

參賽隊伍人員及機器人簡介

Team Member and Robot Introduction

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II, robot Profile

貳、機器人簡介

一、構想與策略分析

『沙漠精英』足部使用四輪驅動，可以克服多種的路面，比如爬階梯，比較容易去克服，把機器人的前後重量配置好，就爬得上，前面的舉重物機構，是依照推高機的機構原理來設計的，可以排除檔在路上的障礙物，而夾爪主要是救出人質，把困在災區的人質救出到安全的位置。

A vision and strategy analysis

"Desert Classic" foot four-wheel drive, you can overcome a variety of road surface, such as climbing stairs, relatively easy to overcome the weight of the front and rear of the robot is configured, on the climb, the front of the heavy lifting bodies, the machine in accordance with the push high agency principles to design, can exclude files of the obstacles on the road, while the jaw is rescued hostage rescue hostages trapped in the disaster area to a safe location.

二、機構設計

『沙漠精英』上面所有機構的馬達有 12V 跟 24V，帶動履帶讓機器人行走是使用 24V 的馬達，我們是利用兩顆 12V 的電池做串連，來達到 24V 的電壓，而 PLC 主機也是用 24V，在機器人上面所有的機構，都是經過 PLC 來操作全部機構運作，把程式編寫好輸入 PLC 裡面，利用感測器去感應物件，PLC 收到感測器所感應到的訊號，經過 PLC 的程式來帶動機構。

Second, the mechanism design

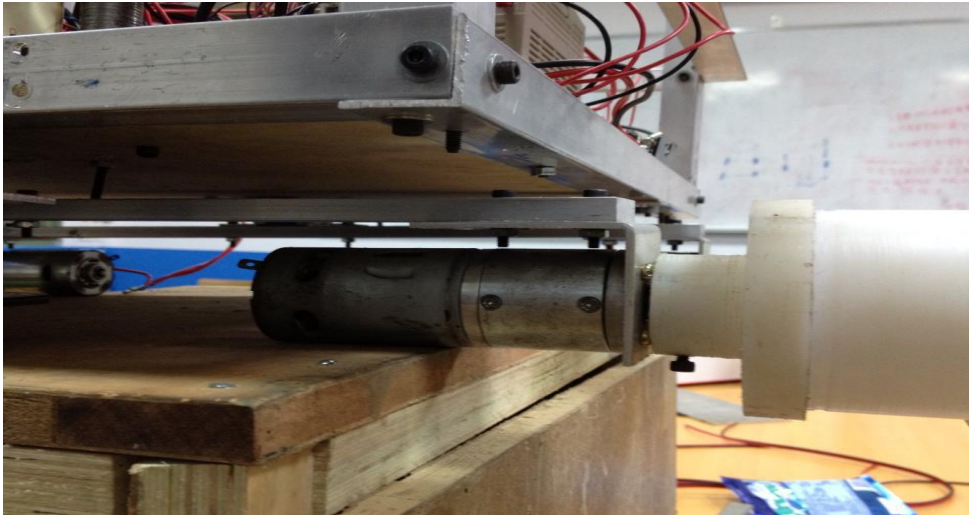
All of the above institutions Desert Classic 12V with 24V motor driven crawler

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robot walk 24V motor, we use two 12V batteries do chained to 24V voltage PLC host with 24V the robot above all, after the PLC to operate all agencies operate programming good input the PLC inside, using sensors to sense objects, PLC received signal is sensed by the sensors after the PLC program driven institutions

三、輪子驅動設計

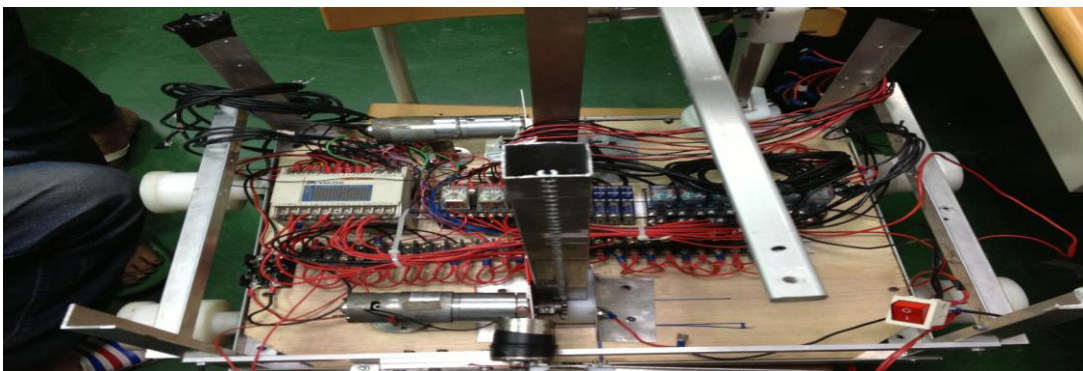


是用 4 顆馬達用來動輪子，把程式編寫好輸入 PLC 裡面，利用感測器去感應物件，PLC 收到感測器所感應到的訊號，經過 PLC 的程式來帶動機構，使沙漠精英可以移動。

Three wheel drive design

4 motor is used to move the wheel, Programming good input the PLC inside, using sensors to sense objects the PLC received signals sensed by the sensors, driven through the PLC program institutions Desert Classic movement.

四、電路設計



電路設計是用 PLC 的 VBO-32MR，在機器人上面所有的機構，都是經過 PLC 來操作全部機構運作，把程式編寫好輸入 PLC 裡面，利用感測器去感應物件，PLC

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收到感測器所感應到的訊號，經過 PLC 的程式來帶動機構。

Fourth, the circuit design

The circuit design PLC's VBO-32MR, the robot above all, after the PLC to operate the functioning of all institutions, good programming input the PLC inside, use of sensors to sense objects, PLC received sensors are sensed signals to drive the agency, after the PLC program.

五、感測器設計



光纖感測器來分辨顏色使用來避開障礙物與夾取娃娃和黑線感測器循著黑色走以防亂走。

V., sensor design

Fiber optic sensor to distinguish colors to use to avoid obstructions gripping dolls and black line sensor go to prevent chaos followed the black go.

, Assembly, test and modify

六、組裝、測試與修改

『沙漠精英』原本足部使用履帶行走後來改致四輪驅動方式，排除檔在路上的障礙物是依照推高機的機構原理來設計的，再來組裝夾爪機構來夾取。

"Desert Classic" original foot the crawler later changed to cause the four-wheel drive, the to exclude file obstacles on the road is to design institutions in accordance with the Forklift principle, again assembled gripping jaws institutions.

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七、機器人創意特色說明



機器人的高度有超過 40CM，所以當機器人的輪子接觸到階梯時，不用任何的升舉機構來把機器人抬高，前面有個舉重物的平台，可以先利用平台來輔助機器人上階層，也可以舉起重物來排除障礙。

Robotics innovative features

The height of the robot than 40CM, contact to the ladder when the wheels of the robot without any lifting mechanism to raise the robot in front of the heavy lifting platform, can use the platform to aid the robot upper middle class, but also can give lifting objects to remove obstacles.

參、參賽心得

參於這次的比賽過程中，從開始製作機器人到比賽這天我們絞盡腦汁使我們從過程中學習到了許多機器人的設計、製作及加工等等…，在製作過程中大家都將自己最大的能力發揮出來，而在這一次參加比賽過程中看到很多不同種類的機器人，使我們學習到很多程式跟連桿機構的配合，更讓我們吃驚是不知哪所學校把程式寫的超好，只要偏離馬上就修正，吸收到了豐富的知識，參加這場 TDK 比賽果然只能說天外有天、人外有人！。

Parameters, participating experience

Participation in this game, making robots from the beginning to the game on this day we are racking their brains to make us learn from the process to the design, production and processing of many robots ... everyone in the production process to the best of their abilities play, this time to see a lot of different kinds of robots to participate in the competition process, we learn a lot of programs with Linkage with, leaving us surprised I do not know which school program to write super good, as long as the deviation from the immediately corrected, absorbed into the wealth of knowledge, Behind the people participate in this TDK game really only say was!