

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：王明皓
學校名稱：中國文化大學	隊伍名：SCL
School：Chinese Culture University	Team name：SCL

※內容需中、英對照※

壹、參賽隊伍人員：

一、指導老師：王明浩

針對此一專題之製作，提供機構設計、驅動系統規劃及動態功能安排方面之建議。結合理論與實務，進而到機器人之機構、造型與動作方面有所創意。

Advisor: Wang Minghao

For the production of this topic, institutional design, proposed drive system planning and dynamic functional arrangements. To serve a combination of theory and practice, and thus to the institution of the robot, the aspects of form and action ideas.

二、學生第一位：張宇傑

(1st team member: Zhang Yujie)

組長：負責小組工作協調、初步模型設計與製作、機構設計、現場加工、配線、書面報告之零件/組合。

Leader: responsible for team work coordination, design and production of the initial model, institutional design, on-site machining, wiring, and a written report of the parts combination of drawing.

三、組員 1：陳立凡

(2nd team member: Chen Li-Fan)

組員：設計與製作、小組討論紀錄、底座機構設計、攝影、採購、現場加工、配線、電路焊接、書面報告之計篇撰文、組操作手、機構功能測試員。

Members: design and production team discuss the the record base mechanism design, photography, group procurement, on-site machining, wiring, circuit welding, a written report meter chapter the author group operator, institutions function testers.

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貳、機器人簡介

II, robot Profile

一、構想與策略分析

1、vision and strategy analysis

以穩定的行走機構為主，確保在比賽時不會無法走完全程；再以行走速度為第二考量，免得在間內無法走完全程。

Mainly stable running gear, not when the game can not be the whole journey; walking speed as a secondary consideration, lest in the room can not be the whole journey.

二、機構設計

2、the mechanism design

整體機構為由鋁條及塑膠籃製成的長95cm寬99cm高99cm的機器人，驅動馬達規格為DC24V、20W、110prm 搭配馬達轉速齒輪。

主要機構分成三大部分：行走機構、升降機構、夾爪機構

行走機構：以馬達驅動懸臂，懸臂由不鏽鋼製再以懸臂帶動中空矩形鋁管，此組結構共四組(即有四隻腳)分內腳與外腳。

升降機構：釣竿與捲尺為升降主體，由馬達正反轉來捲動捲尺達到升降功能。

夾爪機構：以市售 2 公升之飲料瓶製。

The organization as a whole is made of aluminum bars and plastic basket on the ground long 95cm wide 99cm high 99cm robot drive motor specifications DC24V, 20W, 110prm with motor speed gear.

Major institutions is divided into three parts: walking mechanism, lifting mechanism, jaws institutions

Running gear: motor-driven cantilever, cantilever cantilever driven by stainless steel hollow rectangular aluminum tubes, the structure of this group of four groups (ie four legs) since the beginning of the foot and the outside of the foot.

The lifting mechanism: fishing rod and tape measure to lift the main motor reversing scroll tape measure to achieve the lifting function.

Jaws institutions: a commercially available 2-liter beverage bottles made.

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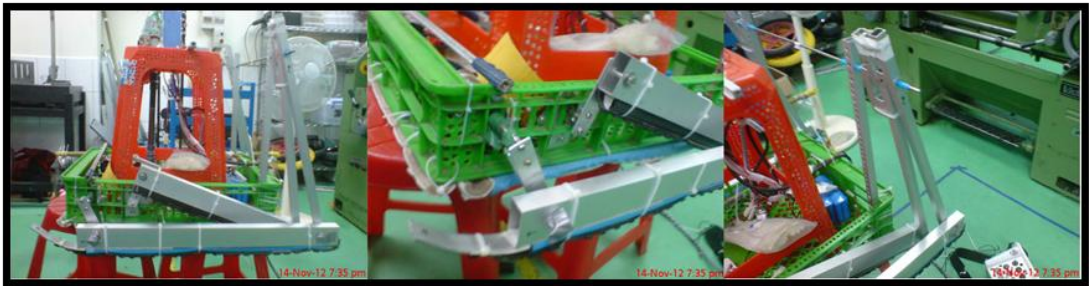
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三、輪子驅動設計

III, Wheel drive design

我們製作的是種創新的機構，在市面上還沒看過的機構
以四顆馬達，帶動驅柄軸如下圖：

We produced the kinds of innovative institutions, agencies have not seen in the market
Four motor driven drive shank axis as shown below :

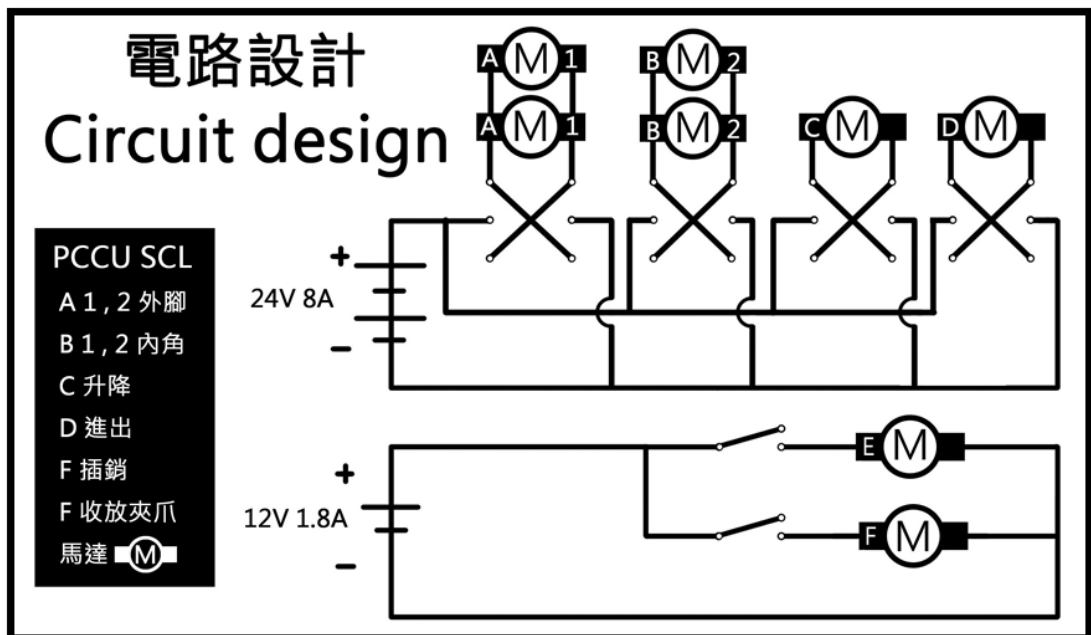


四、電路設計

IV, circuit design

這次在電路上使用了四個搖頭開關以及兩個無斷開關以下是我們的電路圖中
X 的地方是搖頭開關

This circuit four Toggle Switch and two no off switch circuit diagram X Toggle Switch



五、感測器設計(遙控組無免填)

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六、組裝、測試與修改

VI, test and modify

在某次實地測試中足部馬達 3 顆故障後，整台包括行走機構、升降部、夾爪部全數重做。而後在底部加裝海綿減少移動時足部對馬達的耗損，升降機構、夾爪重新設計製作。

After to motor three failures in a field test in the foot, the entire running gear, lift Ministry jaws Ministry full redo. Then, in the bottom of the installation of the sponge to reduce mobile foot wear and tear on the motor, lifting mechanism, jaw re-designed.

七、機器人創意特色說明

VII, Robot creative Features Description

以馬達轉動橡膠再由橡膠捲動捲尺達成升降動作
全機幾乎以塑膠為主要材質
夾爪已寶特瓶製作

Motor rotating rubber and oil rubber scrolling tape measure reached lifting action
The whole machine is almost as the main material in plastic
Jaws has been the production of PET bottles

參、參賽心得

III , Competition experience

在製作的過程中遇到了很多挫折，中間很辛苦不斷的重來不斷的重來，信心一在地受打擊，但是那最後卻變成我進步的動力，在問題中找尋問題，雖然在比賽當天又遇到了大問題，但是憑著之前所經歷過的，我們解決了，還進咯前八強，最後以穩定的行走機構贏得第四名

Encountered many setbacks in the production process, the middle is very hard to constant weight to heavy confidence hit, but that does become the driving force of my progress, find the problem in question, although race day encountered a big problem, but relying on previously experienced, we solved into slightly before the quarterfinals, won fourth place last stable running gear