

机场用磁引导物料送货小车控制系统设计

摘 要

针对企业中人力损耗和效率低下等问题，本文设计了一款磁引导物料送货小车，它具有工作效率高、节能、成本低、工作可靠等优点，本文中小车采用 ESP8266 作为核心控制单元，在对硬件电路进行设计时，系统主要是以硬件模块为基础来实施的，系统硬件包括多个模块，如循迹模块，电源模块、驱动模块等，其中对电机实施控制时，主要通过驱动模块来实现的，通过避障模块，可以有效提升小车的安全系数，通过电源模块，可以为小车的行驶提供一定的动力，RFID 读取磁条上的 IC 卡实现指定位置装卸料时间。

关键词：智能小车 单片机 磁引导 RFID 避障 电路设计

Design of Control System for Magnetic Guided Material Delivery Trolley for Airport

Abstract

In order to solve the problems of manpower loss and low efficiency in enterprises, a magnetic guided material delivery car is designed in this paper, which has the advantages of high transportation efficiency, energy saving and reliable work. ESP8266 is used as the core control unit in this paper. The hardware circuit of the control system is designed according to the hardware modularization. The hardware of the system is composed of motor drive module, trace module, obstacle avoidance module, power supply module and RFID positioning module. The drive module realizes the control of the motor, the tracking module realizes the identification of the magnetic strip, the obstacle avoidance module realizes the safety of the car, the power module provides power to the car, and the RFID reads the IC on the magnetic strip. The card implements the loading and unloading time at the specified location.

After the overall test of each module and system, the designed feeding car can carry out independent tracking, obstacle avoidance and positioning in the simulated working environment, which realizes the basic functions of the system and meets the design requirements of the system.

Key words: Intelligent car; singlechip; magnetic guidance; RFID;Obstacle avoidance; ircuit design

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