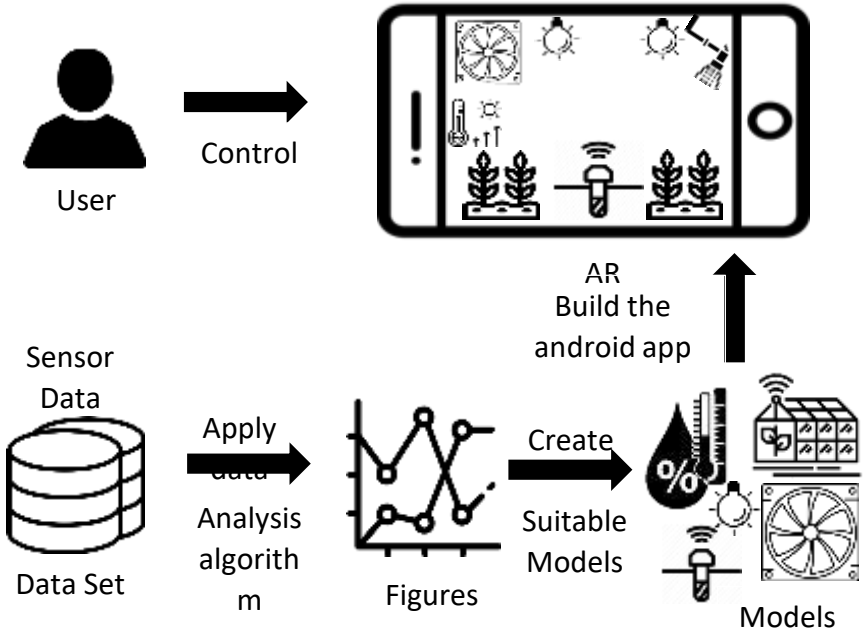
What We Need ?

We need data sets collected from Humidity sensors, Light sensors, Soil moisture sensor and Temperature sensor

METHODOLOGY



High Level Diagram



FINAL OUTCOME

Final outcome would be an AR Application to visualize the how environmental variables are controlled in automated/iot based greenhouses.

Software Requirements and Technologies

- Blender
- 3D Maya
- Unity
- Python
- Rstudio
- Vuforia SDK

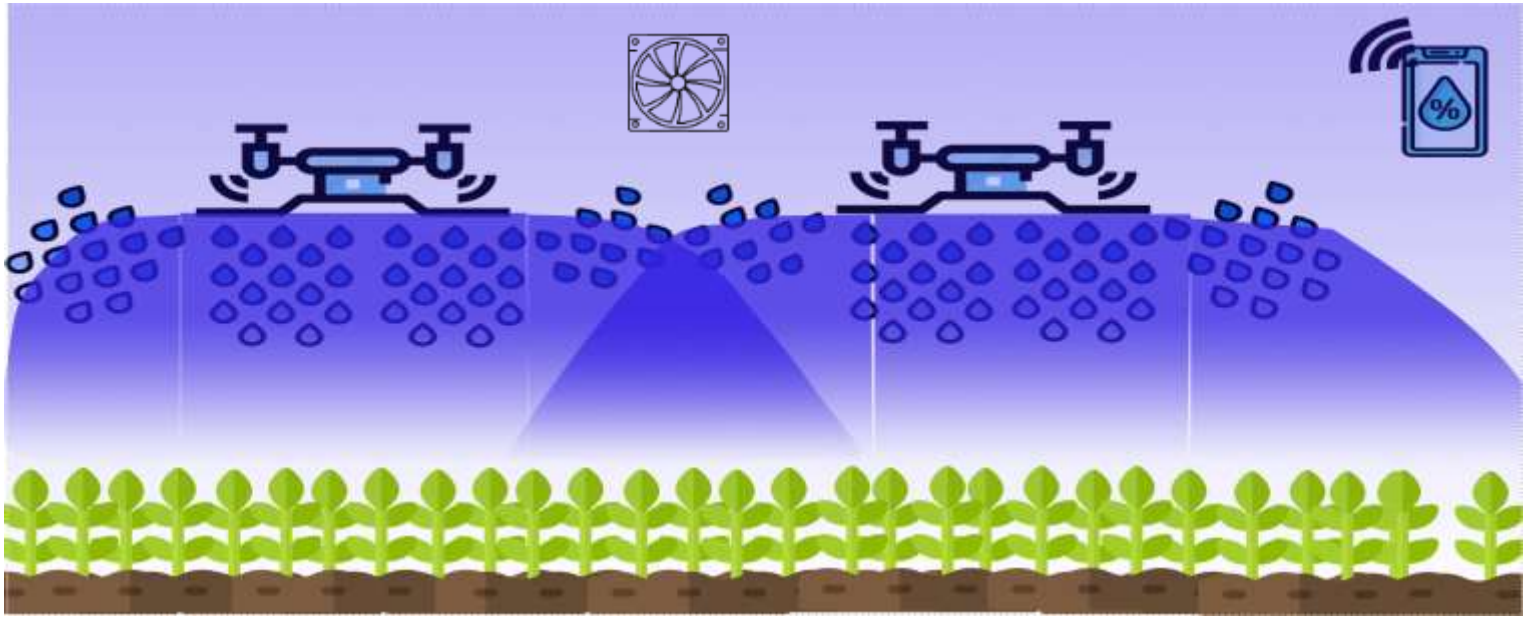
COMMERCIALIZATION

- Proposed system will ease for many technological companies to reach people with various literacy levels.
- Physical implementation is very costly.
- Low price

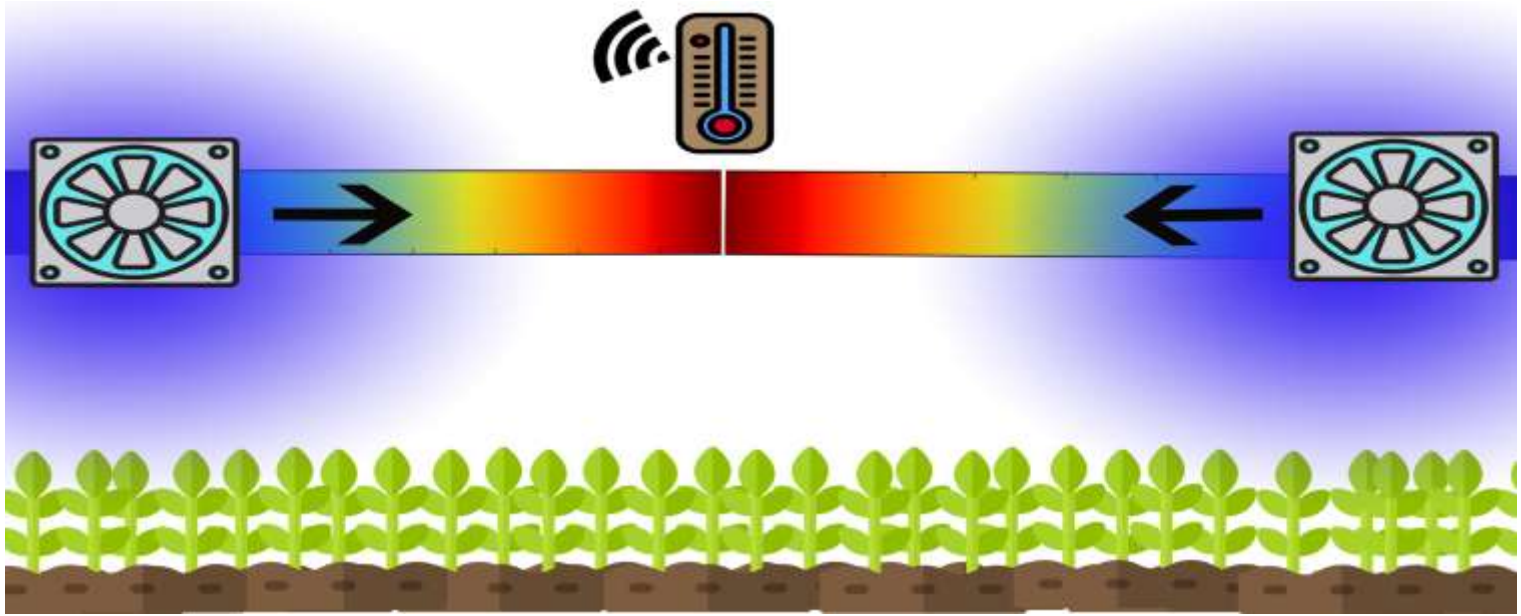
SPECIFIC OBJECTIVES

Simulate Light Intensity regularity mechanism	**Create models and visualize the variation of temperature**	**Model the scenario of humidity variation in a greenhouse**	**Visualization of optimum soil condition mechanism**
			

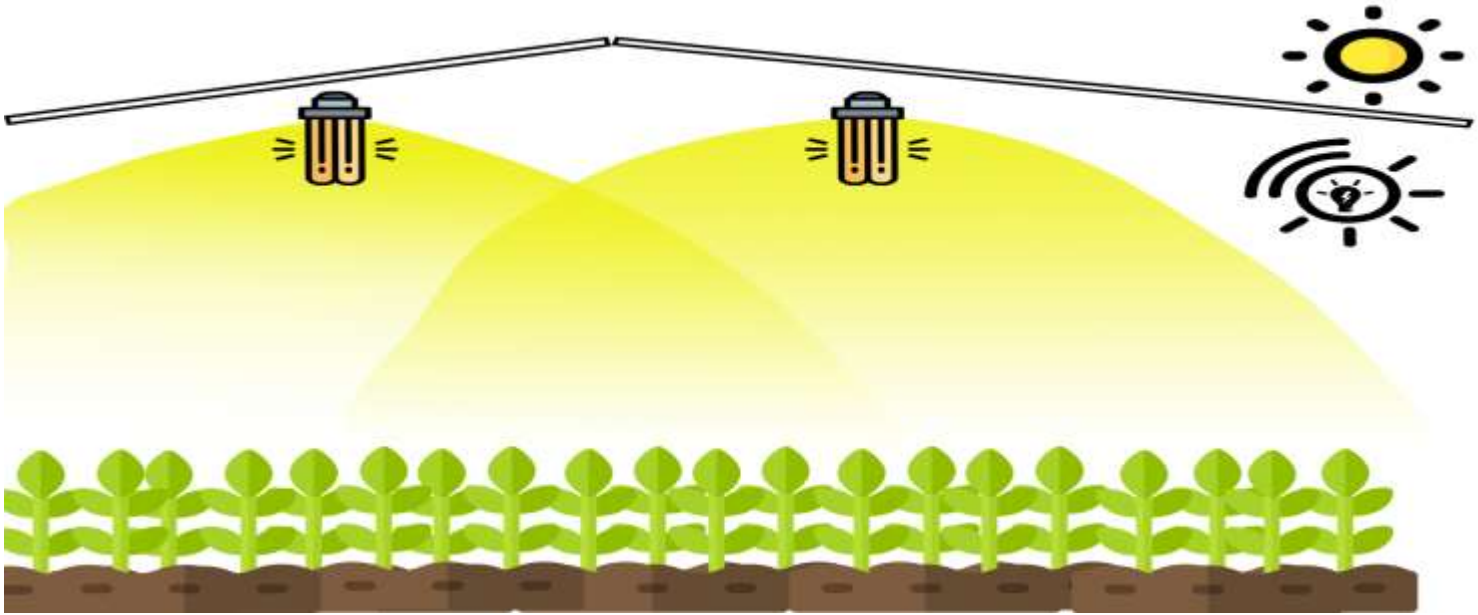
When a humidity change occurs inside the greenhouse ?



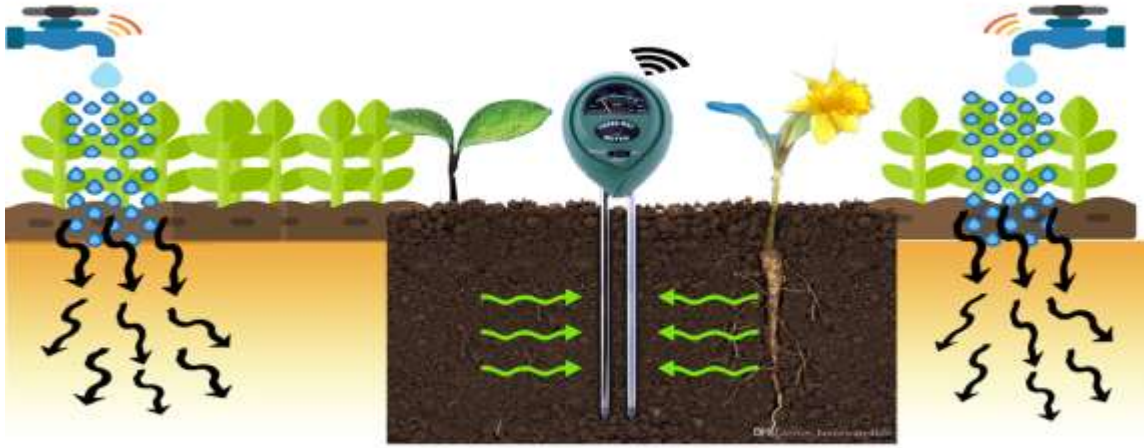
When a Temperature change occurs inside the greenhouse ?



When an Intensity change occurs inside the greenhouse ?



When a soil moisture change occurs inside the greenhouse ?



THANK YOU