
基于单片机的水资源远程监测系统

摘 要

目前,我国对水质的检测方式更多的是使用试纸,以及通光度的观察,测试水环境时需要多种设备以及试纸,对于测试过程带来不便,应该设计一个装置,让对参数的获取更为的简便。可以直观的显示我们想要信息。并且可以通过蓝牙模块将数据传入其他移动设备显示。本论文设计了一种基于单片机的水资源远程监测系统,可以直接通过水质的传感器探针对测试的水体进行水质并实时显示且传送到 APP 中。

本次的设计为基于单片机开发。首先此次选择的 STC12C5A60S2 作为此次设计的单片机,通过 PH 传感器,水浊度传感器实时采集水体 PH 信息,水浊度信息,利用蓝牙串口模块 HC-05 和 LCD1602,通过数据传输,显示在本次选用的液晶模块以及 APP 上,方便查看以及监控,大大提高了系统运行时的可靠性。首先设计系统的总体框图,然后根据框图进行硬件电路的设计和软件程序的设计,最终画出系统总原理图。对硬件和软件进行调试,画出系统主要模块的流程图,实现本设计的目的。本次设计具有操作简单、成本低、精度高、低能耗等特点。

关键词: 单片机; PH 传感器; 浊度传感器; 蓝牙; LCD

ABSTRACT

At present, the detection methods of water quality in China are more using test papers and observation of light transmittance. A variety of equipment and test papers are required to test the water environment. For the inconvenience of the test process, a device should be designed to make the parameters more accessible For simplicity. Can intuitively display the information we want. And the data can be transferred to other mobile devices for display through the Bluetooth module. This paper designs a remote monitoring system for water resources based on single chip microcomputer, which can directly display the water quality of the tested water body through the sensor probe of water quality and display it to the APP from time to time. The design of this time is based on the development of single chip microcomputer, the following modules of water quality detection. First of all, the STC12C5A60S2 selected this time as the single-chip microcomputer designed this time, through the PH sensor, water turbidity sensor to collect real-time PH information of the water body, water turbidity information, using Bluetooth serial port module HC-05 and LCD1602, through data transmission, displayed in this The selected LCD module and APP are convenient for viewing and monitoring, which greatly improves the reliability of the system during operation. First design the overall block diagram of the system, then design the hardware circuit and software program according to the block diagram, and finally draw the overall schematic diagram of the system. Debug the hardware and software, and draw the flow chart of the main modules of the system to achieve the purpose of this design. This design has the characteristics of simple operation, low cost, high precision and low energy consumption.

Key words: MCU; PH sensor; Turbidity sensor; Bluetooth; LCD

以上内容仅为本文档的试下载部分，为可阅读页数的一半内容。

如要下载或阅读全文，请访问：

<https://d.book118.com/566212231122010142>