

基于 NB-IoT 的智能节水灌溉系统的设计

摘要：伴随着通讯科技的飞速发展，物联网技术正逐渐步入人们的视野。物联网技术凭借其优秀的实用性正一步步改变许多传统行业，使其焕发出新的生机。我国目前很多传统的灌溉农业采用的是手动开关阀门的方式，灌溉浪费严重，无法实现精准灌溉节水灌溉的理念，水资源利用率低下。

农作物的良好的生长环境与先进的灌溉技术息息相关。如果灌溉过度会导致土壤细菌滋生，影响作物生长，过少的灌溉会使农作物的养分供给得不到保障。为了有效提高灌溉系统的精准度和自动化程度，在传统的灌溉方式当中引入物联网管控技术将会是现代农作物的新的风向标。本文利用 ATMEGA328 系统，针对环境进行具体化的定制，通过物联网平台将土壤湿度温度等信息实时有效的送到用户手中，实现对灌溉系统远程操作的目的，对土壤的物理环境进行实时有效的勘测，真正意义上实现节水灌溉。

关键词：节水灌溉，远程控制，NB-IoT 物联网

DESIGN OF INTELLIGENT IRRIGATION SYSTEM BASED ON NB-IoT

ABSTRACT

With the rapid development of communication technology, the Internet of things technology is gradually stepping into people's vision. Internet of things (iot) technology, with its excellent practicability, is gradually changing many traditional industries and giving them new vitality. At present, many traditional irrigation agriculture in China adopts the manual way of opening and closing the valve. The irrigation waste is serious, and the concept of precise irrigation and water-saving irrigation cannot be realized, and the utilization rate of water resources is low.

The good growing environment of crops is closely related to the advanced irrigation technology. If too much irrigation will lead to the growth of soil bacteria and affect the growth of crops, too little irrigation will not guarantee the nutrient supply of crops. In order to effectively improve the precision and automation of irrigation system, the introduction of iot control technology into traditional irrigation methods will be a new vane of modern agriculture. In this paper, the ATMEGA328 embedded system is utilized to make specific customization for the environment. Through the Internet of things platform, information such as soil moisture and temperature can be sent to users in real time and effectively, so as to realize the purpose of remote operation of the irrigation system and real-time and effective survey of the physical environment of the soil. In a real sense, water-saving irrigation can be realized.

Keywords: water-saving irrigation, remote control, nb-iot

目录

目录

1 绪论.....	5
1.1 设计背景及其意义.....	5
1.2 国内外智能节水灌溉研究现状.....	5
1.3 NB-IoT 系统现状与发展.....	6
1.4 NB-IoT 技术应用于节水灌溉的意义.....	7
1.5 本论文结构.....	8
1.6 本章小结.....	8
2 硬件系统总体设计.....	8
2.1 硬件电路设计.....	8
2.2 主控模块设计.....	9
2.3 NB-IoT 无线通信模块设计.....	11
2.4 温度传感器模块.....	14
2.5 湿度传感器模块.....	15
2.6 本章小结.....	16
3 软件系统总体设计.....	16
3.1 软件系统开发环境.....	16
3.2 软件总体设计.....	17
3.3 软件分块设计.....	18
3.4 NB-IoT 云端.....	20
3.5 本章小结.....	21
4 系统测试.....	22
4.1 测试目标.....	22
4.2 系统测试过程.....	22
4.3 实验结果分析.....	22
4.4 本章小结.....	23
5 总结.....	23
参考文献.....	24
致谢.....	25

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