參賽隊伍人員及機器人簡介

Team Member and Robot Introduction

組　　別：□遙控組　■自動組	指導老師：黃俊龍
學校名稱：中州科技大學	隊伍名：CMT
(School：)	(Team name：)

※內容需中、英對照※

壹、參賽隊伍人員(participating team personnel)：

一、指導老師（tutor Teacher）

指導教授 黃俊龍

學歷: 國立清華大學動力機械博士

學術專長: 控制器設計、精密機械、機電整合、動力機械

對此機器人之製作，提供機構設計、控制核心及機電整合等方面的建議及指導。將理論與實務結合，使機器人達到 創新、快速、靈巧、簡易、決策之設計目的。

The guidance Professor Huang Junlong

Education: National Tsing Hua University, Dr. Power Machinery

Academic expertise: controller design, precision machinery, mechanical and electrical integration, power machinery

The making of this robot, provides mechanical design, control advice and guidance of the core electrical and mechanical integration. Combine theory and practice, the robot reaches innovation, fast, smart, simple, designed to decision-making

二、組員(team members)

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組長　張凱銘

負責小組工作協調、模型設計與製作、材料採購、機構加工、程式設計、以及電路和機構配置、單晶片與感測器的連結。

Team leader Zhang Kaiming

Responsible for team work coordination, model design and production, material procurement, institutional processing, program design, and circuit and institutional configuration, a single-chip sensor link.

組員 黃至民

模型設計與製作，輔助機器人的加工、小組採購及書面報告之彙整與撰寫，現場比賽之操作等。

team members Huang Zhimin

Model design and production, and processing of the auxiliary robot, group purchasing and compiling and writing of the report in writing, live game operations

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組員 蕭丞傑

負責小組攝影、模型設計與製作，輔助機器人的加工、小組採購及書面報告之彙整與撰寫，現場比賽之操作等。

team members Xiao Chengjie

responsible for team photographer, model design and production, the the assisted robot's processing, group purchasing and written report compiled and writing, live game operations.

組員 鍾友森

負責模型設計與製作、偵錯，小組討論紀錄、小組攝影及書面報告之彙整與撰寫，現場比賽之操作等。

team members Zhongyo Sen

Responsible for model design and production, debugging, panel discussions records, compiling and writing group photography and the written report, live game operations.

貳、機器人簡介(Robot Introduction)

一、構想與策略分析(concept of and strategies analysis)

設計概念上,以結構簡單輕巧為原則,車身結構以中空鋁材與萬向接頭組合而成。機器人以兩個不同轉速的馬達驅動，控制機器人轉動的方向。利用齒輪齒條昨為上升機構,堆高機以馬達正反轉控制。

Design concept, the principle of simple structure lightweight body structure is a combination of hollow aluminum with universal joints. The robot in two different rotational speed of the motor drive, control the direction of rotation of the robot. Rack and pinion yesterday stacker motor reversing control rising institutions。

二、機構設計(Mechanism Design)

起初設計用紙箱,筷子模擬覺得堅固之後再使用鐵材質故因為耐用而忽略了重量於是用鋁料當車台，不僅牢固而且很輕，至於夾角部分原本是用螺絲固定，但是如果做錯拆裝不容易，所以採用尼龍塑膠來代替，這樣組裝就險的方便。

Initially designed with cardboard boxes, the chopsticks analog feel sturdy and then use iron material it is durable and ignored so the weight of aluminum materials when the car sets, not only strong but also very light, and the angle between the part originally fixed with screws, but if the wrong disassembly noteasy nylon plastic instead so that assembled on the risk of convenience。

三、輪子驅動設計(wheels drive design)

輪子一般只聯想到推車用輪或是醫療用輪，故採用五金行常見之輪子，但是重量過重甚至輪子過大後來才想到用娃娃車之輪子，輕便牢固，驅動以尺規皮帶帶動，減低重量所以不考慮用鏈條或是齒輪帶動。

Wheels generally think of carts with wheels or medical wheel, it is often the wheels of a hardware store, but the weight is too heavy even too big wheels afterthought doll car wheels, lightweight solid drive to the ruler belt driven, to reduce weightso I do not consider the use of chain or gear driven。

四、電路設計(Circuit design)

電路採用電子商品常見的電路板.材料方面有單芯線，LED 燈，可變電阻(250K)，繼電器，構想是由課本資訊及歷屆設計作為參考。

The circuit uses a common circuit board for electronic goods. Material aspects of a single line of LED lights, variable resistor (250K), relays, conceived by the textbook information and previous design as reference。

五、感測器設計(Sensor design)

使用 ATMEL 89S51 單晶片處理訊號，一開始將感測電路訊號傳入單晶片中經由單晶片程式處裡，輸出給驅動控制器 PWM 訊號，控制正反轉與轉速
8051.SSR.CNY70.LM324。

The use the ATMEL 89S51 single wafer processing signals beginning sensing circuit signal incoming single chip via a single-chip program at the output to the drive controller PWM signal to control reversing and speed 8051.SSR.CNY70.LM324。

六、組裝、測試與修改(assembling, test, and modify)

所有機器人零件組，起初先測試馬達功能以及尺規齒輪與皮帶驅動性效果和齒條上升機構是否能把機器人抬高不讓該車體妄動不穩,再來就是前面上升機構測試能台多少重量該物體。

The all robot parts group, at first test motor functions and ruler gear and belt driven effects and rack rise whether can let the robot raise the bodywork frivolous instability come front rise institutions test sets how much weightthe object。

七、機器人創意特色說明(Robot creative Features illustrate)

起初設計毫無頭緒只有想工業上用到的機器有哪些,參考網路國外影片製作過程以及不斷畫圖設計之後才啟發思想。

Initially designed only want used in industrial machines which reference network of foreign film production process and constantly drawing design inspiration thinking clueless。

八、參賽心得(participating experiences)

參加第 16th TDK 盃，這次是在我們學校舉辦，場地做得精緻，在比賽的過程中，心情真是複雜，氣氛緊張又興奮，也是我們第一次參賽，從無到有，那種喜悅難以言語，過程中免不了挫折、失敗，不過我們一一克服一一突破，而這次的比賽很多來自於各個學校的參賽隊伍，機器人做的精密且堅固，感覺實力不容小覷，在展示當中觀察許多隊伍的機器人，有些機構是我們意想不到的，也是我們可以學習的地方，比賽當中雖然機器人沒能贏得比賽或是晉級，在競賽上機器人雖然出了些問題，但是我們隊伍依然精神抖擻，在短短的 5 分鐘，讓我們體會到《**上台十分鐘台下十年工**》及《**一分耕耘一分收穫**》，但至少我們努力過了不會留下遺憾。

participate in in the 16th TDK Cup, this is held in our school, the venue is doing fine, and in the course of the game, the mood is really complex, tense and excited, but also our first competition, from scratch, the kind of joy can not speakprocess inevitably frustrations, failures, but we overcome to break through one by one, and this game a lot of teams from various schools, robots do precision and sturdy feeling can not be ignored, many teams observe them in the showrobots, some bodies are unexpected Although the robot could not win the game or promotion is also the place where we can learn from the match in the competition on the robot Although these issues, but our team is still full of energy, and in a short period5 minutes, allows us to appreciate "took office ten minutes audience ten years of work" and "No pain, no gain, but at least we tried not regret it.