基于单片机的校园安防系统设计

摘 要

随着科教事业的不断发展，国家对人才的重视程度也随之提高。作为培养学生的摇篮，校园的安全环境对人才培养起着至关重要的作用。当前，学生宿舍被盗以及发生火灾的事件普遍存在，极大地危胁到学生的人身安全及财产安全。把校园的危险系数降到最低，把学生的安全系数提到最高，保护好广大学子的安全是各大高校义不容辞的责任。

本课题是一种基于单片机的校园安防系统的设计，采用的主要技术有：入侵检测、温度检测、烟雾检测、单片机信息处理、网络传输等，具有防盗、防火、短信远程监控等功能。本设计是以 STC89C51 单片机和 GSM 通信模块为核心的智能防火防盗报警系统，通过人体红外热释感应模块、温度传感器、烟雾传感器等实时监测学生寝室的安全情况，如有异常，系统会发出声光报警并且发送短信通知主人，以便及时采取防护措施。

该安防系统结构简单、使用方便、报警准确，能够使学生及时了解寝室的各种安全信息，使学生的人身安全及财产安全得到极大的保证，具有一定的理论意义和实际应用价值。

关键词：STC89C51 单片机；GSM 通信模块；防火；防盗

Abstract

With the continuous development of science and education, the country's emphasis on talents has also increased. As a cradle for training students, the safe environment on campus plays a vital role in talent training. At present, the theft of student dormitories and the occurrence of fires are widespread, which greatly threatens the personal safety and property safety of students. It is the unshirkable responsibility of all major universities to minimize the risk factor of campus and raise the safety factor of students to the highest.

This subject is a design of a campus security system based on a single-chip computer. The main technologies used are: intrusion detection, temperature detection, smoke detection, single-chip information processing, network transmission, etc. It has functions such as anti-theft, fire protection, and remote monitoring of short messages. This design is based on the STC89C51 single-chip microcomputer and GSM communication module as the core of the intelligent fire prevention and anti-theft alarm system, through the human body infrared pyroelectric induction module, temperature sensor, smoke sensor and other real-time monitoring of the safety of the student bedroom Send an alarm and send a text message to notify the owner to take protective measures in time.

The security system has the advantages of simple structure, convenient use and accurate alarm, which can enable students to timely understand various safety information of the dormitory, ensure the personal safety and property safety of the students, and have a certain theoretical significance and practical application value.

Key words:　STC89C51 MCU; GSM module; fire protection；anti-the

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