

SMART GREENHOUSE



The main objective of this project is to analyze sensors data and take certain precautions on field. Automated systems need fewer manual procedures, are more reliable, flexible and accurate. We'll build a smart agricultural monitoring system that can collect vital agricultural data and transfer it in real time to an IoT platform, where it can be documented and analyzed.

We will try to develop an automated watering system for plants.

Smart Agricultural Monitoring System



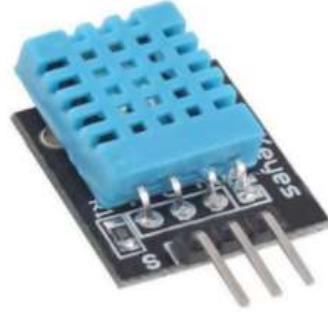
Block diagram of proposed model

We'll build a smart agricultural monitoring system that can collect vital agricultural data from sensors such as **temperature** and **humidity**, **gas sensors**, **light sensors**, and **air pressure sensors**, and transfer it in real time, where it can be documented and analyzed.



Sensors

Temperature and Humidity sensor



Greenhouse temperature sensors

Carbon dioxide sensors Sensor

Carbon dioxide (CO₂) gas combined with water is necessary for photosynthesis and therefore , for the growth of plants.

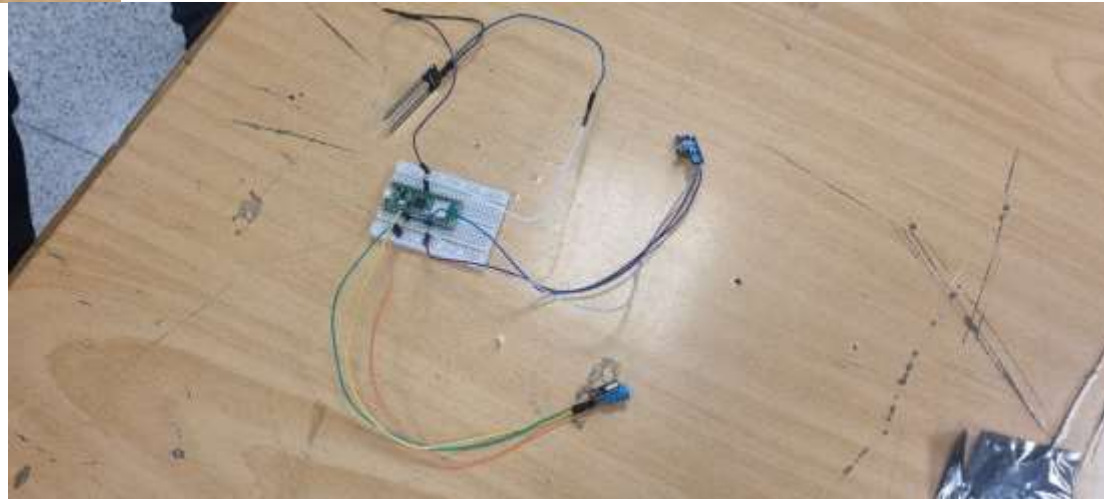
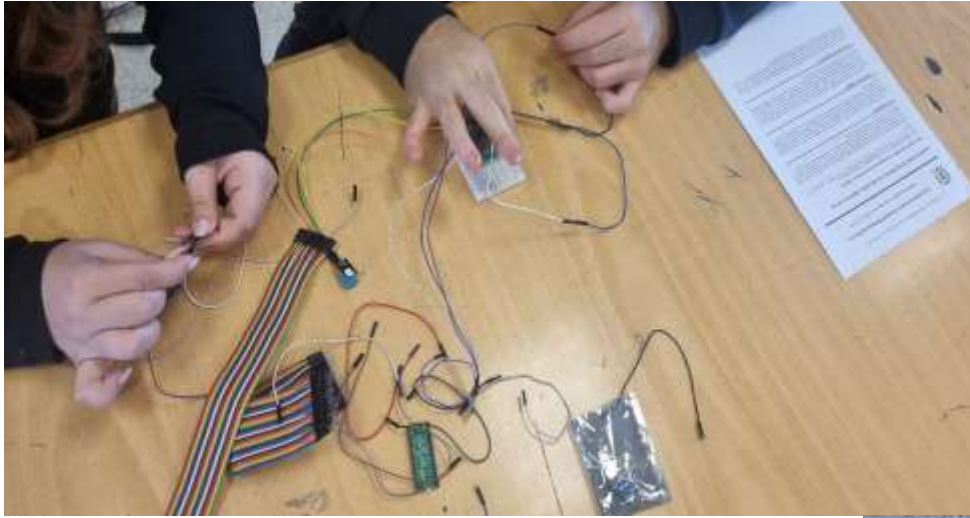


Soil Hygrometer Sensor



Air Quality sensors

Using Arduino



Model of the Greenhouse





Pros

- ❖ **Better Control:** Smart greenhouses use technology to precisely control factors like temperature and humidity, creating the best possible conditions for plants to grow.
- ❖ **Informed Decision Making:** Data collected from sensors helps farmers make smarter decisions about how to care for their crops, leading to better yields and resource use.
- ❖ **Environmental Impact Reduction:** These systems can contribute to reduce water and energy consumption, making them more environmentally friendly compared to traditional farming.

Cons

- ❖ **High Cost:** Setting up smart greenhouse systems can be expensive due to the cost of technology and equipment.
- ❖ **Technical Challenges:** Farmers need technical knowledge to manage and fix issues that may arise with the technology, making it more complex.
- ❖ **Limited Customization:** Some systems may not be easily customizable for specific crops or growing conditions, limiting their flexibility.
- ❖ **Dependency on Technology:** Smart greenhouses rely heavily on technology, and any failure could negatively impact crop production.

