家用洗衣机智能控制模块设计

摘要：如今的数字技术发展的越来越快，越来越多的领域都在使用数字技术，如今智能化控制技术就被应用于洗衣机的控制，智能化控制的洗衣机使消费者的洗衣工作变得既省时又省力，缓减了人们生活的负担，为消费者挪出了一部分空闲时间来娱乐或休息。使用 AT89C51 单片机来进行设计洗衣机智能控制系统，选择合适的洗涤程序，在根据洗涤过程中由浊度传感器监测到洗衣机内部水的浑浊程度，来控制洗衣机的脱水功能，让洗衣机的洗涤效果更突出，衣物更洁净。利用由单片机来设计的洗衣机控制控制系统来控制洗涤程序，让洗衣机开始自动工作，由于洗衣机的各个功能的实现都脱离了人为的控制，实现自动和智能控制。洗衣机的设计包括硬件设计和软件设计，硬件设计：浊度信号的采集和传输、洗衣机的电源模块设计、控制电路设计、发光二极管显示电路和 LCD 显示模块等，软件设计包括洗衣机主体程序、洗涤程序、漂洗程序、脱水程序等，根据硬件设计和软件设计用 protues 软件来进行洗衣机功能的模拟仿真。

关键词：智能洗衣机； 智能控制； 51 单片机； protues

Intelligent control module of household washing machine

Abstract: Today's digital technology is developing faster and faster. More and more fields are using digital technology. Today's intelligent control technology is applied to the control of washing machines. Intelligent controlled washing machines make the washing work of consumers time-saving and labor-saving, reduce the burden of people's life, and free up some spare time for consumers to have fun or rest. The intelligent control system of washing machine is designed with AT89C51 single chip microcomputer, and the appropriate washing program is selected. According to the turbidity degree of the water in the washing machine monitored by the turbidity sensor during the washing process, the dehydration function of the washing machine is controlled, so that the washing effect of the washing machine is more prominent and the clothes are cleaner. The washing machine control system designed by single-chip microcomputer is used to control the washing program, so that the washing machine starts to work automatically, Since the realization of each function of the washing machine is separated from human control, automatic and intelligent control is realized. The design of washing machine includes hardware design and software design. The hardware design includes temperature collector, turbidity measurement, power supply module design, control circuit, resonant water level design, LED display circuit, etc. The software design includes washing machine main body program, washing program, rinsing program, dehydration program, etc. protues is used according to hardware design and software design.

Key words: Intelligent washing machine, intelligent control, 51 single chip microcomputer, protues

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