物联网环境下基于 PLC 的远程控制系统设计

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摘　要:在物联网环境下基于 ZigBee 技术对模型化平台进行远程控制,远程控制系统主要包括了自动控制模块、数据通信模块和网络接口设计模型,重点对远程控制系统的 CAN 通信模块进行研究. 采用 ADUM1201 和 PCA82C250 接收远程控制指令,通过 ZigBee 无线网络对远程控制系统的各种底层信息进行数据采集和分析,经 ARM 主控系统处理过的数据经网关传送至外部网络. 在 ZigBee 的 MAC 层植入模糊神经网络控制程序,基于 PLC 逻辑编程进行远程控制程序加载,PLC 上的串口与 WiFi(或者 4G)设备服务器相连,接入物联网实验平台,设定 PLL_LOCKCNT 寄存器进行控制程序时钟采样,通过 A/D 转换模块和动态增益控制模块实现远程控制指令的 IO 中断和接收,实现模型化平台的远程控制的数据通信,改善控制水平. 仿真结果表明,采用该系统进行模型化平台的远程控制,控制请求脉冲信号 A/D 采样数据连续,通信传输稳定,控制性能可靠.

关键词:物联网;远程控制;系统设计;CAN 通信模块

Design of Remote Control System Based on PLC in the Internet of Things

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Abstract: Based on the ZigBee technology in the Internet of things, the model of the platform is remote control, remote control system mainly includes automatic control module, data communication module and network interface design model, this paper focuses on the remote control system of CAN communication module. ADUM1201 and PCA82C250 receive remote control commands, through the ZigBee wireless network to the remote control system of the various underlying information data acquisition and analysis, the main control system through the ARM data transmission through the gateway to the external network. The MAC layer of ZigBee is embedded in the fuzzy neural network control program. The remote control program is loaded on the PLC logic programming. The serial port is connected with WIFI (or 4G). The PLC registers are controlled by PLL_LOCKCNT. The IO registers are controlled by A/D. The simulation results show that the system is used to model the remote control of the platform and control the signal A/D sampling data is continuous, the communication is stable and the control performance is reliable.

Key words: internet of things; remote control; system design; CAN communication module

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