

# 基于单片机的小车动态无线充电系统设计

## 摘 要

现阶段，新能源的电动汽车被广泛推广，而无线充电是其电动汽车发展的关键技术，因此运用先进的动态无线充电技术，设计一套动态无线充电小车系统非常重要。该系统主要包括无线充电装置、无线充电电动车和超级电容储能装置。首先通过无线充电装置将直流电变成高频的交流电驱动发射线圈转换成磁场，传输给接收线圈，经整流滤波稳压电路，给小车提供了稳定的直流电压。该电压给超级电容充电，与此同时，电压还通过稳压电源模块给单片机以及电机、红外传感器供电。实现小车断电自启和定时自启循迹行驶，并在行驶途中动态无线充电。

**关键词：**无线充电；循迹小车；超级电容

## Abstract

At this stage, new energy electric vehicles are widely promoted. Wireless charging is a key technology for the development of electric vehicles. Therefore, it is very important to design a dynamic wireless charging car system using advanced dynamic wireless charging technology. The system mainly includes a wireless charging device, a wireless charging electric vehicle, and a super capacitor energy storage device. First, the wireless charging device converts the direct current into high-frequency alternating current to drive the transmitting coil into a magnetic field, and then transmits it to the receiving coil. After the rectifying, filtering and stabilizing circuit, the car is provided with a stable DC voltage. This voltage charges the supercapacitor, and at the same time, the voltage also supplies power to the single chip microcomputer, the motor, and the infrared sensor through the regulated power supply module. It realizes the self-starting and timing self-starting tracking of the car when power is off, and dynamic wireless charging while driving.

**Key Words:** Wireless charging; Tracking car; Super capacitor

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