



作品名稱	無線遙控四足機械自走馬車之設計與實現 Implement and Design of Wireless Remote Control for a Four Legs Mechanical Auto-moving Carriage
隊伍名稱	可愛馬車 Cute Carriage
隊長	楊弘嘉 建國科技大學 電子工程系
隊員	陳泰仁 · 謝承運 · 王彥翔 建國科技大學 電子工程系
指導老師	陳宏明 建國科技大學 電子工程系研究所

作品摘要

本專題目的主要是設計單晶片微電腦控制器完成機械馬車之控制與實現。本專題的特色是以89S51單晶片微電腦為控制中心，由HT-12無線遙控發射與接收模組及轉彎之機構設計，進行對機械馬車行走之控制實現，使得馬車完成前進、後退、及轉彎之功能需求。在此值得一提的是，本專題設計一類似馬鞍機構及韁繩，以RC伺服馬達帶動拉線完成馬車可以邊行走邊轉彎之功能。另外，我們在馬車前端也加裝紅外線感測器使得馬車具有避撞之功能特色，而且我們也設計一遠端遙控器對馬車進行無線遠端遙控之功能設計。因此本專題之機械馬車可說是一部具有自動閃避與自動轉彎功能特色之遠端遙控馬車。經由實際之實體測試，無論馬車是在前進、後退、轉彎、與無線遙控功能均能達到需求。

Abstract

In this project, design a single-chip micro-controller with wireless transmission module to realize controlling of auto-moving mechanism carriage. The key feature of this project is using 89S51 single-chip micro-computer as a control center, and through the HT-12 wireless transmitter and receiver module and auto-turning mechanical structure design to implement the remote control of auto-moving mechanism carriage, such that the moving forward, backward and turning around functions can be accomplished. The key valuable speaking, we design a new mechanism structure with RC servo motor to pull and drag a line to turn the horse direction immediately. In addition, we add the infrared ray sensor in front of auto-moving carriage to prevent crashed contact function. Therefore, it has auto-dodging and auto-turning direction functions which are the features character of this carriage. In the case of moving forward, backward, turning around, and wireless monitor functions, through the real testing results show that all the functions can be reached successfully.