

# Automated Indoor Hydroponic Farm

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# Introduction:

"Cultivation of plants in water"

This is also called as cultivation of plants without soil

Utilizing this technology, plants absorb balanced nutrients dissolved in water that meets all the plant requirements.

# Why hydroponic farming:

- It utilises 99% less water than traditional farming
- High production in lesser space
- Many different plants can be cultivate simultaneously
- These plants are much healthier as nutrients are controlled.

# Problem statement:

Our general problems when we plant in soil are

- Pests
- In traditional hydroponic farming we need to continuously monitor the plants
- Due to the above reason, people who monitor the plants are diagnosed with diseases

# Proposed solution:

The idea we proposed has the following benefits:

- Reduces the labor cost
- Increases the plant production
- Pests caused in the soil will be prevented, as we don't use soil
- Nutrition levels are controlled
- Automatic monitoring of temperature, water, and light.

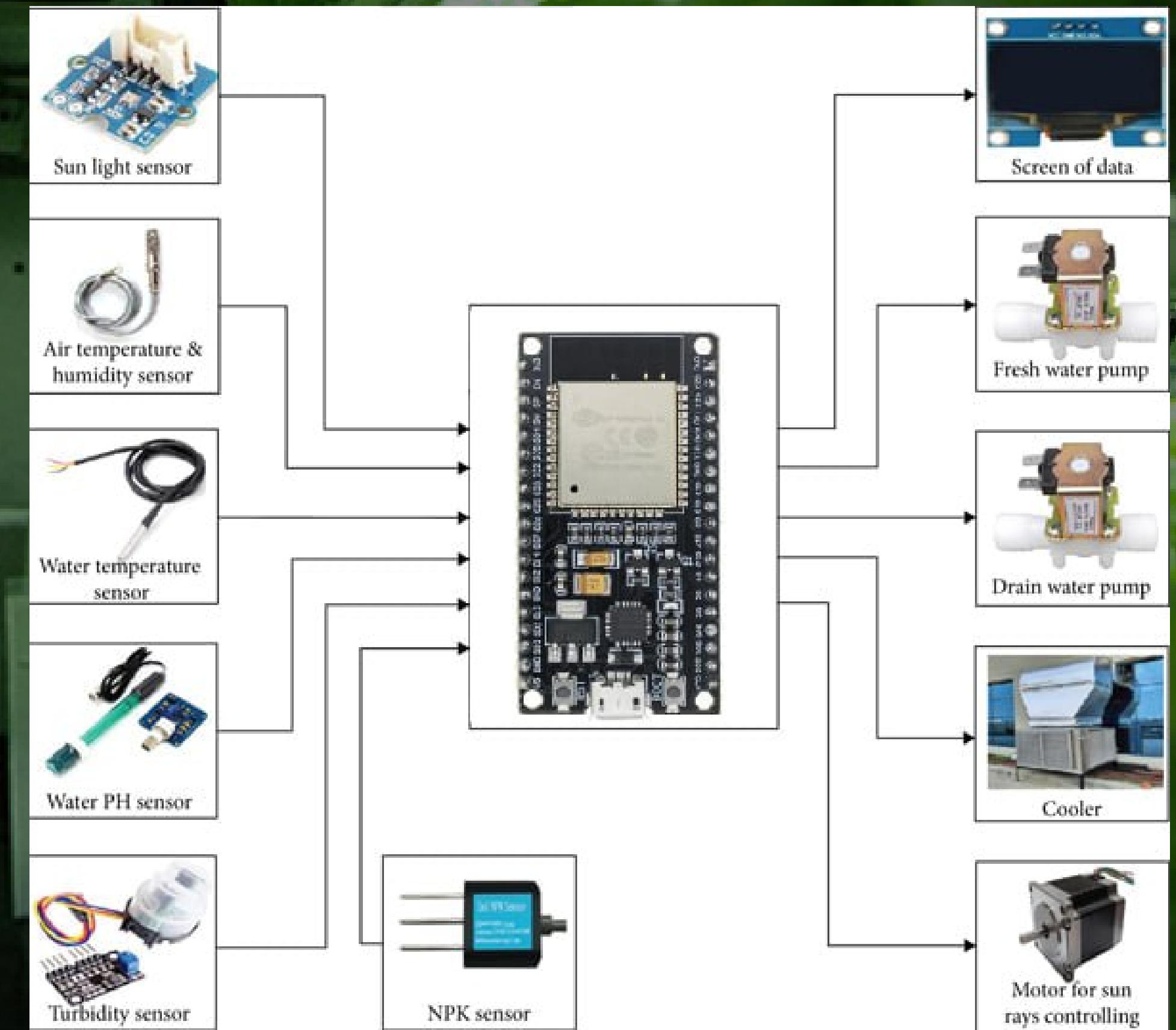


# Innovation:

We use automated methods to control this hydroponics farming.

We use the following:

- Sunlight sensor
- Air temperature and humidity sensor
- Water temperature sensor
- Water pH sensor
- Water pump



# Business Model:

Target customers: Farmers

Competitors: Fellow farming companies

Market strategy: Increase efficiency of farming and production

Pricing strategy: One-time low investment

Business type : Product

Sensors:	
Turbidity sensor -	850/-
Humidity and temperature -	200/-
Node MCU:	250/-
Motors: Water motor -	200/-
Relay Module:	200/-
Jumper wires:	100/-
Total :	1800/-

## Conclusion:

It was observed that the proposed methodology controls the moisture content of the soil of cultivated land. The motor automatically starts pumping water if the soil is dry and needs water and stops when the moisture content of the soil is maintained as required. By using an esp 32 and a few other components, we can create a system that will water plants based on their needs.

The implementation of an automated hydroponic system has the potential to revolutionize agriculture by providing a sustainable and efficient method of growing plants. This project aims to design and implement such a system, providing valuable insights into the development of automated hydroponic systems. The successful completion of this project will contribute of advancement of sustainable agriculture and enable people to grow their own products using modern technology.

A photograph showing a dense, sprawling field of green leafy plants, likely lettuce, growing in a greenhouse. The plants are supported by a complex network of white plastic mulch and black support stakes. In the center of the image, there is a vertical metal support structure with a small, light-colored rectangular box attached to it, possibly a sensor or a part of the irrigation system.

Thank You