基于 ESP32 的植物环境监控系统

摘　要

物联网科技已经应用在了很多行业，交通、医疗、家具、安全等等都能通过物联网实现更高效先进的作用，同样对于农业方面，物联网也有广泛的用途。近年来，我国种植业正在向现代化的方向转变，舍弃传统的劳作模式，依靠高新技术，将人工管理的农业模式变为智能化自动管理。随着我国经济的迅速发展，人民生活水平的进步，人们在物质生活获得满意的同时，更加注重精神生活。鉴于大多数人喜欢种植花草树木，但苦于缺乏专业知识，在种植的过程中做不到科学的养殖，从而导致心爱的植物出现枯黄，旱死等一系列问题。

面对这些问题，我们设计了一款基于 ESP32 的植物检测器，这款检测器可以有效直观的解决种植小白在种植过程中遇到的一系列问题，比如植株不同、季节不同所需温湿度与光照不同的问题。该系统主要分为 ESP32 硬件设计与服务器之间的数据交互设计，并可以通过传感器将植物生长环境数据实时传输至服务器端，用户可通过移动智能终端直观的查看土壤温湿度与光照强度等传感器的数据信息，从而达到科学养殖，提高植物存活率的目的。

该植物检测系统在技术方面使用了前后端分离的架构设计，从而实现了分层部署与异步开发，在操作方面可以使程序在开发、调试与部署方面更加快速，在经济方面使用了云服务器，从而实现了经济实用的开发运行环境。

关键词：养殖花草，ESP32 检测器，存活率

Abstract

Internet of things technology has been applied in many industries, transportation, medical care, furniture, security and so on can achieve more efficient and advanced functions through the Internet of things. Similarly, for agriculture, the Internet of things also has a wide range of uses. In recent years, China's planting industry is changing to the direction of modernization, abandoning the traditional labor mode, relying on high-tech, artificial management of agricultural mode into intelligent automatic management. With the rapid development of China's economy and the progress of people's living standards, people pay more attention to spiritual life while they are satisfied with material life. In view of the fact that most people like to plant flowers and trees, but suffer from the lack of professional knowledge, in the process of planting can not do scientific breeding, resulting in a series of problems such as yellow and drought death of beloved plants.

In the face of these problems, we designed a plant detector based on esp32. This detector can effectively and intuitively solve a series of problems encountered in the process of planting Xiaobai, such as different plants, different seasons, different temperature, humidity and light. The system is mainly divided into the design of data interaction between esp32 hardware design and server, and can transmit the plant growth environment data to the server in real time through the sensor. Users can directly view the data information of soil temperature, humidity and light intensity through the mobile intelligent terminal, so as to achieve the purpose of scientific breeding and improve the survival rate of plants.

In terms of technology, the plant detection system uses the architecture design of separation of front and rear end, so as to realize hierarchical deployment and asynchronous development. In terms of operation, it can make the development, debugging and deployment of the program more quickly. In the economic aspect, it uses the cloud server, so as to realize the economic and practical development and operation environment.

Key Word：Plant plants, ESP32 monitor, Survival rate