

# 基于 51 单片机的智能门铃的设计与实现

## 摘要

智能建筑近些年来在建筑市场的持续增长,智能门铃系统被各大公司和住宅用户,以智能办公和智能住宅系统受到越来越多的喜爱。在某些情况下,智能门铃可以给人们带来意想不到的便利。本选提在研究了现代家庭的需求之后,结合传统的门铃设计出新款基于 STC89C52 单片机的无线智能门铃。STC89C52 单片机的优点是性能稳定、成本低廉,因此被本系统所使用。利用单片机与门铃结合的设计方法,创造一个更简单、更高效的电路。优秀的门铃,更适合现代智能家居的需求。本文设计的智能门铃具有响铃提示、人体感测、报警、语音留言和播放、访客记录反馈到手机等功能,当访客按下门铃上的一个按钮时,会显示一个提醒铃声,如果没有人在家,访客可以输入语音信息。同时,访客的记录可以由智云反馈到户主的手机,该系统功能丰富,实用性强。

**关键词:** 51 单片机; 智能门铃; 设计

## **Abstract**

Smart buildings have continued to grow in the construction market in recent years, and smart doorbell systems have been favored by companies and residential users more and more with smart office and smart residential systems. In some cases, smart doorbells can bring unexpected convenience to people. This subject proposes a new wireless doorbell design based on the needs of modern families and combined with previous doorbell designs. This is a smart doorbell design based on STC89C52 single chip microcomputer. The advantages of STC89C52 microcontroller are stable performance and low cost, so it is used by this system. Using the design method combining the single-chip microcomputer and the doorbell, a simpler and more efficient circuit is created. An excellent doorbell is more suitable for the needs of modern smart homes. The smart doorbell designed in this article has functions such as ring notification, human body sensing, alarm, voice message and playback, and feedback of visitor records to the mobile phone. When the visitor presses a button on the doorbell, a reminder bell will be displayed. If no one is at home, Visitors can enter voice messages. At the same time, the visitor's record can be fed back to the head of the household's mobile phone by Zhiyun. The system is rich in functions and practical.

**Keywords:** 51 single chip microcomputer; intelligent doorbell; design

# 目录

1 绪论 .....	1
1.1 选题背景及意义 .....	1
1.1.1 选题背景.....	1
1.1.2 选题意义.....	2
1.2 国内外发展现状 .....	2
1.2.1 国外发展现状.....	2
1.2.2 国内发展现状.....	3
2 总体方案设计.....	4
2.1 元器件选型 .....	4
2.1.1 单片机选型.....	4
2.1.2 热释红外.....	4
2.2 基本功能 .....	4
2.3 总体设计方案 .....	5
3 系统硬件设计.....	7
3.1 主控模块设计 .....	7
3.1.1 单片机组成.....	7
3.1.2 单片机主要性能.....	7
3.1.3 单片机管脚说明.....	8
3.1.4 振荡电路和时钟.....	10
3.1.5 复位电路.....	11
3.2 PIR 模块设计 .....	11
3.3 按键模块设计 .....	12
3.4 图像传感器模块设计 .....	13
3.5 音乐提示模块设计 .....	14
3.6 GSM 模块设计 .....	14
4 系统软件设计.....	16
4.1 软件开发环境 .....	16

以上内容仅为本文档的试下载部分，为可阅读页数的一半内容。

如要下载或阅读全文，请访问：

<https://d.book118.com/737120113151006121>