红外光通信装置系统的设计

摘　要： 在无线通信没有普及的社会情况下，语音系统在实现传输和正常播放的情况，都是需要很多的实体线缆实现的，因该播放系统本身的复杂性，所以在该系统接收和发送语音的端口都是需要线缆来实现，多而交错的线缆放在地面上时，当人经过时就会产生各种各样的问题，不仅影响现实场地的美观性，也会一定程度上波及到人的自身安全。近年来，科技的飞速发展使得无线电通信的普及率越来越高，这里主要发展比较成熟的是距离比较近的无线电通信，这让声音的传输进入另一种境地，让危险复杂的电缆渐渐退出声音传输的舞台。本文主要讲的是基于红外的无线信号传输系统。红外无线信号的传出的理解，即字面意思一种用红外线为传输的主要的载体实现近距离无线传播的一种技术，它还有很多相较于传统传输的有点，如保密性和安全性能高而且强，在使用过程中的功耗和成本比较低。

本设计主要是通过红外光传输语音。它主要包括红外发送和红外接收两大部分。首先利用音频线输入得到语音信号，进行放大处理和滤波处理。再通过单片机传输语音和温度信号信号能够定向不失真传输到红外接收端，经过中继转发，再到另一个单片机控制的红外接收器件把接收到的语音信号和温度信号解调出来以得到有用的模拟语音信号，经过音频功放电路，最后通过喇叭波放出声音。

在经过系统调试与性能测试之后，结果表明该系统性能稳定，能够实现语音信号和温度信号的实时传输，且传输过程中不失真，温度数据无丢码。该系统具有播放清晰、携带方便、低成本等特性，在整体的要求和性能指标上，实现了设计并达到了预期要求，可方便用于室内场合。

关键词： 红外光通信；STM32F1003VCT6；中继转发

The design of infrared communication device system

Abstract: With the development of the times, the application of GPS is involved in many aspects, which also make rapid development of the relevant single-chip computer, GPS receiver and other industries. The global positioning system (GPS) was originally developed to meet the requirements of military, so far, it has provided convenience in many aspects in the field of life, like using the positioning function of GPS to carry out car navigation, time service, planning time and reasonable allocation and utilization time, Improve the efficiency of life and travel, making it ideal for today's fast-paced lifestyle.

Of infrared communication system device collecting audio design USES infrared receiving module, the information such as temperature, then through the Keil uVision 5 write to collect audio and the function of the temperature needed to implement the code, and through the general technology of burning software download to STM32F103 microcontroller, through Altium Designer16 design principle diagram, using physical produced can be transmitted audio and display temperature infrared communication device system, finally chose to use LCD1602 LCD screen will display temperature, and the voice was successful transmission. In this process, it is applied to SCM, display screen, infrared transmitting and infrared receiving module, etc. The relay and forwarding module can lengthen the communication distance.

This design mainly includes the procedure and the material object two parts. The program is mainly composed of temperature acquisition and audio acquisition, and then integrated to obtain the required complete code, and finally the program is burned by the general technology burning software; The material object USES the custom clad plate to purchase and weld the components needed in the PCB to obtain the final material object positioning detector.

Key words: Infrared communication; STM32F103VCT6; Temperature gathering