

# 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：賴永進  
學校名稱：中州科技大學 隊伍名：中州電機 A 隊  
(School : Chung Chou University of Science and Technology)  
(Team name : Chung Chou Electrical machinery Team)

### ※內容需中、英對照※

#### 壹、參賽隊伍人員：

##### 一、指導老師

#### 賴永進 老師



- 專長領域：計算機圖學、電腦視覺、物件導向程式設計、數位影像處理
- 經歷：  
三光惟達股份有限公司 助理工程師  
交通部中部辦公室 程式設計師
- Research Area : Computer graphics, computer vision, object-oriented programming, digital image processing
- Experience: The Sanko provided Corp. assistant , Ministry of Transportation CentralOffice programmers

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### 二、組員

#### 謝育展



組長：

- 負責項目：擔任組長、機體架構、電路設計與製作、機器人整體配線、感測器組裝、購買機構和機體及電子零件等材料、機器人測試。
- 工作內容：擔任組長負責小組工作協調,與隊員討論機器人結構與機構設計,刻製電路版及製作其他機構控制用電路與機器人整體之電路配線,還有機器人所用之感測器的組裝與安裝,購買機體和機構所需的鋁材與馬達及氣壓缸氣瓶等,購買機器人所需的各種電子零件及材料,機器人電路與機構及整體運行測試。
- 最得意的事情：這是我第二年參加了,首先我要感謝指導我們的賴老師,和幫助我們很多的郭振輝老師,他們不眠不休的指導我們製作機器人,讓我們得以取得現在的好結果。
- Is responsible for the project: Served as head of the body architecture, circuit design and production, robot overall wiring and sensor assembly, purchasing agencies and the body and electronic parts and other materials, and testing of the robot.
- Work content: Is group leader to be responsible for the group work be coordinated, discusses the robot structure and the organization design with the member, makes by cutting the electric circuit version and manufactures other organization control with the electric circuit and electric circuit of wiring the robot whole, but also has the robot to use the sensory element assembly and the installment, purchase organism and the organization need the aluminum material and the motor and the barometric pressure cylinder air

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bottle and so on, purchases each kind of electronic part which and the material the robot needs, the robot electric circuit and the organization and the whole movement test.

- most proud things: First of all I want to thank guide Lai teacher, and help us to a lot of Guozhen Hui teacher guidance they worked very hard to build a robot, so we were able to obtain good results.

## 張硯雄



組員：

- 負責項目：材料採購、設計機體架構、材料加工、機體機構組裝、機器人測試、機器人維修。
- 工作內容：與同組組員同時商討機器人架構，與做出討論後確定要施工的機器人，並且在製作時購買製作機器人所需用到的材料，並在完成機器人後參予測試的工作。
- 最得意的事情：剛開始覺得要完成一台機器人是一件不容易的事情，慢慢的從討論到購買材料、組裝、加工、測試完成，最後完成了一台完整的機器人後自己會覺得很有成就感。
- is responsible for the project: the purchase of materials, design of the body structure, materials processing, body institutions assembly, robot testing, the robot repair.
- Working: the same time with the same group of team members to discuss the robot architecture and discussion is made to determine the robot to construction and purchase making robots required materials used in the production, participated in the test and after the completion of the robot.
- They will feel most proud things: beginning to feel the need to complete a robot is an easy

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thing, slowly from the discussion to the purchase of materials, assembly, processing, testing is complete, to finalize a complete robot great sense of accomplishment.

### 林柏甫



組員：

- 負責項目：材料採購、設計機體架構、材料加工、機體機構組裝、機器人測試、機器人維修。
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- 最得意的事情：一開始重毫無經驗到完成到成品，在這過程中學到了重無到有這其中的感動，真的是無法用言語來形容的。
- is responsible for the project: the purchase of materials, design of the body structure, materials processing, body institutions assembly, robot testing, the robot repair.
- Working: the same time with the same group of team members to discuss the robot architecture and discussion is made to determine the robot to construction and purchase making robots required materials used in the production, participated in the test and after the completion of the robot.
- They will feel most proud things: Start a weight no experience completed to the finished product, to learn in this process of weight without

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which moved really can not describe  
in words.

### 曾聖哲



組員：

- 負責項目：材料採購、設計機體架構、材料加工、機體機構組裝、機器人測試、機器人維修。
- 工作內容：與同組組員同時商討機器人架構，與做出討論後確定要施工的機器人，並且在製作時購買製作機器人所需用到的材料，並在完成機器人後參予測試的工作。
- 最得意的事情：一開始作機構的時就感覺不容易，自己找材料與所需要的東西，在整個過程中多少學習到不少東西，感到很有種成就感。
- is responsible for the project: the purchase of materials, design of the body structure, materials processing, body institutions assembly, robot testing, the robot repair.
- Working: the same time with the same group of team members to discuss the robot architecture and discussion is made to determine the robot to construction and purchase making robots required materials used in the production, participated in the test and after the completion of the robot.
- They will feel most proud things: Institutions beginning when you do not feel easy, to find their own material and need something, have much to learn how much the entire

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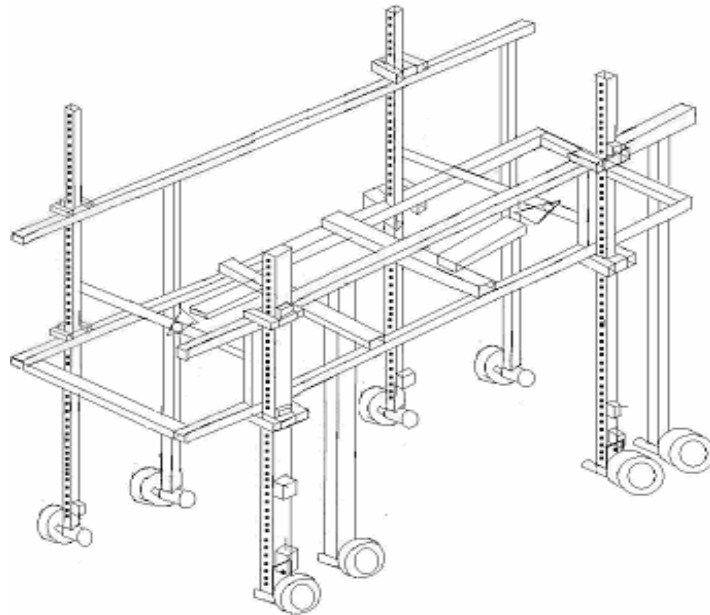
process, to feel a kind of sense of accomplishment.

### 貳、機器人簡介

#### 一、構想與策略分析

##### (一)、構想：

1. 來至於一般常見的爬樓梯機器人，利用馬達帶動鏈條上升。



##### (二)、策略分析

1. 以穩定的原則來設計上升機構，所以我們在鋁材裡放之壓克力，來穩定上升時會搖晃的情況。

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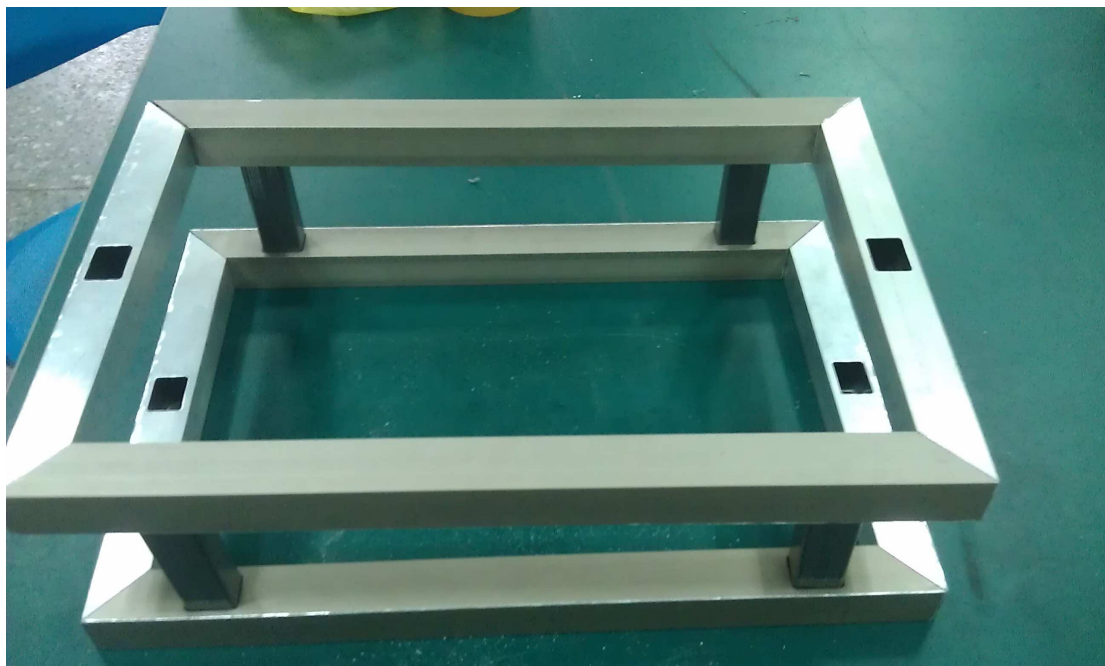
### 二、機構設計

1. 上升機構是分為下半部(輪子)和上半部(車體)



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2. 動力是利用馬達帶動鋁材上的鏈條





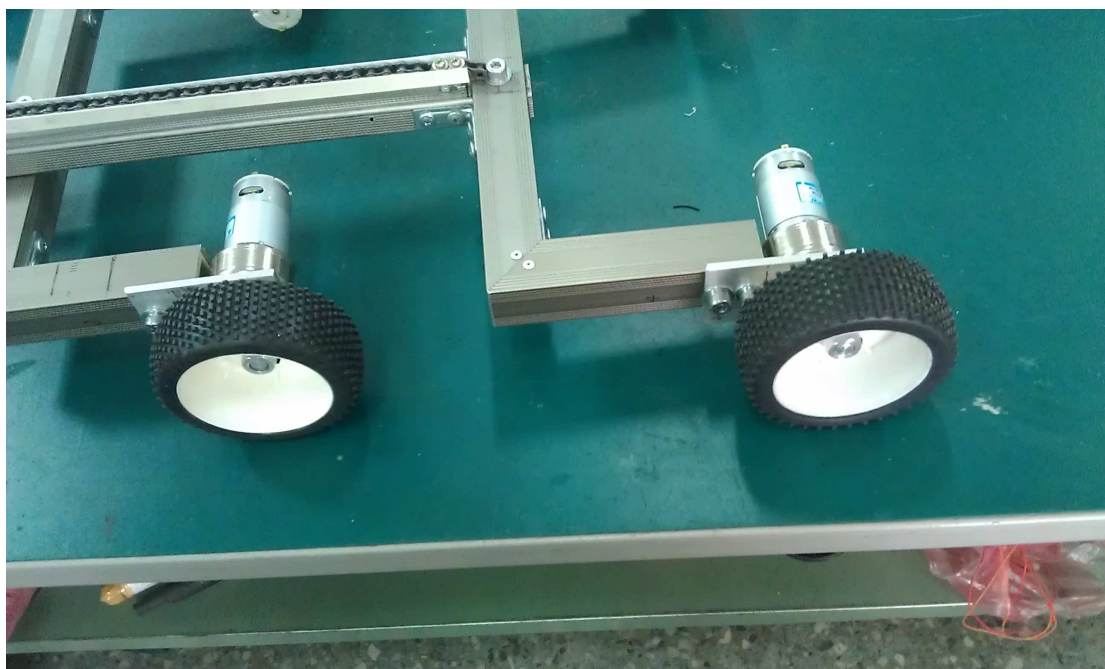
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### 三、輪子驅動設計

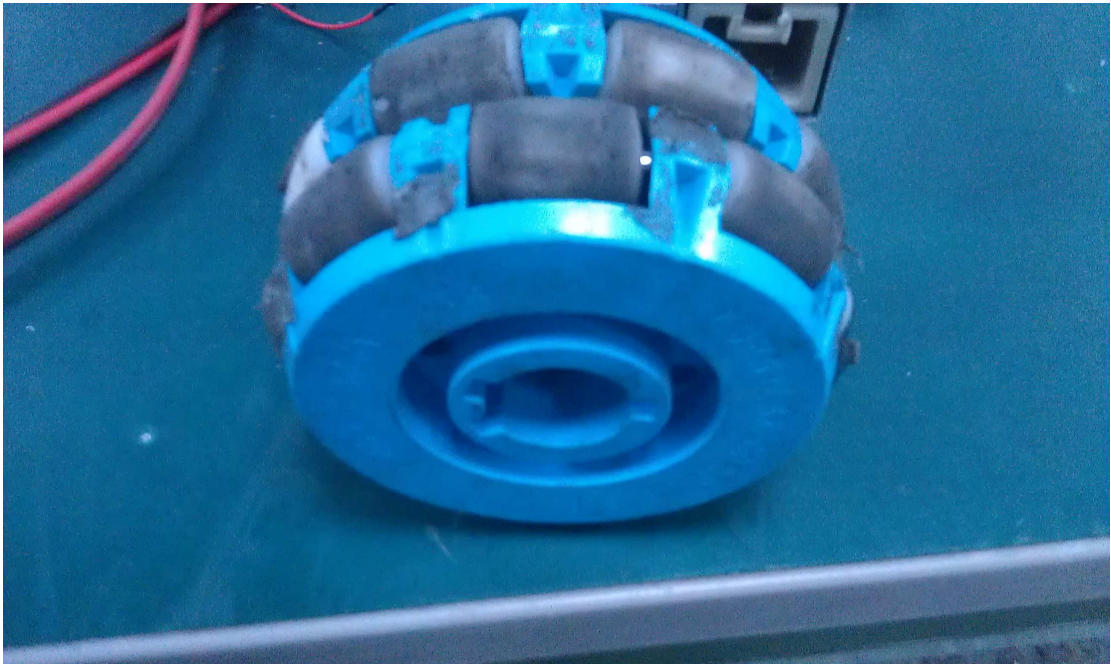
#### 1. 利用馬達直接驅動輪子



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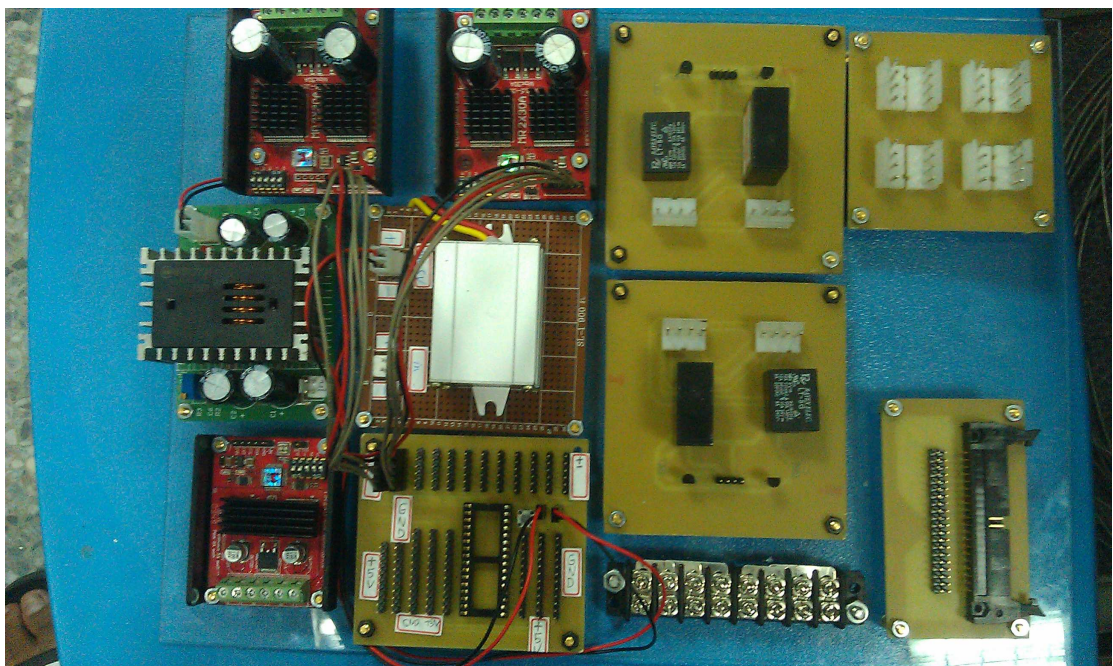
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2. 由於機器人行走時要轉彎，所以前面兩顆輪子以全向輪取代。



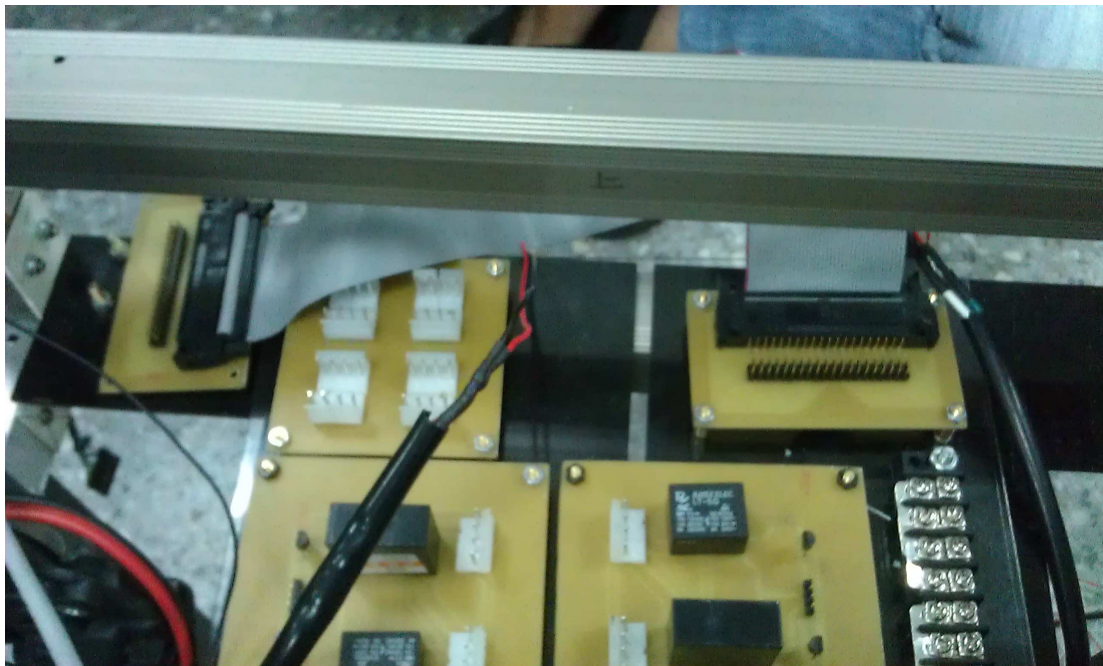
### 四、電路設計

1. 我們將全部的電路整合於一塊可拆式的板子，用端子線與車體上的接點作連結。



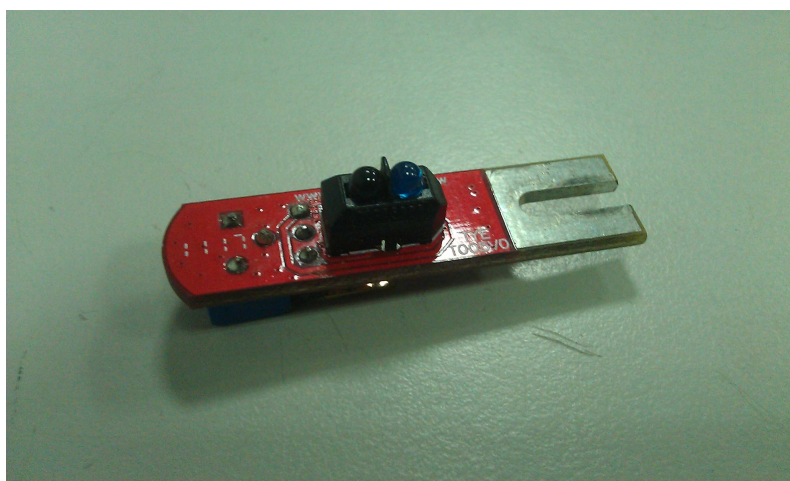
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### 五、感測器設計(遙控組無免填)

1. 將紅外線感測器固定於長條壓克力上，在固定車體前放下面。



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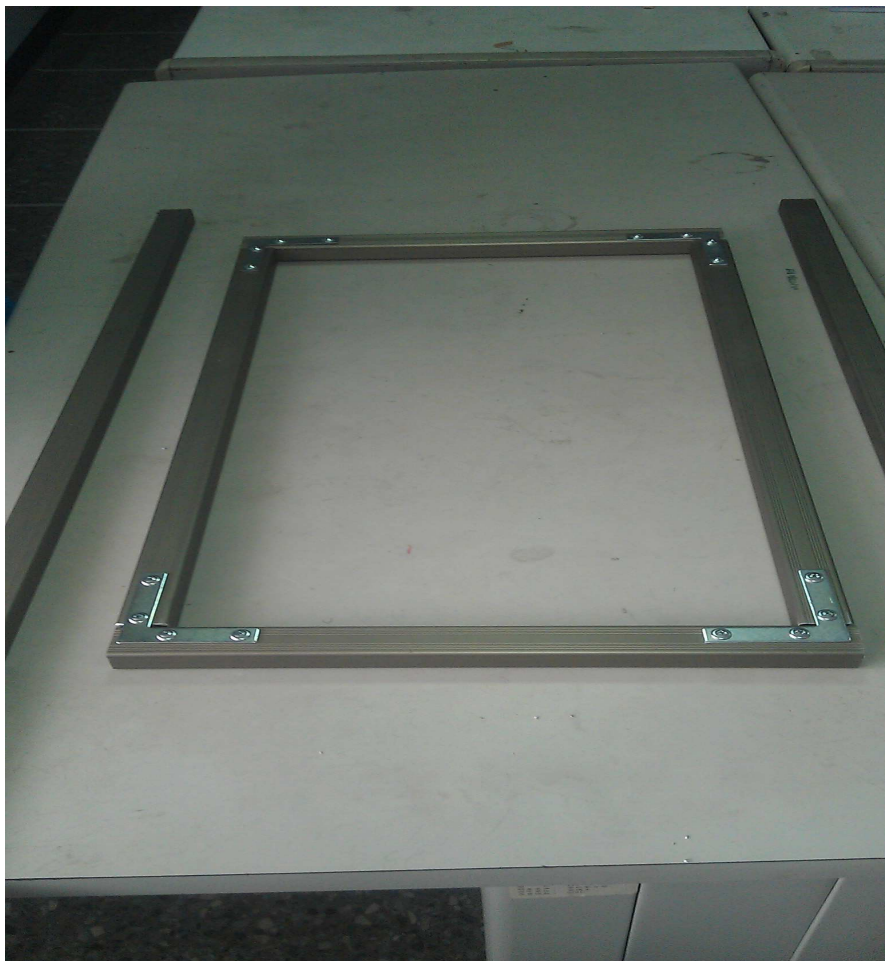


### 六、組裝、測試與修改

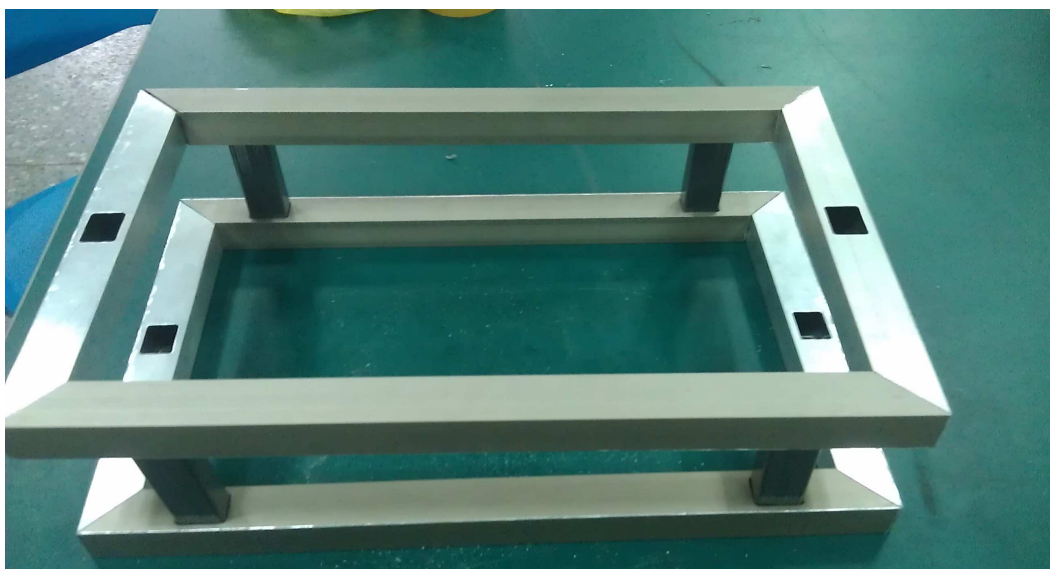
1. 最初的構想原本預估用長方形來製作車身本體

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2. 製作完成長方形車體



3. 將馬達固定在L 鋁角上面然而在將所在鋁材上

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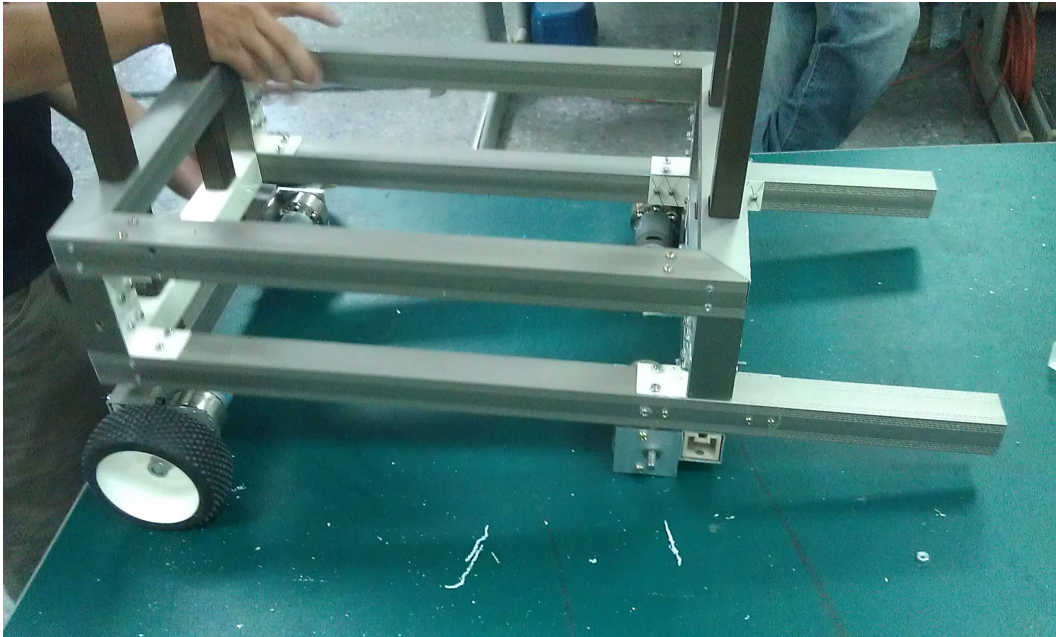
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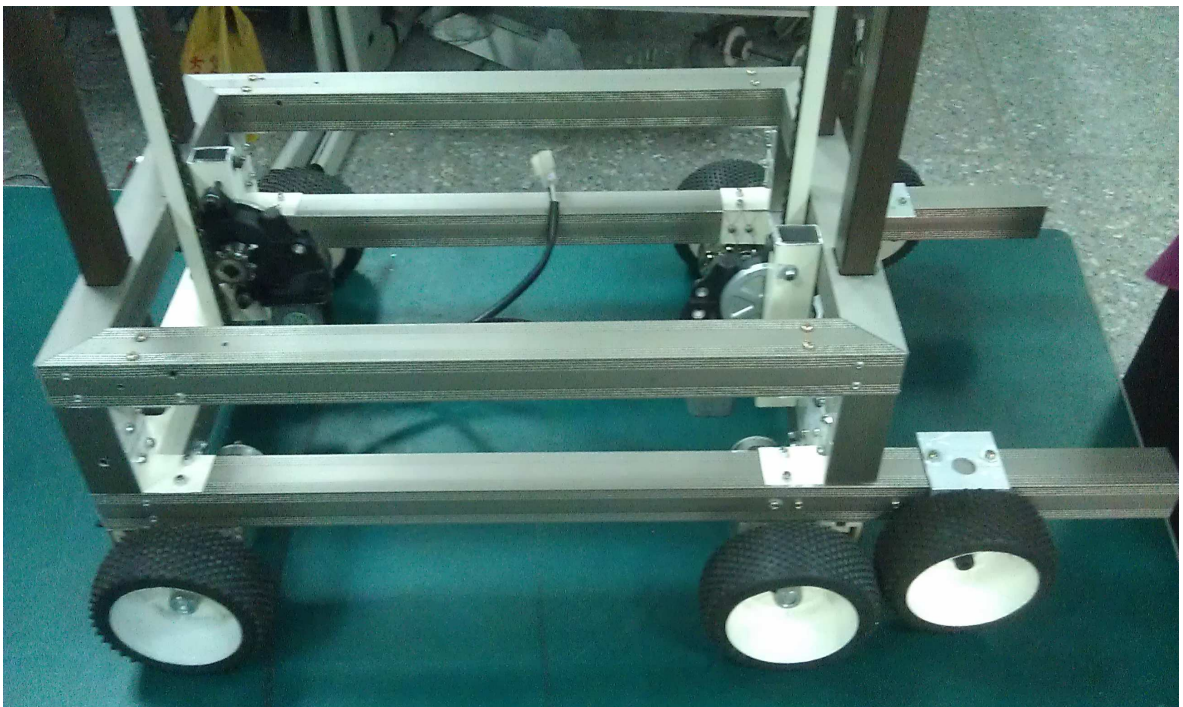
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4. 在固定上車體並裝設輪子



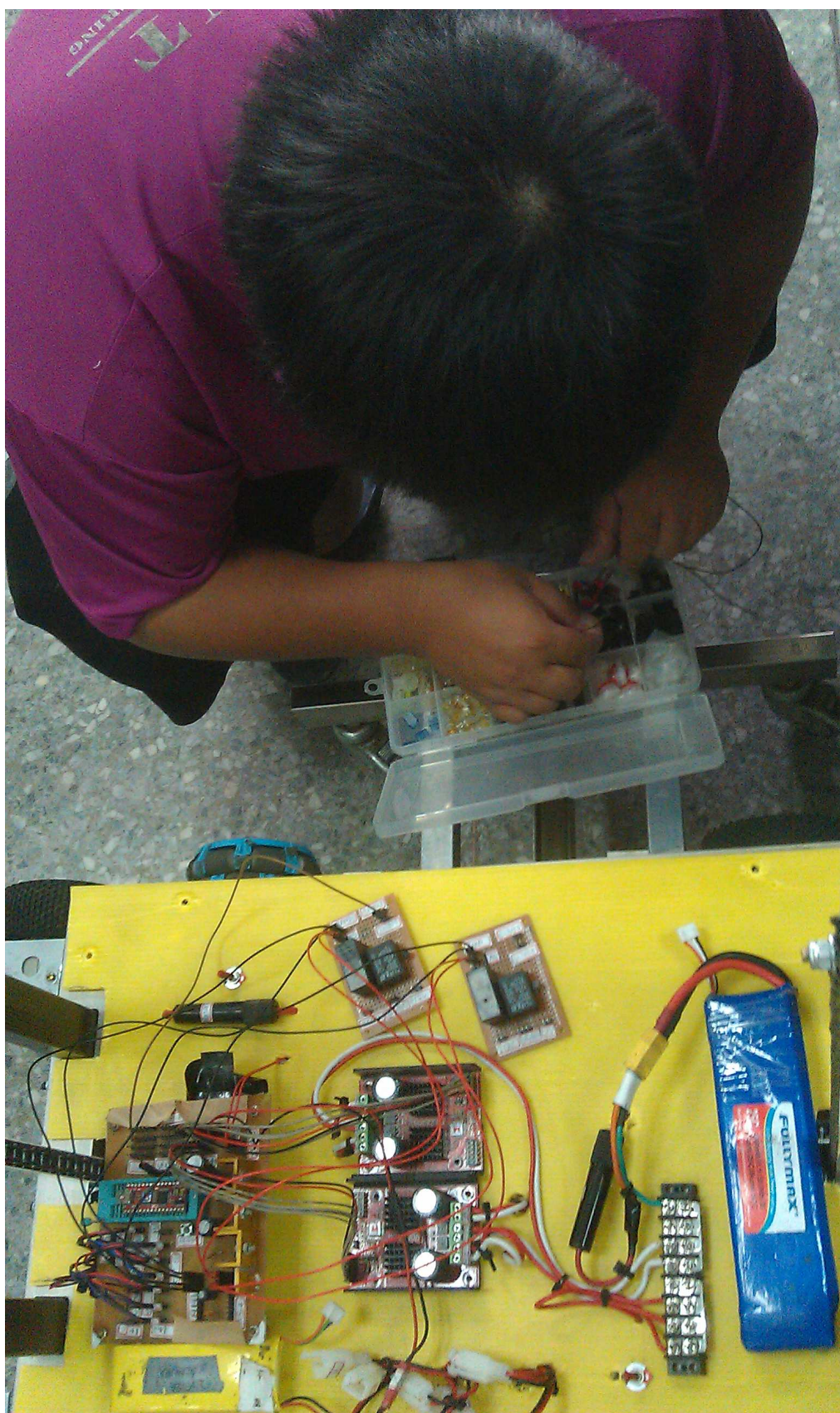
5. 車體完成



6. 裝置上車體電路和感測器

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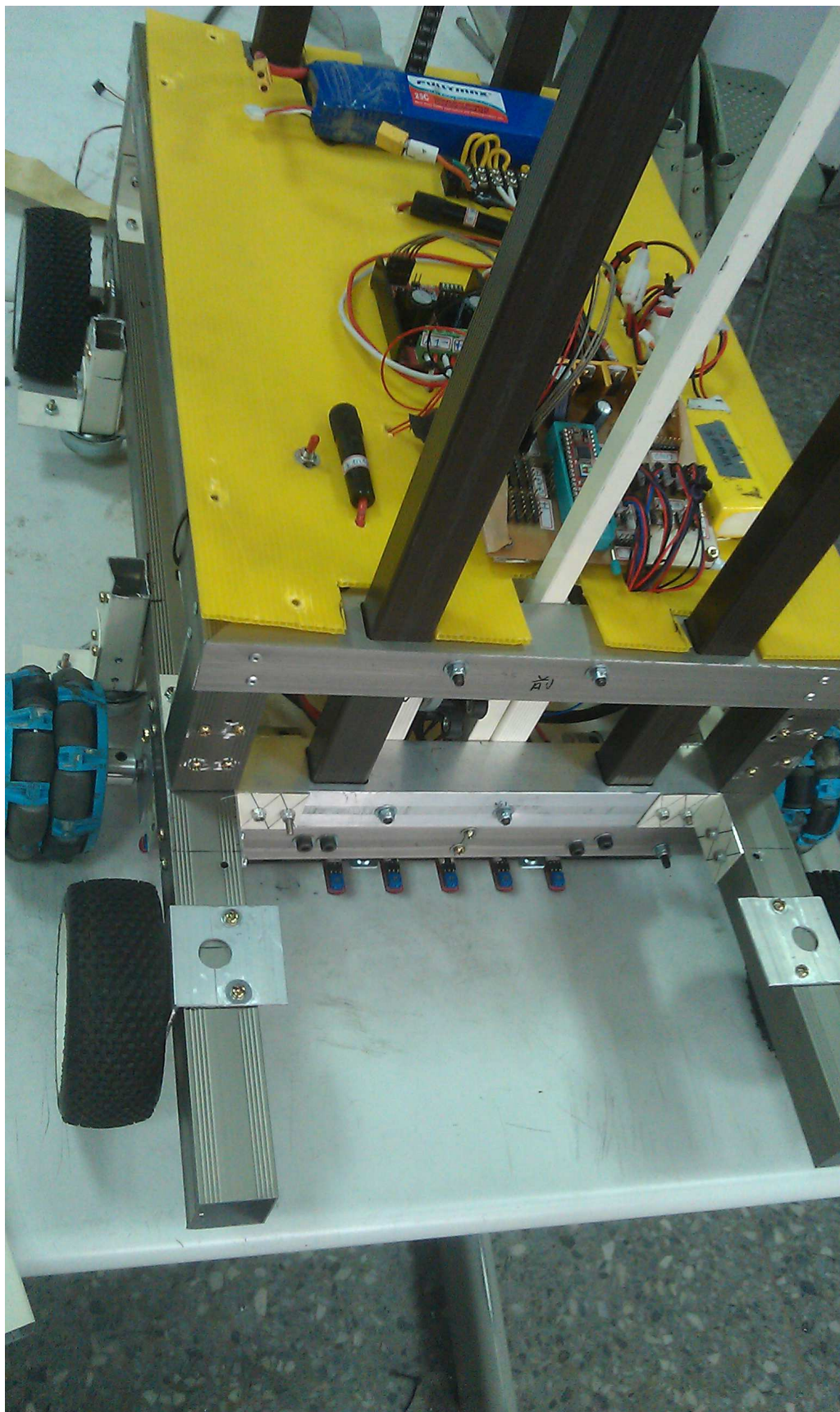


7. 電路和感測器裝上完成



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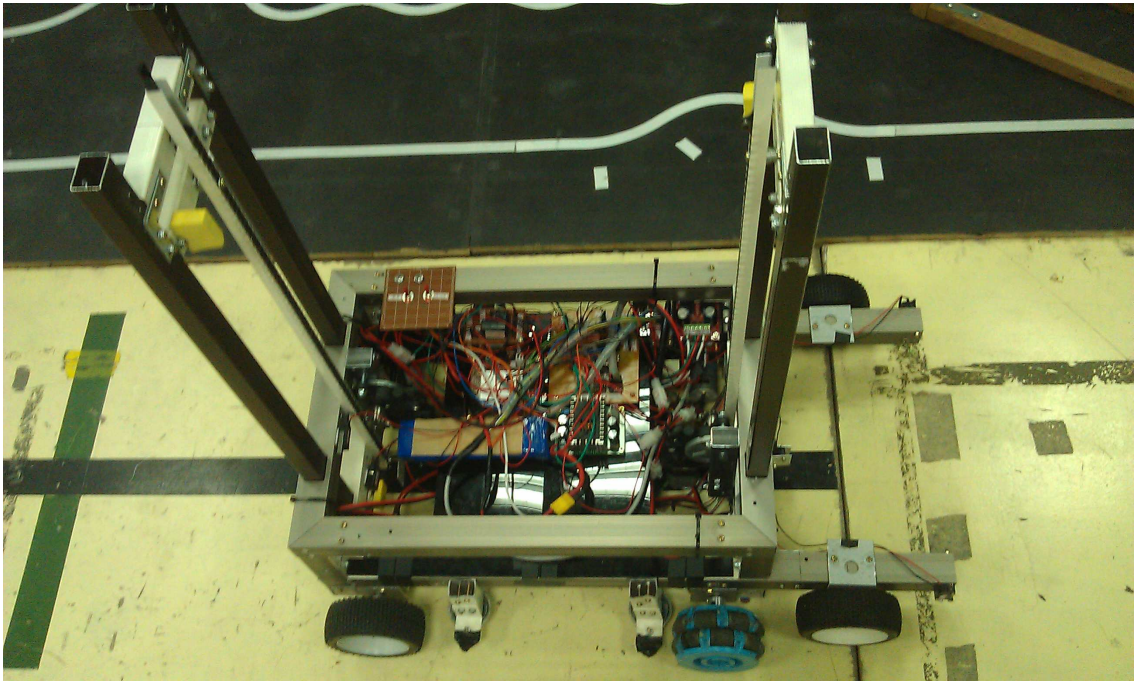
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8. 測試尋跡正常

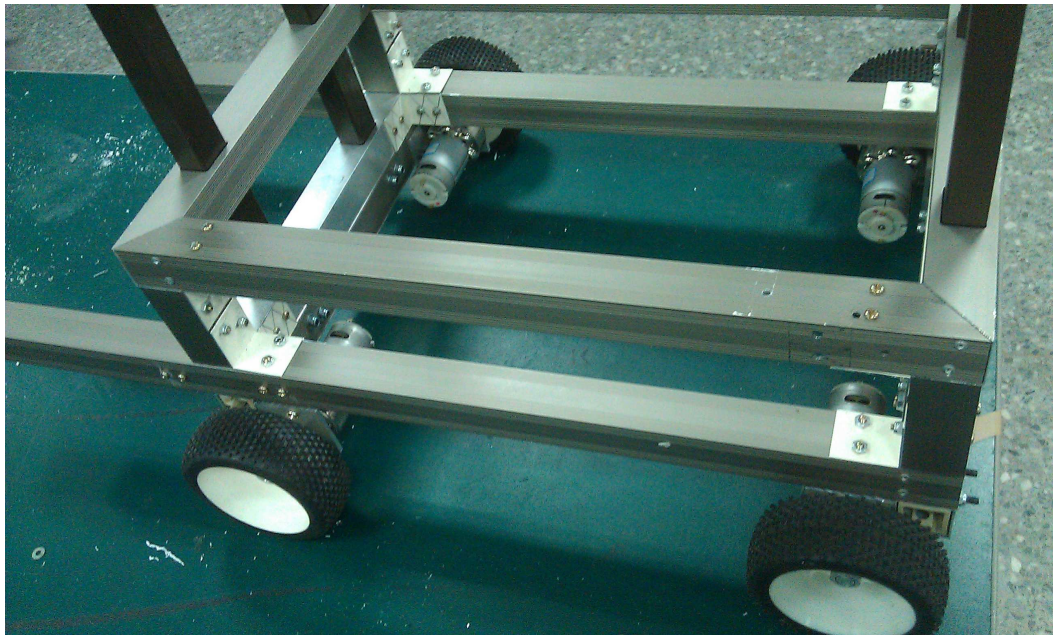
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### 七、機器人創意特色說明

本機器人特色用於車身本體為鋁材，因為鋁材本身輕巧且有一定的堅固性。



而也用了很多壓克力，其因加工造型方變壓克力可塑性高。

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### 參、參賽心得

在做機器人的過程中讓我們學習到很多學校所沒有的事情和一切, 作機器人的過程中遇到了很多像是買鋁材, 鋁材有很多的種類各種得材質, 最初的鋁材和最後所用的鋁材重量上就差好多. 發現鋁材不夠硬在鋁材中間壓克力加強鋁材的硬度. 在這次的製作的過程中讓我們了解作機器人不是想像中的簡單和容易.