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# 基于单片机自行车测速里程计的设计与实现

## 摘 要

当代社会，人们已经不会使用自行车作为纯粹的交通工具，伴随工业技术发展，大家十分喜欢将自行车作为日常生活当中的一件游玩娱乐用品。一般自行车的时速效果应该达到可满足上班族、学生党等的日常需要效果，可以向它的使用者传达该产品的时速，效果，及基本的物理量信息。鄙人拙见，经过研究设计，利用该文引荐出一项专用于测量自行车速度的里程表设计。

A3144E 霍尔传感器电源因其具有多样化的实用特点，搭配着 STC89C52 单片机做设计要点，并对转动速率进行测量，完成自行车时速信息的钻研统计。STC 微控制器内部的电可擦可编程只读存储器，可以免除系统断电时遗失里程信息之忧，仅仅以液晶显示器 1602 就能够为人们传达所需要的行驶实况数据信息，并添加数字存储系统 1302 实时显示时间和日期。本文在此，向大家尽量详实的阐明了自行车速度计的硬件电路，且展示了相应的软件设计。硬件局域部分，霍尔元件用于向系统传输关于自行车轮胎循环的脉冲信息。单片的当单片系统运行时，信号可以被传输到显示器。并且还可以通过按键来设置超速值，当实际检测到的速度超过这个值就会发出鸣叫声提示用户超速。软件程序设计语言，在经过考量后，我想到了使用 C 语言，就能够进行简单的编译，并处理低级内存，配合模块化的设计方案。简化了系统当中的硬件切换，普适性相对较强。

**关键词：**A3144 霍尔传感器；DS1302 时钟芯片；STC89C52 单片机

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## ABSTRACT

In modern society, people will no longer use bicycles as a pure means of transportation, with the development of industrial technology.

The speed effect of general bicycles should be able to meet the daily needs of office workers, student party, etc. it can convey the speed, effect and basic physical information of the product to its users. In my humble opinion, after research and design, this paper introduces a odometer design which is specially used to measure bicycle speed.

People like to use bicycles as an entertainment thing in their daily life. The speed effect of general bicycles should be able to meet the daily needs of office workers, student party, etc. it can convey the speed, effect and basic physical information of the product to its users. In my opinion, after research and design, this paper introduces a design of bicycle speedometer based on Hall element.

A3144e Hall sensor power supply has various practical characteristics. A3144e Hall sensor power supply has the characteristics of wide voltage range, low driving cost, anti environmental stress, etc. in this design, it is selected to make use of its small size, high reliability, with STC89C52 single chip microcomputer as the core, and to measure the rotation speed, so as to realize the research of bicycle mileage / speed data Research statistics. It is designed with STC89C52 single chip microcomputer, and the rotation rate is measured to complete the research and statistics of bicycle speed information. The electric erasable programmable read-only memory inside the STC microcontroller can avoid the worry of losing the mileage information when the system is powered off. The mileage and speed of the bicycle can be displayed in real time through the LCD 1602, and the digital storage system 1302 is added to display the time and date in real time. In this paper, we try to elaborate the hardware circuit of bicycle speedometer, and show the corresponding software design. In the local part of hardware, Hall element is used to transmit pulse information about bicycle tire cycle to the system. The signal can be transmitted to the display. The overspeed value can also be set by pressing the key. A beep will be sent to remind the user of overspeed. After consideration, uses C language which can compile and process low-level memory in a simple way, with modular design scheme. The overspeed value can also be set by pressing the

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key. When the actual detected speed exceeds this value, a beep will be sent to remind the user of overspeed. Software programming language, after consideration, I think of the use of C language, can carry out simple compilation, and deal with low-level memory, with modular design. It simplifies the hardware switching in the system and has relatively strong universality.

The subprogram can be used in general.

**Key words:** A3144 Holzer sensor; DS1302 clock chip; STC89C52 microcontroller

## 目 录

第 1 章 引言	1
1.1 设计背景	1
1.2 国内外发展状况	1
1.3 设计的主要任务及内容	2
第 2 章 系统硬件方案选择	4
2.1 硬件方案的选择	4
2.1.1 主控芯片的选择	4
2.1.2 显示器件的选择	4
2.1.3 时钟器件的选择	5
2.1.4 测速模块的选择	5
2.2 系统总体方案	6
第 3 章 系统硬件电路设计	7
3.1 STC89C52 单片机系统设计	7
3.1.1 STC89C52 的概述	7
3.1.2 STC89C52 单片机的最小系统	7
3.2 LCD1602 液晶显示电路设计	8
3.2.1 LCD1602 的概述	8
3.2.2 LCD1602 的工作原理	9
3.3 DS1302 时钟电路设计	11
3.3.1 DS1302 的概述	11
3.3.2 DS1302 的工作原理	12
3.4 LM393 芯片的介绍	13
3.5 霍尔测速电路的设计	14
3.5.1 霍尔传感器的概述	14
3.5.2 霍尔传感器测量原理	14
3.5.3 A3144 在本设计的作用	14
3.6 独立按键电路的设计	15

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