



**科技论文写作报告**

# 论文题目：基于边缘计算的智能农作物生长监测装置设计

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# 基于边缘计算的智能农作物生长监测装置设计

【内容摘要】跟随科技发展，为了让人们的生活变得更加便捷和舒适，体验到低成本低功耗便捷的智能设备，过上充满科技感的幸福生活。本文设计是基于边缘计算的智能农作物生长监测装置设计，设计目的主要在于实现人们居住环境的科技化和信息化，提供一种装置，可以便利、快速、实时的监测农作物的生长情况，及时反馈，以便于做出正确决策。针对农业领域农作物生长环境的温度不能实时监控，导致农作物过热产能下降的问题，结合物联网技术，基于STM32嵌入式设备，利用温度传感器实时监控环境温度数据，使用户能够及时接收到数据并处理。针对农业领域农作物生长环境的湿度不能有效监控，导致农作物旱死或涝死的问题。基于STM32嵌入式设备，利用湿度传感器有效监控环境湿度，通过oled显示模块与蓝牙模块及时使用户接收到数据并及时处理。针对农业领域农作物生长状况不能有效测量，导致用户不能再第一时间得知农作物植株的生长状况，引起不便。基于STM32嵌入式设备，利用vl53l0激光测距模块有效监控农作物植株的生长高度，使用户对其的监测更加便利。基于STM32嵌入式设备，利用雨滴传感器模块有效检测下雨的程度，并实时传达给用户。

【关键词】边缘计算；智慧农业；STM32

**Design of Smart Crop Growth Monitoring Device Based on Edge Computing**

**Abstract：**Following the development of science and technology, in order to make people's lives more convenient and comfortable, experience low-cost low-power convenient smart devices, and live a happy life full of technology. The design of this paper is the design of intelligent crop growth monitoring device based on edge computing, which is mainly designed to realize the technological and informatization of people's living environment, and to provide a device that can conveniently, quickly, and real-time monitor the growth of crops, and provide timely feedback so as to facilitate correct decision-making. Aiming at the problem that the temperature of the growing environment of crops in the field of agriculture cannot be monitored in real time, which leads to the decrease of the production capacity of crops overheating, combining with the Internet of Things technology, based on STM32 embedded devices, utilizing temperature sensors to monitor the environmental temperature data in real time, so that the user can receive the data and process it in a timely manner. For the agricultural field of crop growth environment humidity can not be effectively monitored, resulting in crop drought or flooding problems. Based on STM32 embedded devices, the humidity sensor is utilized to effectively monitor the environmental humidity, and the oled display module and Bluetooth module timely enable the user to receive the data and timely processing. For the agricultural field crop growth conditions can not be effectively measured, resulting in the user can not be the first time to know the growth of crop plants, causing inconvenience. Based on the STM32 embedded device, the vl53l0 laser distance measurement module is utilized to effectively monitor the growth height of crop plants, making it more convenient for users to monitor them. Based on STM32 embedded devices, the raindrop sensor module is utilized to effectively detect the degree of rain and convey it to the user in real time.

**Keyword：** Edge Computing; Smart Agriculture; STM32

目 录

[绪论 1](#_Toc32157)

**1 农作物生长监测系统总体介绍**

[1.1研究背景 1](#_Toc22556)

[1.2国内外研究现状 1](#_Toc19487)

[1.3 设计主要研究内容 2](#_Toc11970)

[1.4系统的整体需求及关键技术 3](#_Toc12094)

[1.4.1系统的整体需求 3](#_Toc18253)

[1.4.2 系统设计关键技术 3](#_Toc14989)

[2、系统硬件设计 4](#_Toc22198)

[2.1微处理器的选择 5](#_Toc26603)

[2.2总体硬件的设计方案 8](#_Toc27887)

[2.3蓝牙通信模块设计 8](#_Toc14056)

[2.4测距模块的硬件设计 10](#_Toc1311)

[2.5温湿度模块的硬件设计 12](#_Toc12415)

[2.6 oled显示模块的硬件设计 13](#_Toc23811)

[2.7 蜂鸣器的硬件设计 13](#_Toc14718)

[2.8 水滴传感器的硬件设计 14](#_Toc14718)

[3 系统的软件设计 14](#_Toc29735)

[3.1 系统软件设计需求分析 14](#_Toc12626)

[3.2 STM32温湿度采集模块软件设计 14](#_Toc23053)

[3.3 oled数据显示模块软件设计 16](#_Toc2068)

[3.4 蓝牙模块HC-05软件设计 17](#_Toc27271)

[3.5 测距模块软件设计 19](#_Toc3587)

[3.6 蜂鸣器模块软件设计 20](#_Toc20933)

[3.7 水滴传感器检测模块软件设计 21](#_Toc27271)

[4 系统测试 22](#_Toc4048)

[4.1 测试目的 22](#_Toc15845)

[4.2 系统的实物测试 22](#_Toc11892)

[4.3 蓝牙连接测试 26](#_Toc4624)

[5 总结与展望 2](#_Toc5719)7

[5.1 总结 2](#_Toc20321)7

[5.2 展望 2](#_Toc6421)7

[致谢 2](#_Toc18990)8

[参考文献 2](#_Toc18990)9