

## 嵌入式USB主机接口在温室环境监控中的应用研究

### Embedded USB host computer interface applied in the greenhouse environment monitoring and controlling system

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英文关键词: USB host computer interface; single chip computer; driver; read/write operation of USB flash disk; greenhouse

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中文摘要:

为了满足温室环境监控中大量信息存储的需要,研究了基于嵌入式USB主机接口的数据存储技术。该技术以51系列单片机为核心器件,嵌入了主/从双工作模式USB接口芯片SL811HS,并根据USB1.1协议和U盘文件系统格式,编制了USB接口驱动程序和数据存储应用程序。把该技术集成到自主开发的温室环境监控系统中进行了应用,实现了对目前市面上通用的64M、128M容量U盘的读写操作,解决了海量数据的存储问题。如果对驱动程序和应用程序做适当的修改,还可通过USB主机接口实现对USB接口打印机、USB接口扫描仪等外设的控制。结果表明,该数据存储方案具有成本低、通用性强、可扩展性强、可靠性高等特点,可方便地集成到各种监控系统中,从而满足用户的不同需要。

英文摘要:

In this paper, the data memory technology of embedded USB host computer interface was described, which can meet the demand that a large amount of information stores in the greenhouse environment monitoring and controlling system. This technology regarded 51 serial single chip computers as the key device embedded with USB interface chip SL811HS with master and slave work patterns. According to USB1.1 protocol and systematical file of USB flash disk, USB driver and data store application program was worked out. Then the storage of large capacity information in the USB flash disk and read/write operation of the flash disks with capacity of 64M or 128M were realized by the data memory technology integrated in the greenhouse environmental monitoring and controlling system developed independently. This technology can also be used to control the USB printer and USB scanner by little modification of driver and data storage application program. With characteristics such as low costs, strong universal ability, good reliability, easy to operate and high dependability, this technology can be easily integrated into different monitoring and controlling systems to meet the need of different users.

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