

參賽隊伍人員及機器人簡介

Team Member and Robot Introduction

組別：遙控組

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機器人簡介

一、構想與策略分析

由於場地成鏡射狀，所以不管場地是綠邊或紅邊我們都會以逆時針的方式來移動，在結構上的設計上是以右邊夾娃娃左邊吊掛纜車的方式來進行，夾娃娃時會因為高低差而導致夾取不易，所以使用升降機構來解決這個問題；救援區共有九隻娃娃，所以先夾取三個娃娃掛置軌道，之後再夾取六個娃娃掛置軌道，將吊籃放回救護區。

So, regardless of the venue is the venue into a mirror-like, green or red side edges counterclockwise to move in the design of the structure is based on the right of the left of the folder doll hanging tramway, folder doll willgripping is not easy, so the use of the lifting mechanism to solve this problem; rescue District, a total of nine dolls, so gripping first three dolls hanging home track, then gripping the six dolls hanging home track, the gondola because of the height differenceReplace the ambulance district.

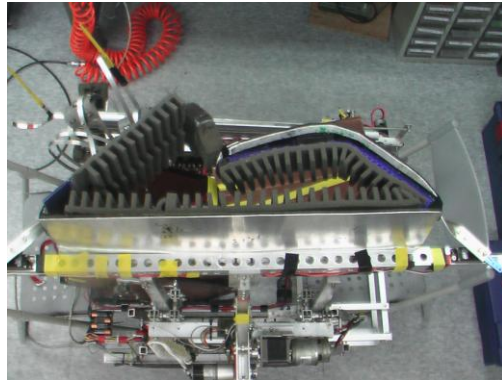
二、機構設計

夾爪機構抓取方式採環抱方式可以一次牢固的抓取三個娃娃，如(圖一)所示，配合升降、旋轉、前後三個方向不管在哪個位置都可以輕易的抓取娃娃不受地形限制。

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Jaws institutions crawl mining surrounded once firmly crawl three dolls, such as (a) shown in three directions of rotation, front and back with the lift, no matter in which position can easily crawl doll from terrainrestrictions.



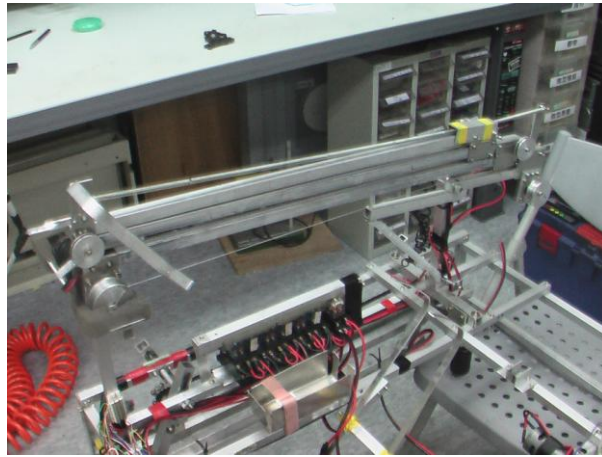
(圖一)夾爪閉合的情形

擺放方式採類似吊車方法可以旋轉、調整角度、快速伸縮，從原始狀態伸至兩公尺長只需花4秒能快速的把吊籃放置軌道上，如(圖二)所示，而且擁有三個自由度能輕易的把吊籃掛置軌道上。

Method the placed is adopted similar crane can be rotated to adjust the angle of rapid expansion, takes only four seconds to extend to two meters long can be quickly placed the gondola track from its original state, as shown in (b), and has three degrees of freedom can be easily linked to the gondola home track.

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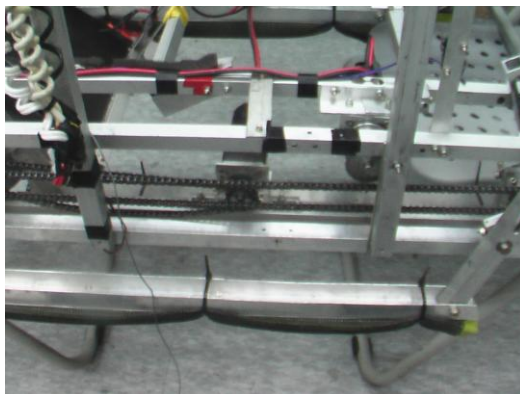


(圖二)擺臂收合情形

三、腳步驅動設計

我們的腳部驅動是用馬達、鏈條和齒輪搭配來驅動，能確保馬達跟腳部達到確動，因傳送距離遠故不使用齒輪連接而這樣也能減輕重量，也需較好的傳動力量所以不考慮皮帶。

Our foot drive with a motor, chain and the gear with a driven, to ensure that the motor with the foot reached indeed, due to transmission distance, therefore does not use the gear is connected so that can also reduce the weight, but also needs a better transmission power sonot consider the belt.



(圖三)腳部馬達、鏈條跟鏈輪

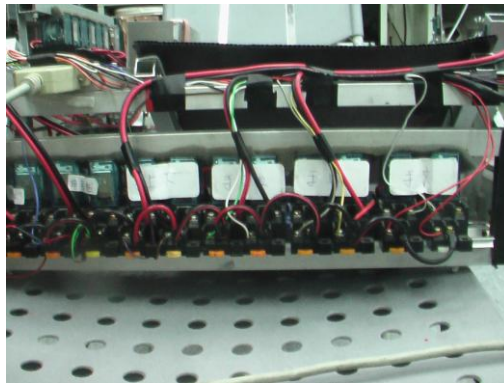
四、電路設計

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以兩個繼電器來控制馬達的正反轉，用微動開關來控制機構運動的極限；8V 鎳氫電池 2 個做串連，來達到 16V 與 8V 兩種電壓來控制馬達轉速。

Two relays to control the reversing of the motor, micro-switches to control the kinematic limit; 8V nickel-metal hydride battery two to do the series, to reach the two voltage of 16V and 8V to control the motor speed.



(圖四)電路

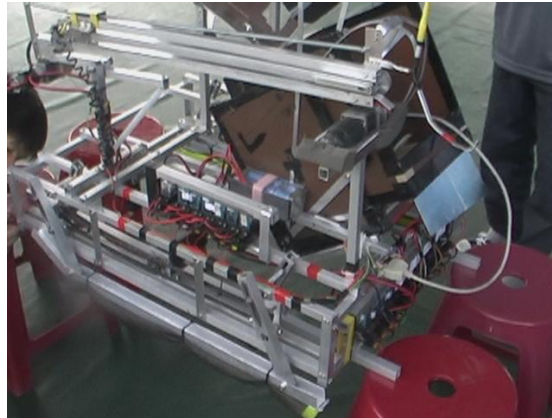
五、組裝、測試與修改

這台是第三代的機器人，前兩代機器人花了很久時間來測試和修改，發現不理想進而重新設計了第三代機器人，結合了前兩代的優點與製作經驗，所以只花了一個月來組裝與設計，功能性也更加完善。

This is the third generation of robots, two generations before the robot to spend a long time to test and modify found unsatisfactory in turn re-design of the third generation of robots, combining the strengths and experience in the production of the previous two generations, so only amonths to assemble and design, functionality and more perfect.

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(圖五) 機器人整體圖

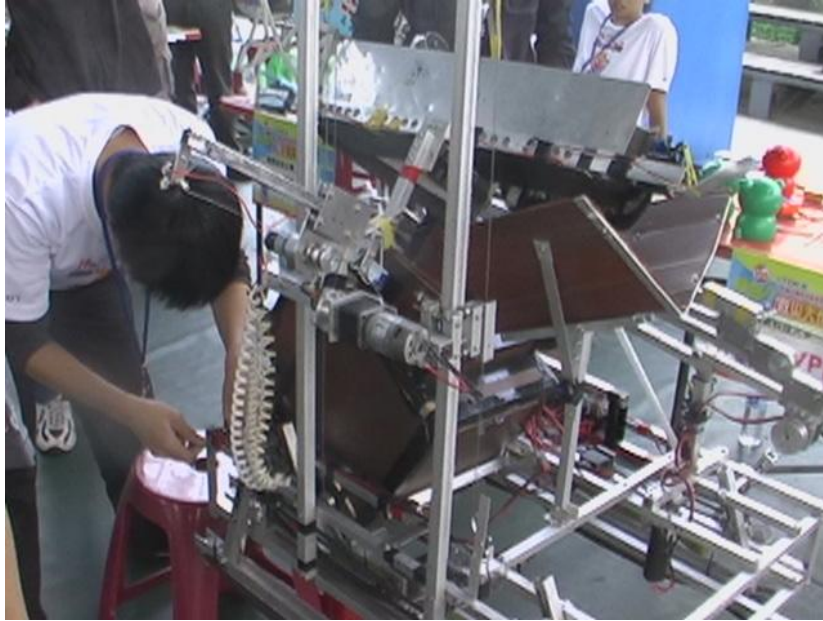
六、 機器人創意特色說明

我們的機器人夾取的方式採用環抱的方式，源自於蛇的獵捕方式用身體將獵物包圍後使獵物窒息而死，進而產生這種夾取的方式，一次可以夾取三個娃娃而且牢固；以及腳部機構也修改過，之前腳步軌跡是以畫圓方式運動，然而現在透過凸輪把腳的運動曲線改成橢圓形讓腳可以走的更快起伏更小。

Our robot gripping surrounded with their bodies, from snake hunting prey suffocate prey surrounded and produce this gripping, once a gripping three dolls and firm; well as foot institutions also modified the, before footsteps of trajectory in a circular motion movement, feet can go faster and downs smaller feet through the cam motion curve, however, changed to oval.

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機器人整體

參、參賽心得

本次參加機器人大賽，耗盡心力與體力，無奈的是人算不如天算，我們出了一點小差錯，以至於落敗在前八強的決賽中；看到各校的機器人，讓我們非常的興奮，尤其是在看到一些非常有創意的機構更是使我佩服，如果有機會我們會更加努力。

Participate in robot competitions the depletion of effort and stamina helpless unexpected outbreak, we had a little mistake, that lost in the first to the last eight of the final; see robots schools, so we are verythe excitement, especially after seeing some very creative agencies I admire more, if we have the opportunity to work harder.