

Abstract

In traditional farms, farmers should visit the farmland regularly to measure a variety of environmental parameters such as temperature, soil humidity and light intensity to manage crops healthy. Although the agricultural system has been in use for years, the system failed to deliver high productivity because farmers could not measure the parameters accurately all the time.

Smart garden is a design system designed to facilitate activities in plant care. The research focuses on the components and applications of smart gardens in society's lives. Devices used in related research include NodeMCU ESP8266, LCD, LDR sensor, DHT11, moisture sensor, humidity sensor, relay, fan, UV light, pump, Telegram application. Arduino's smart garden-based microcontroller has been applied in a greenhouse and has already placed 4 pomegranates with the aim of comparing the productivity of Pomegranate plants outside the greenhouse. Research has shown that the use of IoT-based smart gardens is more effective in increasing plant productivity by providing automated irrigation systems. With the advancement of technology, plants are more monitored, preserved and grows well.

The tool can function well and can boost the growth of better peanut plants that produce 135.1% more fruit and 12.9% more leaves as well as a better plant height of 6.4% compared to peanut crops that grow using traditional methods.

Keywords: Productivity, Smart Garden, *Internet of Things*