

Chapter 15

IoT–Based Smart Gardening System Using the Cloud

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ABSTRACT

Gardening is a nice activity. It is not possible to monitor and tend to a garden 24 hours a day, so we need a smart gardening system that can monitor and tend to the garden as we want it. In today's busy world, we forget to nourish and water plants that make our home clean and soothing. It would be really helpful if we get a notification on our phones about our plant health and needs. Taking account of this, the authors came up with the idea of building a smart garden with an IoT plant monitoring system. After the data is processed and verified, a notification is sent about the plant's health. An automated gardening system is designed to enable us to manage gardening, including monitoring moisture, temperature, and humidity. This chapter is on an IoT-based smart garden monitoring system which senses the requirement of the plant and provides it with water as the soil loses its moisture. Thing-speak and Blynk application are used to view sensor data from remote locations.

INTRODUCTION

Automation rules the world nowadays. It is a technique of using computers or mobile phones in monitoring and controlling the simple parameters of day to day life. The standard of our life will be nourished by the practice of using automation for simple things. Using the concept of IOT we make sensors to communicate with each other which are powerful in automation. The important aspect of this prototype is that it saves cost and ensures safety. When people try to make plantings and set up their own

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garden, they were cautious in maintenance at only in their beginning stages. As days go on due to lack of maintenance the plants get destroyed. This prototype will help people to automatically monitor the parameters and ensures maintenance of the garden. It plays a vital role and serves as a good companion for plants. IOT provides solutions for various problems and it allows things to be sensed or controlled remotely in network infrastructure.

In all of human history the most powerful and important creation is the Internet. The integrated part of future internet is IoT. In the field of business, social process, information and communication, the things are expected to become active participants by using IoT. They need to be enabled in order to interact with the environment and communicate among themselves by transforming and exchanging the data and information sensed about the environment. It reacts automatically to the real world events and is influenced by the processes that create services and trigger actions with or without human intervention.

The number of companies to help enable their IoT (Internet of Things) ideas. And as a result, we hear about new ideas and solutions that are already solving business challenges with M2M (Machine to Machine) communication. And today, we want to highlight some of the most compelling IoT applications in another industry—agriculture. Agriculture IoT is becoming one of the fastest growing fields (pun intended) within the IoT. Today, more than ever, farmers have to more effectively utilize and conserve their resources. That's where the need for data comes in, and M2M communication has made the ongoing collection of that info easy.(Tzounis et al., 2017) (Khan et al., 2017)

There is increased pressure on existing water allocations and has increased the importance of water management for the sustainability of irrigated agriculture. The objectives idea is: To optimize the water supply to crops, to reduce manual intervention, to make the irrigation system smart, autonomous and efficient. According to the mental health problem in elderly, gardening and IoT technology, they propose the IoT Planting for the elderly that is controlled by Android application which help mental health and memory's problem in elderly. We use the application to reduce spaces between elderly and technology by use planting tree's activity as an intermediate and avoid accident from planting trees activity. Smart Terrace Garden In the paper problem is systems are too expensive and not compatible with the app or both. A solution of this problem is it will help to save time, money and help the environment through reducing water loss. The proposed system is composed of three main components: monitoring node, central node, and the cloud.

This is an IOT based system to check the plant soil, temperature, water and cold level of plant using sensors, all these descriptions will be notified, and all this information should be saved on cloud through IOT.

LITERATURE SURVEY

The author Byoungwook Min et al (Min & Park, 2017) explored the potentials of a smart indoor gardening system that links gardening activities and the IoT technology. The benefits of gardening have been emphasized to improve the quality of life. However, a number of reasons due to a lack of gardening culture and apartment housing systems limit personal gardening in Korea. Thus, indoor gardening has been paid attention as an alternative, but it is still a challenge. Previous studies and practices have shown that the IoT technology can be applied to numerous occasions, and can feasibly provide a solution to these gardening issues. This paper proposes a possible smart indoor gardening system to cope with the issues.

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