

參賽隊伍人員及機器人簡介

Team Member and Robot Introduction

組別：遙控組

指導老師：柯嘉南

學校名稱：南開科技大學

隊伍名：瘋仔特攻隊

(School : Nan Kai University of Technology) (Team name : Crazy Attacking Team)

壹、參賽隊伍人員：

一、指導老師：柯嘉南

主要研究領域機構設計、動力學及控制工程。針對此一專題之製作，提供機構設與驅動系統設計方面之建議。結合理論與實務，完成機器人之機構與動作方面的創思。

Advisor: Chia-Nan Ko

The areas of research involve mechanism design, dynamical and control engineering. For completion of this students' project, some recommendations about machine structure design and driver system have been offered. Integrating theoretical concepts and practical implementation, the creative concept for mechanism and motion of the robot has been developed.

二、組員

王泓智(Hong-Jhih Wang)

組長：負責小組工作協調、零件加工、機器人之組裝、機構功能測試、材料採購。

Group leader : Responsible for coordination of group works, parts machining, robot assembling, function tests of mechanism, material and parts shopping.

張祐維(You-Wei Chang)

組員：負責零件加工、配線、電路焊接、機器人之組裝、機構功能測試、現場比賽之機器操作。

Group member : Responsible for parts machining, cable arrangements and welding, robot assembling, function tests of mechanism, and robot operator.

洪喬村(Ciao-Cub Hong)

參賽隊伍人員及機器人簡介

Team Member and Robot Introduction

組員：負責 AutoCad 繪圖、材料採購、機構設計、零件加工、機器人之組裝、機構功能測試、現場比賽之機器操作。

Group member : Responsible for drawing by AutoCAD, material and parts shopping, mechanism design, parts machining, robot assembling, function tests of mechanism, and robot operator.

貳、機器人簡介

一、構想與策略分析

採用平行四連桿機構以馬達帶動鏈條與曲柄，達到前後左右移動的效果。

Analysis of conception and policy

Adopt parallel four-bar linkage mechanism to carry the robot in which two motors are used to derive chain and crank to transport the four-bar linkage. That gets the result of moving all around.

二、機構設計

利用平行四連桿機構在活動時不會改變其平行度，而此平行四連桿中的兩支連桿為主動件，再以軸心以 360 度帶動曲柄。

The organization designing

Utilize parallel four connecting rods of organizations not to change its parallel degree while moving about, and two connecting rod of parallel four connecting rod this for take the initiative one, and then in order to drive the crank from all angles with the axis.

參賽隊伍人員及機器人簡介

Team Member and Robot Introduction

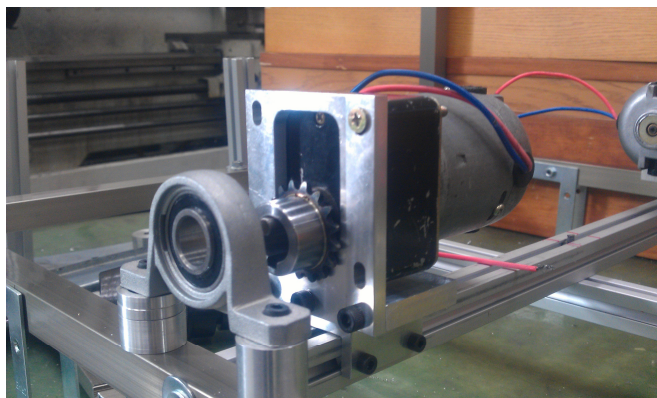


三、輪子驅動設計

四連桿在運動時可帶動機身、向前、後運動、以及原地左、右轉向運動的效果。

The wheel driving and designing

Can drive four connecting rod fuselage, not forward, after, and turn where it is Left deviation , right to result of sport of sport.



四、電路設計

以 4 顆 24V 的 2P 與 4P 的繼電器分別控制 2 顆馬達，控制方面以 2P 對 4P 的 1 對 2 繼電器來做馬達的正逆轉。

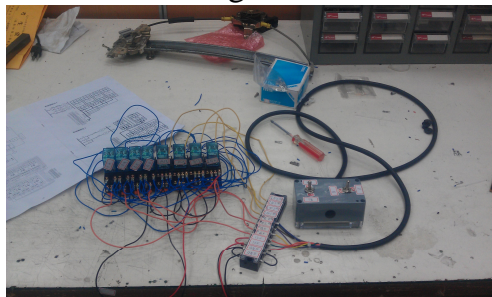
Circuit designing

Four relays of 2P and 4P with 24V are adopted to control two motors

參賽隊伍人員及機器人簡介

Team Member and Robot Introduction

respectively. In the direction control of a motor, a relay of 1 to 2 with 2P to 4P is used to control the reversing of the motor.



五、組裝、測試與修改

製作的過程分為組裝、加工、配電，讓製作時間盡可能的縮短。

Assembly, testing, and revising

The procedure of manufacture can be divided into assembly, processing, and power distribution which make manufacturing time shortening.

六、機器人創意特色說明

機器人之特色分為四種：強化骨架、機構輕量化、移動方式、固定腳。

Description for the characteristic of the robot

The characteristic of the robot is divided into four kinds: Strengthen the frame, light quantization of mechanism, the way of movement, and fixed foot.

參、參賽心得

TDK 競賽是全國性大型比賽，對於題目和得分方式我們都不斷的討論研究，遇到困難問題時，會請教學長及老師，期盼在比賽時能得到好的名次。剛開始的設計，歷經一個很嚴重的錯誤，讓我們必須重新設計，但是從失敗到完成機台，讓我們感覺成功的喜悅，心中的感動無法言喻。比賽成績雖然不盡理想，然而，製作與比賽讓我們學到寶貴經驗，期盼下次能創造佳績。

Highs and Lows

參賽隊伍人員及機器人簡介

Team Member and Robot Introduction

TDK competition is a nationwide full-length match. We discuss the topic and the way of scoring constantly, while meeting difficult problems, we study the problems with schoolmates and teachers conscientiously. We look forward to having a good match. In the first design, we have a serious error; we must again design a new mechanism. But from failing to the finishing the robot, let us feel successful happiness. Though results are not ideal, however, make and let us learn valuable experience in this match. Expect that we can create a better result next time.