

# 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：陳振華
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### ※內容需中、英對照※

#### 壹、參賽隊伍人員：

一、指導老師：陳振華 Chen, Chen-Hua

二、組員：范俞慶 Fan, Yu-Ching、林東葦 Lin, Tung-Wei、  
張貿菘 Chang, Mao-Sonh

#### 貳、機器人簡介

一、構想與策略分析：以結構簡單、快速、耐撞、且有準確為原則，採用鋁合金車體結構，搭配直流馬達機構取物，能快速有效率的完成任務。

1. Vision and Strategy Analysis : Under the design concept of simplicity, agility, protection, and efficiency, the robot consists of an aluminum structure of bodywork, and relays controller, which can rapidly and efficiently accomplish the assignment.

二、機構設計：選用鋁材材料組裝車體結構，不但輕巧又能承受所需之負載。以直流馬達配合拉繩作為取物機構以及伸長機構。

2. Mechanism Design : We select the aluminum material assembly chassis structure, not only dexterous can withstand needs the load. We use DC motors to pull the rope as extract mechanisms, as well as elongation mechanisms.

三、輪子驅動設計：以兩個直流馬達作為驅動扭力，利用繼電器控制，使馬達可以正逆轉來控制機器人前進後退及左右轉彎。電源方面使用 12V 鋰電池電源系統，減輕整個機體之重量。

3. Wheel Drive Design : The drive system of the robot is furnished by four high performance DC motors. By mean of the 8 relays, we can easily control the rotational speed of DC motors and the path of the robot. The power supplier is established by series connection of two 12V lithium battery units to obviously reduce the total weight.

四、電路設計：利用繼電器控制馬達正逆轉，驅動機器人前進後退

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及左右轉彎，與手臂伸縮與夾取機構。

4. Circuit Design : We use relays to control motors forward and reversed rotation, which can control the path and arm telescopic of the robot.

五、機器人創意特色說明：以泰奧·揚森之仿生獸做為整體機台的架構，利用多連桿來達到移動的目的，夾取部份則利用直流馬達配合拉繩，以達成抓取。

5. Robot creative Features Description: As the overall architecture of the machine to the Theo Jansen strandbeest, we use the multi-links to achieve the purpose of the robot moving. We control the gripping mechanism and arm telescopic of the robot by DC motors pulling the rope.

參、參賽心得：

這是我們頭一次參加像 TDK 這種大型比賽，所以對於關卡和做動方式我們都不斷的討論研究過，對於不懂的地方，也都和過去參賽過的學長及老師認真請教過，之所以這麼努力，就是為了想要在比賽時能得到好的名次。製作的過程雖然辛苦，但大家都還是不停的改良及修正，雖然還是常會遇到許多大大小小的問題，但是問題解決的那一刻，那種感覺是非常的爽快。儘管最後沒有得名，這都是珍貴的經驗與回憶。

It is a tremendous challenge for us to participate in this competition. Taking part in the contest, we devoted ourselves to studying any information related to this field. We benefit from the whole process, including discussing the project content with the advisor, watching the recorded video of live report last year, visiting the exhibition of robots, or consulting those who attended the contest before. To tell the truth, digesting piles and piles of information and the lengthy process of robot construction really exhausted us. However, the joys and excitement from the accomplishment was beyond description when we tried with our exertions and finally conquered the difficulties that seemed insoluble to us in the beginning. Though we didn't get the trophy in the end, we all have learned a great lesson from the whole process and this will be part of our precious memory in life.