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A smart plantation for cloning and greenery – A research plan and equitable review

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ABSTRACT

The paper discuss about how the technology have sharpen the growth of the plants which is fully automated. The users can monitor the growth of plants & access the data or resources through the remote fashion. With the advent of IoT Technology, the sensor can periodically sense, provide nutrients whenever required, and trace the activities of the plants without the intervention of humans during the entire growing stage of the plant. Every change which is identified from the plant have been analysed and further stored in a cloud database. The paper has an impact on cloning which is about the arrival and discharge of new / used soil on plantation. Aeroponics techniques can be used that further save the usage of water and nutrient to the plant crop. This method will help to increase the yield when it grows in a room.

Keywords
Plantation, sensors, Cloud storage, Automation

Introduction

[4] The study emphasizes on the fruit and vegetables which are the necessary ingredients to all people for healthiness and utilization of those would benefit to restrict from considerable diseases, such as cardiovascular and cancer diseases. It is estimated that about 1.7 million (2.8%) of deaths were happened in the world due to inadequate intake of fruit and vegetable by the people and around 14% were identified on cancer deaths, about 11% of deaths have taken place due to heart disease and about 9% of deaths are due to stroke.

As in the recent publication from WHO, it has been suggested that a person would like to take a least possible of 400g of fruit and vegetables on each day (eliminating potatoes and starchy tubers) for the determent of diseases such as ischemic heart disease, cancer disease, diseases related with diabetes and obesity.

Fruits and vegetables are mainly consumed to safeguard our heath. [1] It had made a detailed study on stated that they are enriched with necessary vitamins and minerals. [3] the study impacts on how it is important to increase the productivity and consumption of fruits and vegetables that would help the farmers what to cultivate related with the fruits and vegetables. It is perhaps to find a new environment for the ingredients such as fruits and vegetables that would be delivered to the consumers every day and available of those should be updated and accessed frequently through the current advancements. With a chain of food network, it is compulsory to conserve the nature of produced food item in terms of time and distance. The fruit and vegetables have been cultivated which are close to the soil and they have infected with harmful chemicals from different origins.

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Literature Review

Farmers play an important role in the approaches of fruit and vegetable productivity and their yield can be charted and handled with a safe production. On an account of development in the agricultural sector, the government has promoted for a small range sprinkling through rainfall collection and a small gardening at the home and thus makes an improvement in a livelihood of the farmers.

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Challenges

[6] It had made a study on observation, that lack of fruit and vegetables intake leads to a major factor in the deficiency of nutrients. Biggest challenge is the increase of production levels and the farmers should be adopted with the guidelines on agriculture and henceforth develops a performance measurement tool on the progress of fruits and vegetables. To overcome the challenges, the information related with the gardening should be combined with nutrition information and strengthen the people with the employ of more different crops.
. [2] The study has focused on the challenges are due to the occurrence of diseases that are mainly with the aspects of irrigation water and improper usage of dung. Another major cause is the emissions from industry sources which could damage the production of fruits and vegetables especially in the farming area and on the highways where a lot of vehicles pass by. [7] It had made a review study on the grow of lights is another challenge for the grow of plants.

Experimental setup / Approach

[6] It had made a study stated that a smart plantation for cloning and greenery comprise of a vertical layered stack based arrangement. It produces thousands of fully automatic clones on every 10 days. It employs 5 feet 3.5 inches broad which further specified in 16 feet 7 inches long and is 8 feet 8 inches tall. The smartness of the farm system is fully autonomous where the resources of water and power are to be provided sequentially during the production. The production apparatus should be trained and supply of nutrient to the plants have inserted into the apparatus. As with the technology development, it senses the growing plants by providing nutrients from the automatic machine and inundates the plants in the life cycle that are being specified. These cultivations produce surplus amount of highest produce of product at a square foot for a year and give anticipated results when compared with a crop field that is cultivated on soil.

Figure 1. (a) Layered stack of smart plantation

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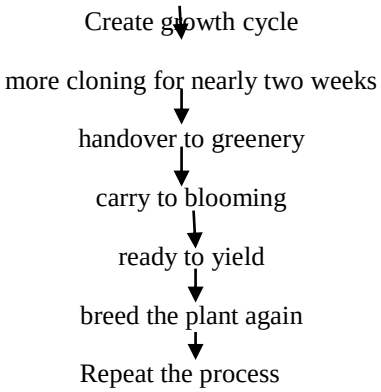
Methodology - Aeroponics

[6] The study describes the methods adopted as the technique which is used for the plants to be grown in the room surroundings is completely based on the aeroponics. The emerge of this technology will inherently increase the productivity of the plant growth with a sensor that is connected with the growing environment. The technology gives more percentage of yields such as 40% as in comparison with the normal plants that have been grown up on the soil. The most important parameter lies in the change of light stages and strengthening of heat through the pass of electricity.

Data Analysis

Life cycle of the plant growth on smart plantation



Architectural view

[6] The study has discussed on the plant crop which has been placed in a double deck pattern and cultivated in the private room or broad greenhouses with the attachment of sensors that are controlled remotely. Automation has completely eradicated the presence of labour work again and again on the cultivation processes. Each rack based structure where the crop plant is cultivated has its own capacity and energy intensity, place of LED lights which is in the cooling form and send of message through the wireless connectivity. Every provision of nutrients has examined for sensor review and further activities on the plant growth. The backup of all the data can be stored on the cloud platform.

[6] The imperative study focuses on the mechanism which is emphasized on the save of water and not required the use of pesticides, eventually there would not be any disposal of soil on this growing environment. Later, the shipment of product is in a fast delivery and thus minimizes the cost of transportation. The automation system has brought the performance of the growing in that environment that is 24 x 7 monitoring. The information about the current status of the plant growth and condition of the devices that has been attached to the nearby sensors can be broadcasted to the farmers / producers on any time and at any locations. It has been noticed that a direct access on to the room is possible through the cameras fitted in the room surroundings. An alert message in terms of pending work or warning or urgent requirement. has been achieved by the system itself and sent to the farmers/ producers. The analytics improvises the use of automatic without the physical involvement and manual work.

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Indoor Lighting System

[7] The study revealed that the optimization of the lighting system makes the growth of delivery on a small room environment and generates the minimum heat has been dissipated with less power of electricity. The lights fitted in a small room have in a dim mode and provides maximum automation. The LED lights are applicable and give a path to the steep farming.

Conclusion

The paper gives a detailed study of the aeroponicsysem on the smart plantation and yields more productivity on the plant crop. The growing of fruits and vegetables in a number of varieties that would be need of consumers. The modular design in an indoor small room which has been integrated with fully automation is to be provided to the farmers. The use of sensors and management control bring out the good growth environment for the vegetables and fruit as a whole relates with food crop.

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