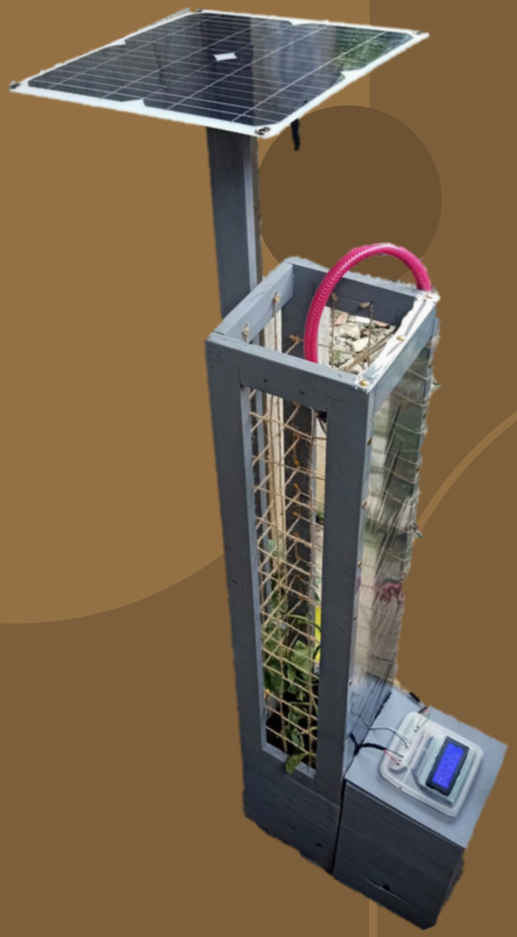
USER'S MANUAL

SMART CROP AND HEALTH MONITORING SYSTEM FOR CUCUMBER FARMING: INNOVATING TECHNO-ECOLOGICAL AWARENESS



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INTRODUCTION

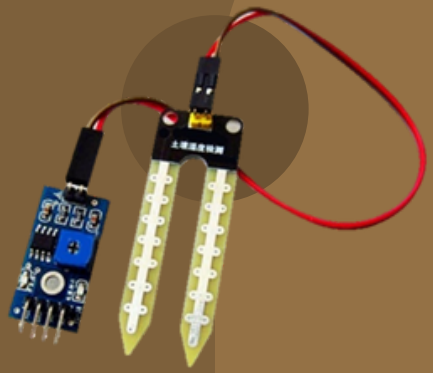
The Smart Crop and Health Monitoring System for Cucumber Farming is a state-of-the-art innovation that helps farmers monitor and track the growth and health of their crops. The system uses sensors that provide real-time data about the crop's health. This manual will provide you with step-by-step instructions on how to use the system.

MAIN PARTS AND FUNCTIONS

DHT22 (Digital Temperature and Humidity Sensor)

The DHT22 is a temperature and humidity sensor that can be used to measure the temperature and humidity of the surrounding environment. It uses a capacitive humidity sensor and a thermistor to accurately measure both the temperature and humidity levels.

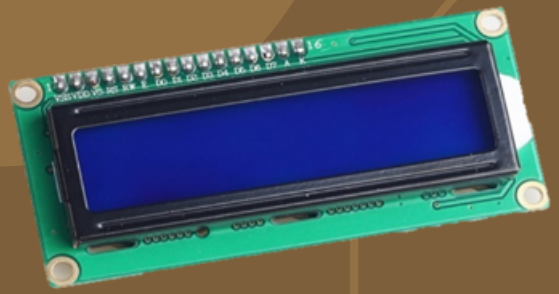
Soil Moisture Sensor



MAIN PARTS AND FUNCTIONS

A Soil Moisture Sensor Module is a device that measures the moisture content of soil. It is commonly used in agriculture and gardening applications to monitor the soil moisture levels and ensure that plants are watered properly. The sensor module consists of two probes that are inserted into the soil and a control board that reads the moisture level and outputs a signal. The sensor works by measuring the electrical conductivity of the soil, which is directly related to its moisture content.

Liquid Crystal Display

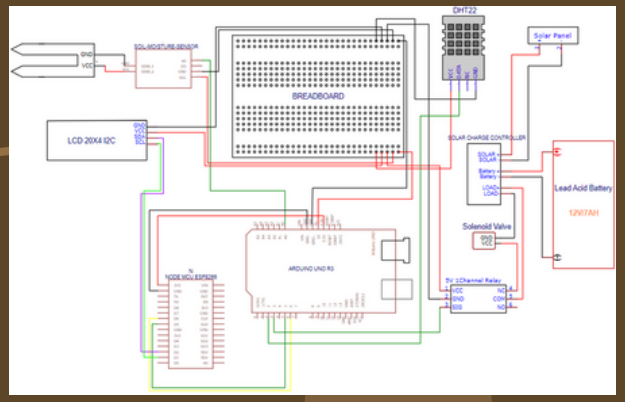


Displays the sensor values (Soil Moisture, Temperature and Humidity) as well as the IP Address

MAIN PARTS AND FUNCTIONS

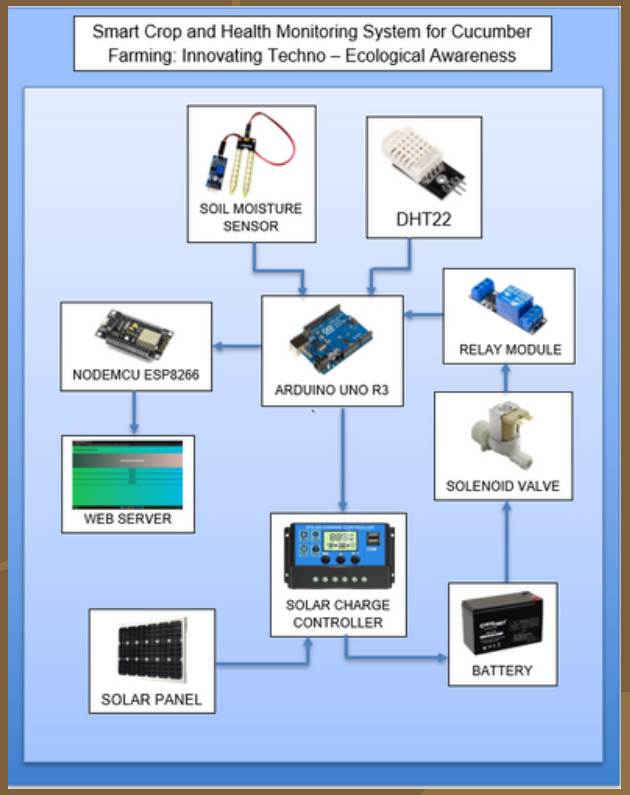
Monitoring Device

SCHEMATIC DIAGRAM



Representation of the elements of the system

BLOCK DIAGRAM

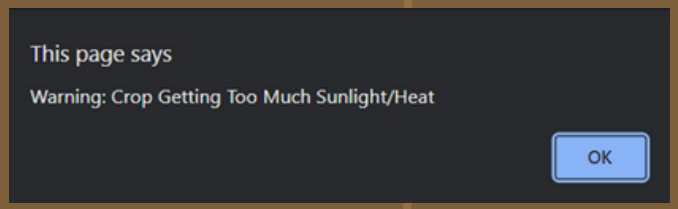


The diagram represents the functional block of the sequence that shows and describes the functions and interrelation of system monitoring.

OPERATIONS

1. Connect the sensors to the Arduino.
2. Connect the Arduino, battery, and solar panel to solar charge controller.
3. Wait for the lcd to display the sensor values and the IP address.
4. Connect your device (e.g laptop or smartphone) on the same Wi-Fi network.
5. Open any browser and search the IP displayed on the LCD.

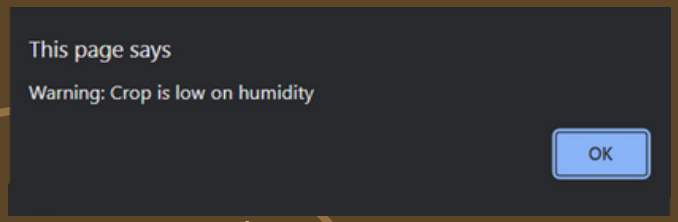
6. Main page will display the value of the parameters gathered by the sensors.
7. If you see these message box appeared on your screen you should do the following:



***7.1** "Warning: Crop Getting Too Much Sunlight/Heat"*

OPERATIONS

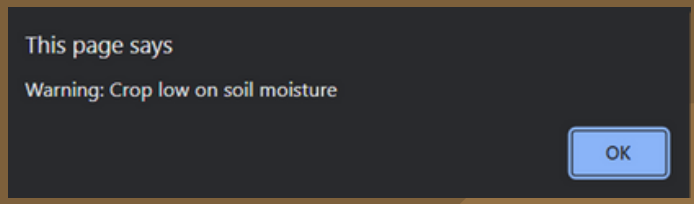
Please take the following steps to prevent your crop from getting too much sunlight:
a. Move your crop to a shadier location if possible, or provide it with shade using a canopy or shade cloth.
b. Ensure your crop is getting the appropriate amount of water for its needs.
c. Monitor your crop closely for any signs of sun damage such as wilting, yellowing, or burnt leaves.



***7.2** "Warning: Crop Low on Humidity"*
Please take the following steps to increase the humidity around your crop:
a. Increase the amount of water you are providing to your crop. Make sure to water it enough to maintain a consistent level of moisture in the soil.

OPERATIONS

b. Place a humidifier near your crop, or mist the leaves with a spray bottle to increase the humidity around the plant.
c. Consider grouping your crops together, as plants release moisture into the air through a process called transpiration, and this can help to increase the humidity levels in the immediate area.



***7.3** "Warning: Crop Low on Soil Moisture"*
Please take the following steps to increase the soil moisture around your crop:
a. Check the solenoid valve if it is connected properly.
b. Check the faucet if it is opened.
8. You may disconnect your smartphone or laptop from the Wi-Fi and manually check it through the device.

SAFETY PRECAUTIONS

Electrical Safety: Make sure all electrical components are properly grounded and that there is no exposed wiring or damaged cables.

Water Safety: Install the device on dry place.

Fire Safety: Avoid using any flammable materials near the monitoring system.

Proper Installation: Install properly and handle carefully.

Regular Maintenance: Regularly inspect and maintain the monitoring system to ensure that it is functioning properly.

Maintenance and Troubleshooting

Maintenance

Cleaning

Clean the sensors and control unit regularly to prevent dust and dirt from interfering with the data readings.

Battery Replacement

Replace the batteries in the control unit when they run low to ensure that the system continues to function properly.

Sensor Calibration

Calibrate the sensors periodically to ensure accurate readings.

Troubleshooting

No Data Displayed

Make sure the sensors are connected properly.
Check that the batteries in the control unit are not dead.
Make sure the sensors are placed correctly in the soil.

Inaccurate Data:

Make sure the sensors are calibrated properly.
Check that the sensors are not damaged or dirty.
Make sure the sensors are placed correctly in the soil.

System Failure

Check that the batteries in the control unit are not dead.
Make sure the sensors are connected properly.
Check that the sensors are not damaged or dirty.
If none of these troubleshooting steps work, contact the manufacturer for further assistance.

Thank you for using the plant monitoring system. With proper use, maintenance, and troubleshooting, you can keep your plants healthy and thriving.

Contact Us

Adonis S. Rampas
09154886731
adonisrampas13@gmail.com

Carl Angelo C. Azarcon
09052277458
carlangeloazarcon@gmail.com

John Rey P. Guillamon
09853740286
guillamon.johnrey@gmail.com

Roberto Miguel M. Santos
09281915612
miguel2wavy0@gmail.com