

题 目：基于单片机的红外避障循迹智能小车

## 摘要

随着人工智能和自动化的发展，现在时刻在改善和促进提高我们的生活。避障循迹智能小车从小的角度来说是一个有趣、益智的玩具；从大的角度来说是目前各大汽车品牌全力追逐的技术点，以此提高其汽车智能化，同时增加汽车的安全性和简易性。现在的单片机在各行各业应用的十分广泛，因其低功耗、智能化、简易化。我们此次便使用 STC89C52RC 单片机为主板核心设计出具有避障、循迹、智能化的小车。本论文由智能小车的描述、单片机描述、硬件电路设计、软件设计和小车的调试几大模块组成。从而体现出单片机系统的结构简单、功能强大、可靠性好、实用性强等优点。同时也提高我们对 C 语言的熟悉程度，因为对小车的控制就是通过对 C 语言的编写以及不断的实验。在 keil 上编写语言，然后改变成单片机所能接收的机器语言，再通过 STC-ISP 下载编程器把机器语言汇入 STC89C52RC 单片机，从而实现功能。

**关键词：**STC89C52RC 单片机；C 语言；避障；循迹；智能化

## Abstract

With the development of artificial intelligence and automation, now we are improving and promoting our life. From a small point of view, the obstacle avoidance tracking intelligent car is an interesting and educational toy; from a large point of view, it is the technical point pursued by all major automobile brands, so as to improve their car intelligence, and increase the safety and simplicity of the car. Now the single-chip microcomputer is widely used in all walks of life because of its low power consumption, intelligence and simplicity. We use stc89c52rc as the core of the main board to design a car with obstacle avoidance, tracking and intelligence. This paper consists of several modules: the description of intelligent car, the description of single chip microcomputer, the design of hardware circuit, the design of software and the debugging of car. The advantages of SCM system are simple structure, powerful function, good reliability and strong practicability. At the same time, it also improves our familiarity with C language, because the control of the car is through the preparation of C language and continuous experiments. Write the language on KEIL, then change it into the machine language that can be received by single chip microcomputer, and import the machine language into stc89c52rc single chip microcomputer through stc-isp download programmer, so as to realize the function.

**Key words:** stc89c52rc single chip microcomputer; C language; obstacle avoidance; trace; intellectualizatio

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