

Team Phoenix

Terragrow

Abstract

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Overview

Smart Indoor Gardening System is an advanced technology that allows users to grow fresh plants, herbs and flowers faster and with higher nutritional content without using any pesticides, plant hormones and other harmful chemicals. Smart garden tech can save you time, make your garden look more striking, or just let you have more fun while you're out there.

More and more products are being developed to help lower our carbon footprint, simplify chores and help us be wiser consumers. Such technology can enhance plant care, help with landscape design and inform us of the best plants for specific sites.

When pandemic-related closures and lockdowns began, many people turned to new hobbies such as indoor gardening. But now, times are changing, economy is entering the state of recovery and people are starting to move out of their houses to continue their work life.

Problem Statement

IOT01: Indoor Smart Gardening System

During the lockdown of Covid-19, many people started indoor gardening as a hobby. Now that they have to return to work, they generally forget to nourish and water the indoor plants. Taking account of this, design a smart application that monitors the soil moisture and intensity of sunlight falling on plants at regular time intervals.

Problems Addressed

1. Unavailability of an affordable and robust device packed with features for people getting started with Home gardening.
2. Unavailability of a smart irrigation system to help busy people with irrigation of their plants
3. An aerial gardening system which provides high yield in very less space for people planning to build they own indoor farm to harvest fruits and vegetables
4. Lack of a robust solution for urban industrial smart gardening requirements.

P.T.O

Solution

Terragrow is an ecosystem of smart gardening products which seamlessly integrate with one another to provide a robust solution for all sorts of customers.

Video : [Terragrow in a nutshell](#)

PPT: [Terragrow ppt](#)

4 products we have considered under Terragrow-

- 1) Plantic
- 2) Hydromo
- 3) Vertivy
- 4) Exagrow

Plantic is a smart plant probe that gives your plants a voice and it helps you to look after your plants in smart way. It can measure soil moisture, light intensity, temperature and other essential parameters. The probe connects your plants with your device so that you get real-time updates and will be able to monitor. The interface compares measurements from the probe with a database consisting of plant data and accordingly notifies you whenever your plan needs to feed or water. It will offer you educational tutorials and other content i.e an Information System which will inspire you to take care of your plant and know more about it.

Hydromo will help you take care of your house plants with great ease. It is a smart watering system to water plants when necessary and controls just as much water as need to grow the plant's growth. Hydromo integrated with Plantic, can help monitor plant health in real time and track essential parameters and irrigate the plants accordingly. It can detect when your plants need to be watered so you can go for a business without worrying about your plants. It involves a special feature of water recycling. It involves a mechanism consisting of a semi-permeable layer below the soil base, which enables re-use of irrigated water, using a irrigation preset, hence preserving essential nutrients of soil, which is usually washed away in current irrigation systems. It also helps in eliminating breeding of insects in stagnant water left below pots, hence preventing threatening diseases.

Vertivy helps you to grow a garden full of plants all year around and create your own personal urban garden inside and outside of your home. It allows you to grow plants taking only a few square feet of space. So you can feed it anywhere in your home easily. It has a low pressure aeroponic design that aids better growth of plants in comparison to soil gardening or traditional hydroponics. It also provides the roots with enough oxygen to develop into healthy and strong plants the aeroponic design helps to enter more oxygen into the roots, hence enables the accelerate growth of plants. It also gives you pesticide free gardening experience, hence a safer experience while gardening. Vertivy comes along with low maintenance and require less work and human intervention than traditional gardening.

Exagrow is a all in one system for smart indoor gardening. We will be combining the technologies implemented in the plantic probe, hydromo water system and vertivy gardening system along with a few other technical features and optimisations. Some of the notable features of Exagrow could be Real-Time Monitoring, Water Irrigation System, Nutrient Control, Information System, Connectivity and User-Friendliness. It is a go to robust solution for urban industrial smart gardening requirements.

Conclusion

Terragrow is our effort to provide a single go to solution for smart gardening requirements in the urban world. Implementing technically advanced features and ideating over a differentiating factor, in this project is what we are working on currently. Experiments and tryouts with different available technologies is what we have been doing so far, and we are going closer day by day to our first prototype of the terragrow ecosystem. Thank you!

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