

參賽隊伍人員及機器人簡介

Team Member and Robot Introduction

組別： <input checked="" type="checkbox"/> 遙控組 <input type="checkbox"/> 自動組	指導老師：黃以文
學校名稱：國立中正大學	隊伍名：出來面隊
(School : National Chung Cheng University)	(Team name : Come To Face)

※內容需中、英對照※

壹、參賽隊伍人員：

- 一、指導老師：黃以文
- 二、組員：洪揚、王宣仁、莊勻菱

貳、機器人簡介

壹、構想與策略分析

- 一、構想：利用平行四連桿進行運動，以大於 5cm 的運動行程

於場地內行走，並且跨越倒木及便橋。

而在救援方面，我們利用抽屜內的滑條配合繞性件的

的配置進行水平及垂直的來對準麒麟娃娃的位置

後，在令我們自行設計的手部用來抓取取娃娃，最

後利用設計的吊臂掛上纜繩，回救援去後將其取下

放至救護站中。

Idea: using parallel four-link movement greater than 5cm movement stroke
Walking within a site and across fallen logs and temporary bridge.
In the rescue, we take advantage of the drawer slide bar to fit around the sexual parts
The configuration of the horizontal and vertical position aligned Kirin doll
After the hand is used to make our own design crawl fetch doll, most
After the use of the design crane hang cables, remove the back will go to rescue
Put to the ambulance station.

二、策略分析：

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1. 特性：於滑條一側安裝鍊條，利用馬達加上齒輪正反轉使滑條帶動鍊條，使之達成水平移動的效果。

- 二. 吊臂：此機構用來將麒麟娃娃吊掛至覽車上。



(實際照片)

2. 特性：利用繩子改變馬達施力方向，由此方式產生力矩，使桿件旋轉，並利用擋板定位。

參、輪子驅動設計

- 一、平行四連桿：步行機構



(實際照片)

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1. 特性：(1)速度快 (2)穩定性高 (3)腳部相位腳於 180 度

時會產生運動的不確定性。

Linear movement mechanism: for most horizontal and vertical linear movement to align doll.

Features: installed on the side of the slide bar chain by a motor and gear reversing so

Slider driven by a chain, so to achieve the effect of horizontal movement.

Boom: This agency is used to hanging the unicorn doll to receive the car.

Features: the use of a rope to change the direction of the motor force, and in this way produce torque.

Rotating the lever member, and positioning using baffles.

Participation wheel drive design

A parallel four-link: walk institutions

Characteristics: (1) fast (2), (3) high stability foot phase leg at 180 degrees

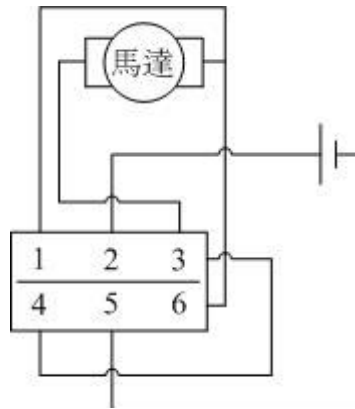
Movement will produce uncertainty.

肆、電路設計

我們的機器人的電控部份比較單純，之前的學長都是使用繼電器來控制馬達正、反轉，雖然一個繼電器重量不重，但若是數量多的話其重量也是相當可觀的，所以我們利用六個接腳的搖頭開關接出此電路圖，使我們不需繼電器即可使馬達正、反轉的電路，為我們的機器人省下一些重量。電路圖如下所示。

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(電路圖)

The robot's electronic control part is relatively simple, before the seniors we used to use relays to control the motor, reverse, although a relay is not heavy, but if the quantity is more than its weight is considerable, so we are interested in a Toggle Switch with six pins connected in this circuit diagram, so we do not need a relay to reverse the motor's direction of rotation, for our robot to be lightweight.

伍、組裝、測試與修改

由於此機器人是我們就讀機械系兩年以來第一次實做的東西，所以在設計和製作的經驗上明顯不足，所以在製造時往往會和設計上有所抵觸，因為設計時往往和實際選購材料會有所出入。在組裝上遇到許多困難，例如：加工精度不足，導致腳部於步行時，產生相位角不一致的情形；選購材料無法承受馬達受力，導致材料損毀的情況。但我們仍一一克服種種問題。而在最後測試時，發現我們的機器人的震動問題相當嚴重，所以我們決定，加裝彈簧與軟墊，以減少其震動程度。

This robot is two years since we are studying in the Department of Mechanical Engineering implemented for the first time to do things, so the obvious lack of experience in the design and production of manufacture often inconsistent and design, often because the design and actual optional materials will vary. Encountered many difficulties in the

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assembly, such as: machining accuracy, leading to the foot in walking, resulting in inconsistent phase angle; optional materials can not withstand the motor force, resulting in material damage. But we still overcome various problems. In the final test, found the robot vibration problem is quite serious, so we decided, the installation of spring cushion to reduce vibration.

陸、機器人創意特色說

我們機器人最大的特色在於，使用自行設計的爪子、吊臂、腰部和籃子，我們設計爪子可以不用動力源即可將娃娃抓起；吊臂部分使用簡單的結構即可將籃子吊至兩公尺的高度；可以使機器人不必以腳部轉彎即可對準娃娃所在的方向；籃子部分並非傳統的籃子，乃是用繩子綁住我們的爪子，像一串肉粽般的籃子。

The most outstanding feature of our robot is the use of self-designed claws boom Waist and baskets, we design paw without a power source you can grab the doll Onwards; crane parts using a simple structure to basket hanging to two meters high Degrees; so that the robot does not have to get aligned doll the direction where the foot turning; The basket is not part of the traditional basket, but our paws tied with a rope, like a Basket string Dumplings.

參、參賽心得

這次參賽的機器人是我們讀機械系以來第一次實做的成品，製作過程中才發現設計時跟製造時多多少少會有落差，所以讓我們學會在設計時就應該要考慮製作的流程、材料的挑選……等，而在比賽會場看到各個學校的機器人也讓我們眼界大開，在那裏我們看到我們意想不到

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的想法和精湛的加工技術。

很高興能夠參加這次比賽，在這將近兩個學期的設計製造過程中，讓

我們學到了不少。

The entries of the robot is a read mechanical engineering department for the first time since the implementation do the finished product, the production process, only to find the design with more or less there will be a gap in the manufacture, so let's learn to design should consider making process, material selection, etc., see the race venue each school's robot also allows us to an eye-opening, where we see the ideas of our unexpected and exquisite processing technology. I am pleased to participate in this competition, in which nearly two semesters in the design and manufacturing process, we learned a lot.