# Smart Indoor Plantation

The Smart Indoor Plantation project is a cutting-edge robotics project designed to allow people to grow plants indoors, regardless of external environmental conditions. The project features a sealed box that can accommodate several plants and has been equipped with seven different sensors that monitor various environmental factors, it also includes watering system and display of these environmental factors and controlling them

## Main Features:

- The system also features an automatic watering system that ensures the plants receive the right amount of water to grow healthily. Additionally, an OLED display located on the box's exterior displays real-time sensor data. The system's air quality and temperature are regulated with the help of fans installed inside the box.

- A buzzer is used as an alert system to notify users when any sensor values behave abnormally. Additionally, the buzzer is connected to a system that prints the sensor's abnormal value, helping the user identify the sensor that triggered the alert.

- To further enhance user experience, the system also features a mobile application that provides updates on the environmental conditions inside the box, including the status of the plants, temperature, humidity, air quality, light intensity, soil moisture, soil temperature, and water levels.

## Sensors Used:

1. DHT 11 For air temperature and humidity
2. MQ-135 For Air Quality
3. Light Dependent Resistor for Light Level
4. Soil Moisture Sensor
5. DS18B20 For Soil Temperature
6. 2 Ultra-sonic Sensors to Detect Water Level in Tanks

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Glimpse of the Future

## Conditions and Main Functions:

| Function | If It is HIGH | If it is LOW | Sensor Used |
|---|---|---|---|
| **Air Temperature** | If greater than 29<br>Turns The Fan on for 1 minute | If lower than 18<br>Turns The Fan on for 1 minute | DHT11 Temperature and Humidity Sensor |
| **Air Humidity** | If greater than 45<br>Turns The Fans on for 1 minute | If lower than 18<br>Alerts For a Spray | DHT11 Temperature and Humidity Sensor |
| **Soil Temperature** | If greater than 30<br>Ring Buzzer 3 Times | If lower than 17<br>Ring Buzzer 3 Times | DS18B20 Waterproof Temperature Sensor |
| **Air Quality** | If greater than 50<br>Turns the Fans on for 1 minute | If lower than 30<br>Turns The Fans on for 1 minute | MQ-135 Air Quality Sensor |
| **Soil Moisture Level** | If greater than 80%<br>Ring Buzzer 2 Times | If lower than 35%<br>Turns The Water Motor on for 15 Seconds | SEN-13322 (Soil Moisture Sensor) |
| **Light Level** | It can be 0 or 1<br>• 0 means it Does not Have Enough Light<br>• 1 means it Has Enough Light | | LDR (Light Dependent Resistor) |
| **Storage Water Level** | If greater than 21cm<br>Buzzer is Ringed | If lower than 5cm<br>Buzzer is Ringed 5 Times | Ultrasonic Sensor |
| **Small Tank Water Level** | If greater than 12cm<br>Buzzer is ringed 3 times | If lower than 5cm<br>Buzzer is Ringed 3 Times | Ultrasonic Sensor |

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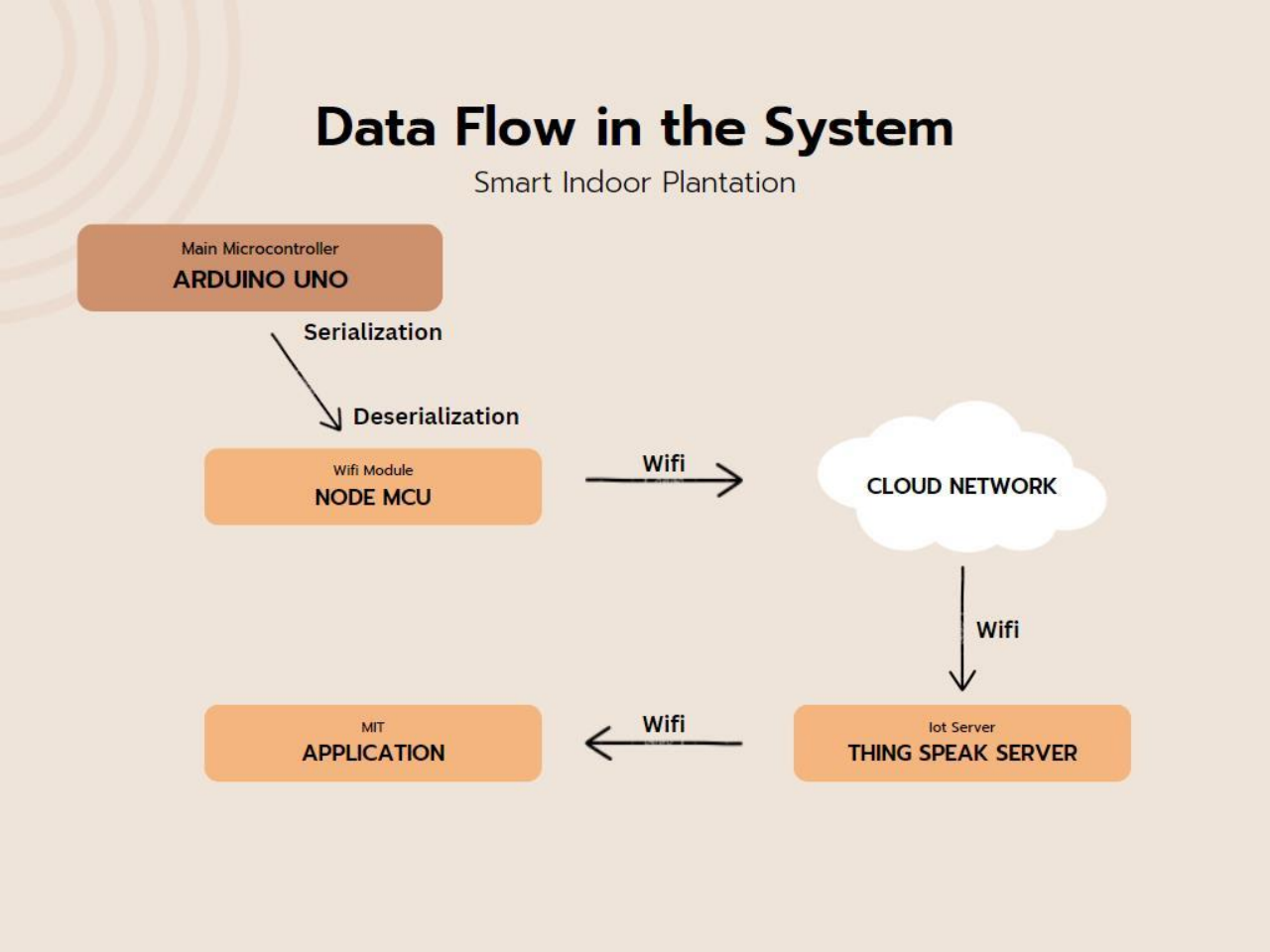


**Conclusion:**

With this innovative solution, plant enthusiasts and those who wish to grow plants indoors can now have a conducive environment that fosters healthy plant growth. The Smart Indoor Plantation project is an excellent example of how technology can improve our daily lives and create sustainable living solutions for a greener world.

- This also leads us to a non-ending field about Interstellar Plantation
- Modifying Smart Indoor Plantation project can certainly contribute to the field of interstellar plantation. The project's technology and design could be adapted and enhanced to address the challenges of growing plants in space or on other planets.

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**For Images of The Project Please Visit:**

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