

CAGEBOT

CONCRETIZE YOUR IDEAS



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CONCRETIZE YOUR IDEAS

CAGEBOT is the world's first top-class industrial building blocks CAGEBOT features structural design, transmission integration and multi-programming sensing.

Brick set



Fastener



Mechatronic modules



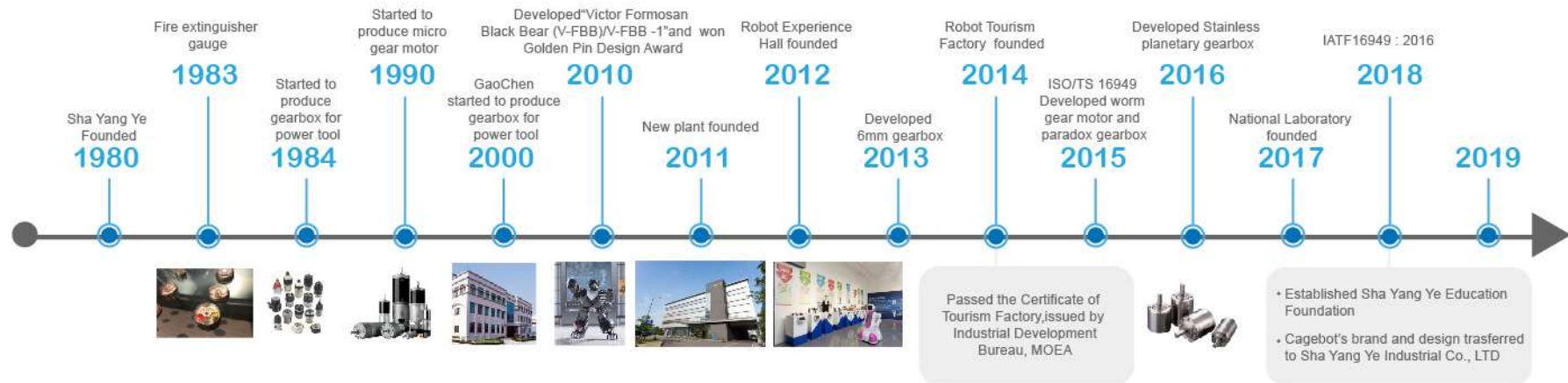
Multimedia



For both makers and engineers' inventions, CAGEBOT can be easily assembled into any come plicated structure, appearance or various industrial prototypes. With its modularized mechanical parts, which can be rapidly assembled and disassembled, CAGEBOT provides multiple product applications. CAGEBOT is compatible with various programmable logic controllers and sensor modules based on different needs. It successfully lowers the development threshold, integrates comprehensive functions, and allows users to design it with complete freedom.



SHA YANG YE
Drive Motion Drive Passion



祥儀機器人夢工廠
SHA YANG YE ROBOT WONDERLAND



財團法人桃園市
祥儀慈善文教基金會
SHAYANGYE Cultural & Educational Foundation

CAGEBOT



TIRT 4th

TIRT 3th

TIRT 2th

Established Sha Yang Ye Education Foundation

TIRT 1th



Again certificated as International Highlight Tourism Factory



Won the certificate of International Highlight Tourism Factory



Won the certificate of Excellent Tourism Factory



Passed the Certificate of Tourism Factory, issued by Industrial Development Bureau, MOEA

2021

2020

2019

2018

2017

2016

2015

2014

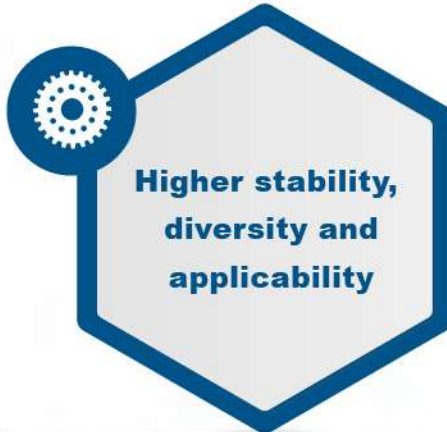
Won 2020 Taiwan Excellence Award



Started being used as a constructive material in TIRT.
(Top International Robotics Tournament)

Cagebot's brand and design transferred to Sha Yang Ye Industrial Co., LTD
Sha Yang Ye devotes itself to Cagebot's design, manufacture, lesson plans & teaching and competitions

From makers to industrial applications,
CAGEBOT builds everything



**Higher stability,
diversity and
applicability**

Serve as structural platforms ;
feature extension modules
to allow adoption of any software

High-strength industrial building blocks
with substantial weight-bearing capacities



**Industrial-grade
plastic parts
with steel structure**

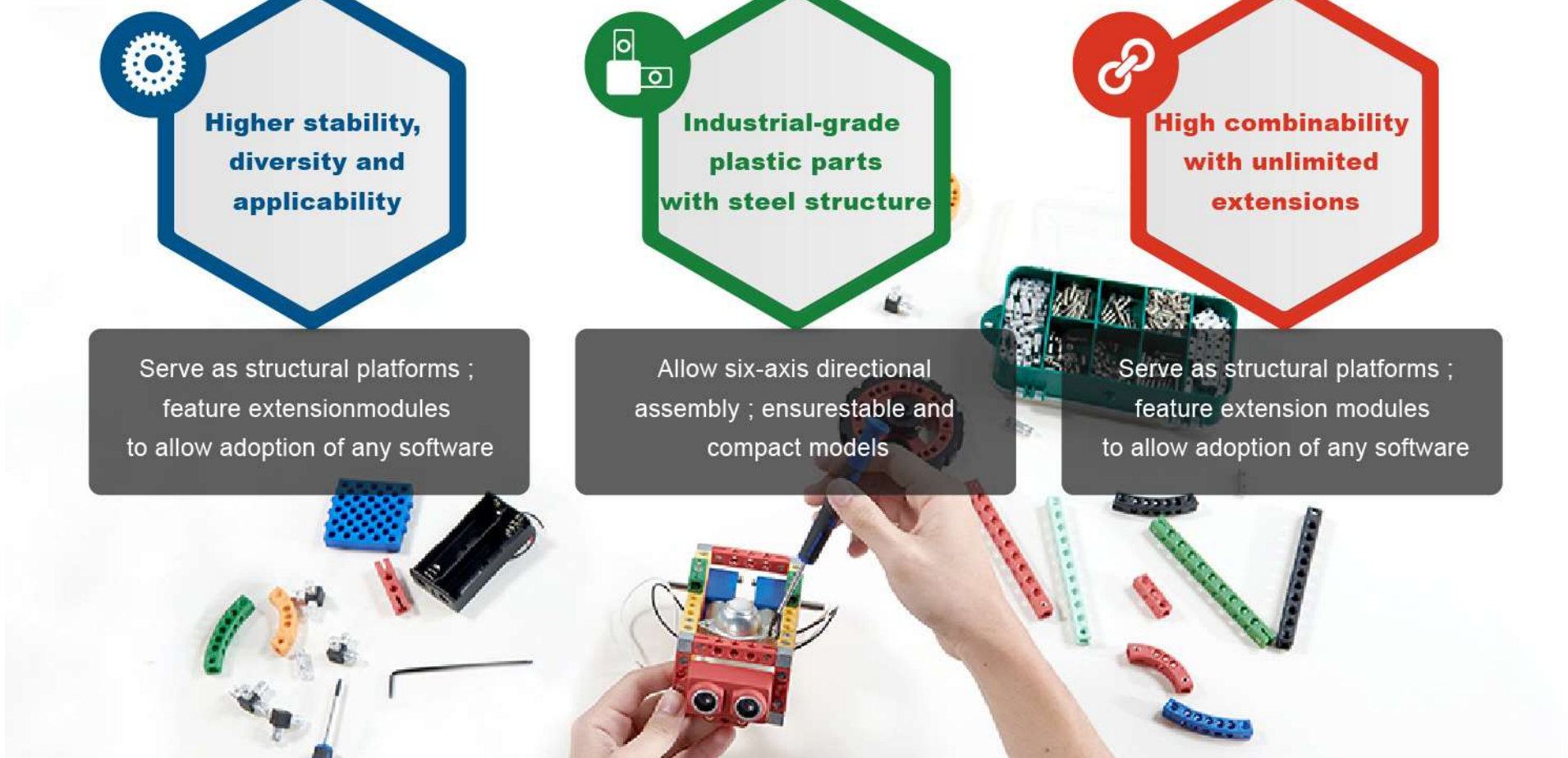
Allow six-axis directional
assembly ; ensure stable and
compact models

Various hole designs ; unlimited
program/hardware extensions



**High combinability
with unlimited
extensions**

Serve as structural platforms ;
feature extension modules
to allow adoption of any software



Handtools to assemble

Easy for everyone

*Screws strongly
fix composite
materials*

*Compatible with
mechatronic
parts*

High stability

Freely design different parts

01
STEP

**Material
understanding**



Parts & handtools

02
STEP

**Structure
design**



**Parts & mechanical
device design**

04
STEP

**Creative
combination**



**Multimedia design
& application**

05
STEP

**Programme
application**



**Computational thinking
& analysis**

06
STEP

**Project
making**



**Information technology
& mechatronics**





Assembly experience

Parent-child learning

Chapter learning

Project making

Teacher training

Competition participation

Industry application

Applications of Cagebot



Education for All Ages

產品介紹

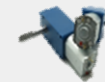




Outline of Cagebot products

Easy

A. Parts: bar/arc blocks, connectors and motors



B. Unpowered kits (no motor & battery): helicopter, rocket, etc. in [8 in 1 Creation box](#)



C. Powered kits (with motor): self-propelled car, etc. in [8 in 1 Creation box](#)



D. Basic programmable kits (with controller board & motor): [Mars E1](#)



E. Advanced programmable kits (ROS, with controller board & motor): [Kubot](#)



Hard

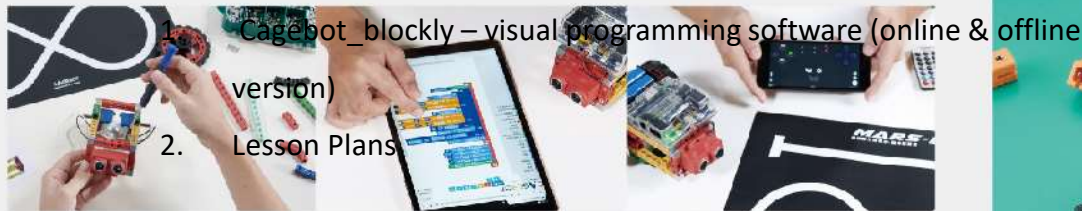




Basic programmable kit– Mars E1

1

- Cageboard - Cagebot's controller board (Arduino Nano base)
 1. Single board with built-in buzzer, RGB LED, IR sensor, digital & analog pins, no need to use extension boards
 2. Compatible with other Arduino modules
- Equipped with ultrasonic sensor, 3-way IR tracking sensor, Bluetooth module and IR remote control
- With example programs, easy to program and fast to play
- FREE





Basic programmable kit- Mars E1

1



外盒

循跡地圖

科技寶零件

馬達

控制板

工具組

教學手冊






Basic programmable kit- Mars E1

1

 方條(黃) 110mm
Bar 110mm - Yellow **4 x**

 方條(黃) 70mm
Bar 70mm - Yellow **1 x**

 方條(紅) 50mm
Bar 50mm - Red **8 x**

 方條(紅) 30mm
Bar 30mm - Red **4 x**

 方條(綠) 30mm
Bar 30mm - Green **2 x**


 輪框(紅) 70mm
Rim 70mm - Red **2 x**


 輪胎皮(黑) 70mm
Tire - 70mm **2 x**

 主軸固定爪 6mm
Wheel hub 6mm - Black **2 x**


 固定爪扣環
Wheel buckle **2 x**


 牛眼輪
Ball Wheel **1 x**

 3臂角連接件(全金屬)
Three-armed connector **8 x**


 皿頭內六角螺絲 M3x6
Countersunk screw M3x6 **8 x**

 皿頭內六角螺絲 M3x10
Countersunk screw M3x10 **29 x**

 皿頭內六角螺絲 M3x16
Countersunk screw M3x16 **14 x**


 沉頭內六角螺絲 M3x10
Cylinder screw M3x10 **2 x**


 沉頭內六角螺絲 M3x25
Cylinder screw M3x25 **8 x**


 螺母
Rivet nut **27 x**


 六角隔離柱 M3x8
Male-Female hex spacer **2 x**

 圓頭十字螺釘 M2x8
Pan Headed phillips screw **4 x**


 紅外線遙控器
Infrared remote control module **1 x**


 TR馬達-單出軸
TR Micro geared motor- Single shaft **2 x**

 控制板
Cageboard **1 x**


 控制板外殼(上下殼)
Cageboard cases (Top & bottom) **1 x**

 二入18650電池盒
2 slot 18650 battery holder **1 x**

 工具組
Tools **1 x**


 藍芽模組HC-06
HC-06 Bluetooth module **1 x**

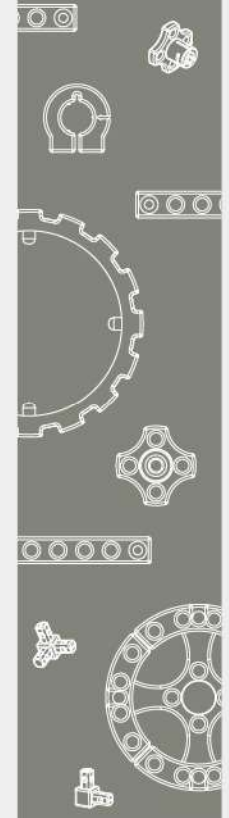
 超音波測距模組
Ultrasonic sensor module **1 x**

 三點循跡感測模組
Infrared tracking sensor module **1 x**

 Micro USB傳輸線 100cm
Micro USB cable **1 x**

 4P杜邦轉RJ11排線
4pin dupont to RJ11 cable **1 x**

 5P-1P*5杜邦雙母頭線
5pin-1pin*5 F to F dupont cable **1 x**



Basic programmable kit– Mars E1

Introduction to Cageboard controller board

Cageboard

1

Creating a self-driving car is one of the applications of Arduino boards, but normal Arduino boards need to work with extension boards and other motor driver modules to drive the wheels' DC gear motors. Arduino boards do have plenty of applications. However, their complicated wiring is still challenging to the beginners.

To solve the problem mentioned previously, Cagebot integrates Arduino Nano and TB6612FNG motor controller IC into a single controller board – Cageboard. It has the following advantages:



Mars E1's voice (buzzer), light (RGB LED), motive power (DC motor driver) are installed on Cageboard. Users have no need to do wiring. Without wiring, they can control the electrical components by the visual programming software called Cagebot_blockly.



Different types of connectors are used for the motive power's input/output. This friendly design helps the beginners save tons of time on wiring and debugging.



Cageboard offers 6 RJ11 female connectors and 10 dupont pins, and it is easy to connect to other Arduino input/output modules to expand its applications.(Cageboard is compatible with all Arduino sensors.)

Cageboard is a controller board based on Arduino Nano. About its specification, please see the table below:

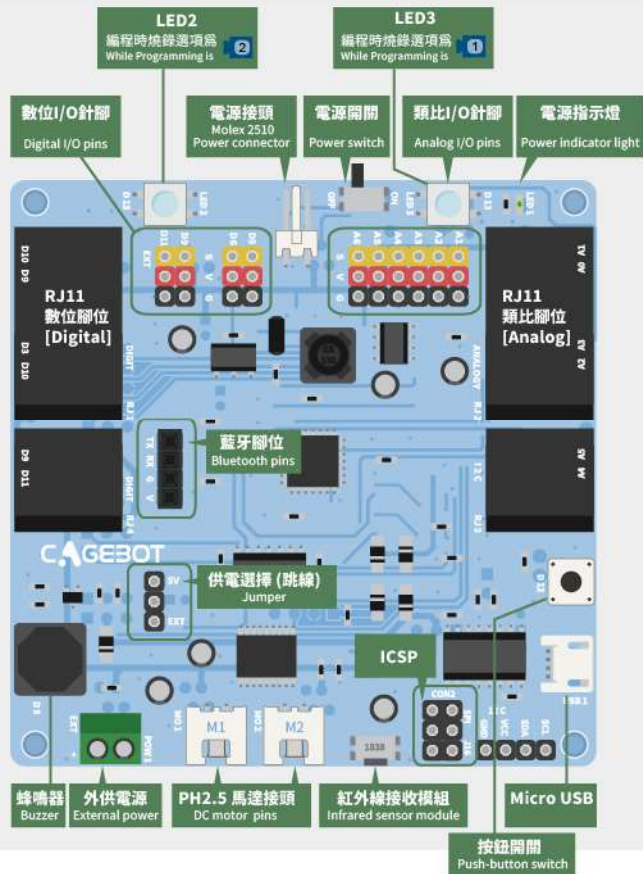
Cageboard's pins and specification

Digital I/O pins	D0~D13, 14 pins in total
Analog In pins	A0~A6, 7 pins in total
Analog Out pins	Do analog output (PWM) from digital I/O pins: D3, D5, D6, D9, D10, and D11
DC motor controller pins	4 pins (D5/D6 for rotational speed control ; D7/D4 for direction control)
Bluetooth module pins	3V3 (TX/RX, D0/D1 no need to unplug before programming)
USB operating voltage	5V
Power voltage	6V ~ 12V
External power voltage	5V ~ 12V (Jumper needs to be adjusted for using)
Microcontroller	ATMEGA328P
Flash Memory	32 KB (2KB for bootloader)
SRAM	2 KB
USB UART	CH340
USB type	Micro-USB



Basic programmable kit- Mars E1

1

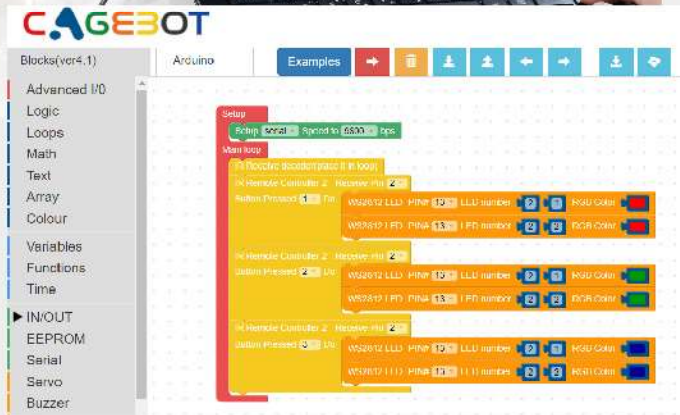


Cageboard's pins and specification

Buzzer	D8
Push-button switch	D12
RGB LED 2sets	D13 [WS2812] Right-LED1、Left-LED2
DC motor controller pins	TB6612FNG [D4D5][D7D6]
PH2.5 connector	(D5/D6 for rotational speed control ; D7/D4 for direction control)
Power, Molex 2510 connector	3V7 lithium battery 18650 2pcs = 7V4
Servo motor	5V~12V for[D9/D11] (G/V/S) (Jumper needs to be adjusted for using)
RJ11 3sets [Analog]	[A0/A1],[A2/A3],[A4/A5] on the right of the board
RJ11 3sets [Digital]	[D10/D9], [D3/D10], [D9/D11] on the left of the board
Analog I/O pins	A1/A2/A3/A4/A5/A6 (G/V/S)
Digital I/O pins	板面電源5V[D5/D6]，外部電源切換[D9/D11] (G/V/S)
Bluetooth pins	BT2.0/4.0 (D0/D1) pluggable, no need to unplug before Programming
Infrared sensor module	D2
Power switch	3P two way switch
Power indicator light	Green LED

Basic programmable kit– Mars E1

1



- FREE for Mars E1 buyers
- Online version/offline version
- Chinese/English version
- Block/ C programming language interface
- Similar to other visual programming software on the market
- Drag and drop to learn programming

Cagebot_blockly

https://www.cagebot.com/shayangye_blockly/demos/code/index.html



Powered kit – 8 in1 Creation box



(English assembly instructions included)

2



- With a motor and 2 AA batteries
(Batteries may be removed for exporting)
- Able to transform into 8 shapes:
 1. Biped robot (motored)
 2. Self-propelled car (motored)
 3. Helicopter
 4. Rocket
 5. 4-wheeled car
 6. Deer
 7. Cube
 8. Ball
- After making the listed 8 shapes, concretize your ideas freely by Cagebot blocks!





Powered kit – 8 in1 Creation box

2

1		CGB11010N01W1 公母軸10mm Cagebot Axis male-female 10mm	X8	17		CGB15070G01W1 輪框(綠色) Rim 70mm Green	X4	32		CGB59070B01W1 圓弧棒(藍)70mm Arc 70mm Blue	X8
2		CGB11010N31W1 公軸10mm Cagebot Axis male-male 10mm	X1	18		CGB15070K01W1 輪框(黑色) Rim 70mm Black	X1	33		CGB59070G01W1 圓弧棒(綠)70mm Arc 70mm Green	X4
3		CGB11015N51W1 固定軸15mm Cagebot Axle fix 15mm	X4	19		CGB22007K01W1 軸套(黑色)7.1mm Shaft end adapter Black	X4	34		CGB59070R01W1 圓弧棒(紅)70mm Arc 70mm Red	X12
4		CGB14015N02W1 2孔連接柱 Adapter 2 hole	X10	20		CGB51006K010W1 主軸固定爪(黑色)6mm Clutch shaft 6mm (30mm Motor) Black	X2	35		CGB59070Y01W1 圓弧棒(黃)70mm Arc 70mm Yellow	X15
5		CGB14020N08W1 8孔連接柱 Adapter 8 hole	X19	21		CGB55050K01W1 方形板(黑色)50mm Area Element Outside 50mm	X4	36		CGB59150G01W1 圓弧棒(綠)150mm Arc 150mm Green	X2
6		CGB81006N02W1 皿頭內六角螺絲M3×6 Countersunk screw M3x6	X16	22		CGB58030K01W1 方棒(黑)30mm Bar 30mm Black	X15	37		CGB59150K01W1 圓弧棒(黑)150mm Arc 150mm Black	X2
7		CGB81010N53W1 皿頭內六角螺絲 Countersunk screw M3X10	X101	23		CGB58030Y01W1 方棒(黃)30mm Bar 30mm Yellow	X2	38		CGB59150Y01W1 圓弧棒(黃)150mm Arc 150mm Yellow	X2
8		CGB81010N52W1 沉頭內六角螺絲M3×10 Cylinder screw M3x10	X2	24		CGB58040K01W1 方棒(黑)40mm Bar 40mm Black	X2	39		CGB93000K01W1 固定爪扣環(黑) Clutch clamp ring	X2
9		CGB52007N01W1 螺母7mm Cagebot nut 7mm	X24	25		CGB58040R01W1 方棒(紅)40mm Bar 40mm Red	X2	40		CGB86000K01W1 摩擦軸承(黑) Friction bearing Black	X4
10		CGB52010K21W1 2臂角連接件(黑) Connector 2 arms angled	X4	26		CGB58040Y01W1 方棒(黃)40mm Bar 40mm Yellow	X2	41		CGB88070K01W1 輪胎皮(黑色)70mm Tire 70mm	X4
11		CGB52010K22W1 2臂面連接件(黑) Connector 2 arms flat	X8	27		CGB58050K01W1 方棒(黑)50mm Bar 50mm Black	X6	42		CGB80000N01W1 工具組(六角扳手2支/起子2支) Cagebot Tools Set: Screw Driver x2 Allenkey x2	X1
12		CGB52010K31W1 3臂角連接件(黑) Connector 3 arms angled	X12	28		CGB58050R01W1 方棒(紅)50mm Bar 50mm Red	X2	43		CGB81035N0201 皿頭內六角螺絲M3X35 Countersunk screw M3X35	X2
13		CGB52010K32W1 3臂面連接件(黑) Connector 3 arms flat	X8	29		CGB58050Y01W1 方棒(黃)50mm Bar 50mm Yellow	X2	44		CGB09000K0301 三號電池盒 AA Battery Box	X1
14		CGB52010K41W1 4臂角連接件(黑) Connector 4 arms angled	X2	30		CGB58110B01W1 方棒(藍)110mm Bar 110mm Blue	X4	45		FG2400504B1W1 TR馬達-雙出軸(無電線) Micro Geared Motor - Double Shaft(No Wire)	X1
15		CGB52010K42W1 4臂面連接件(黑) Connector 4 arms flat	X4	31		CGB58110K01W1 方棒(黑)110mm Bar 110mm Black	X11				
16		CGB52010K51W1 5臂連接件(黑) Connector 5 arms	X6								



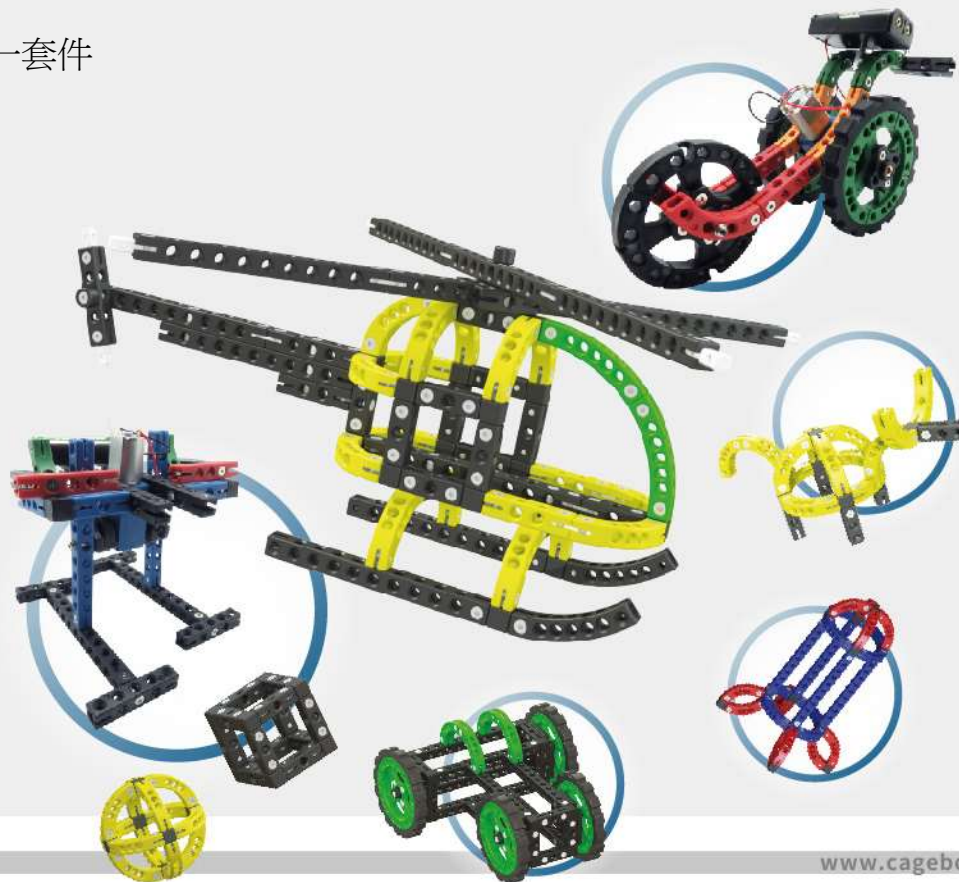


Powered kit – 8 in1 Creation box

延伸應用，使用mirco控制板搭配八合一套件
發揮創客精神玩出更多可能!

2

(可授權經銷商翻譯各國語言?)



Advanced programmable kit-Kubot

3

KUBOT
Autonomous Mobile Robot
Hardware Specifications



Advanced programmable kit-Kubot

3



Kubot	Autonomous Mobile Robot – ROS navigation
Controller	Arduino mega & Raspberry pi 3b+
Development environment	ROS-Kinetic
Car body size	300(L)*300(W)*210(H)
Load capacity	10kg
Rated speed	0.25m/s
Radius of gyration	Differential (IG32 carbon brush motor)
Driving mode	conduct, backward, spin turn
Obstacle avoidance	laser
Navigation	Lidar Slam
Orders	WIFI, app remote control and SSH
Battery	24V lithium battery , easy to change



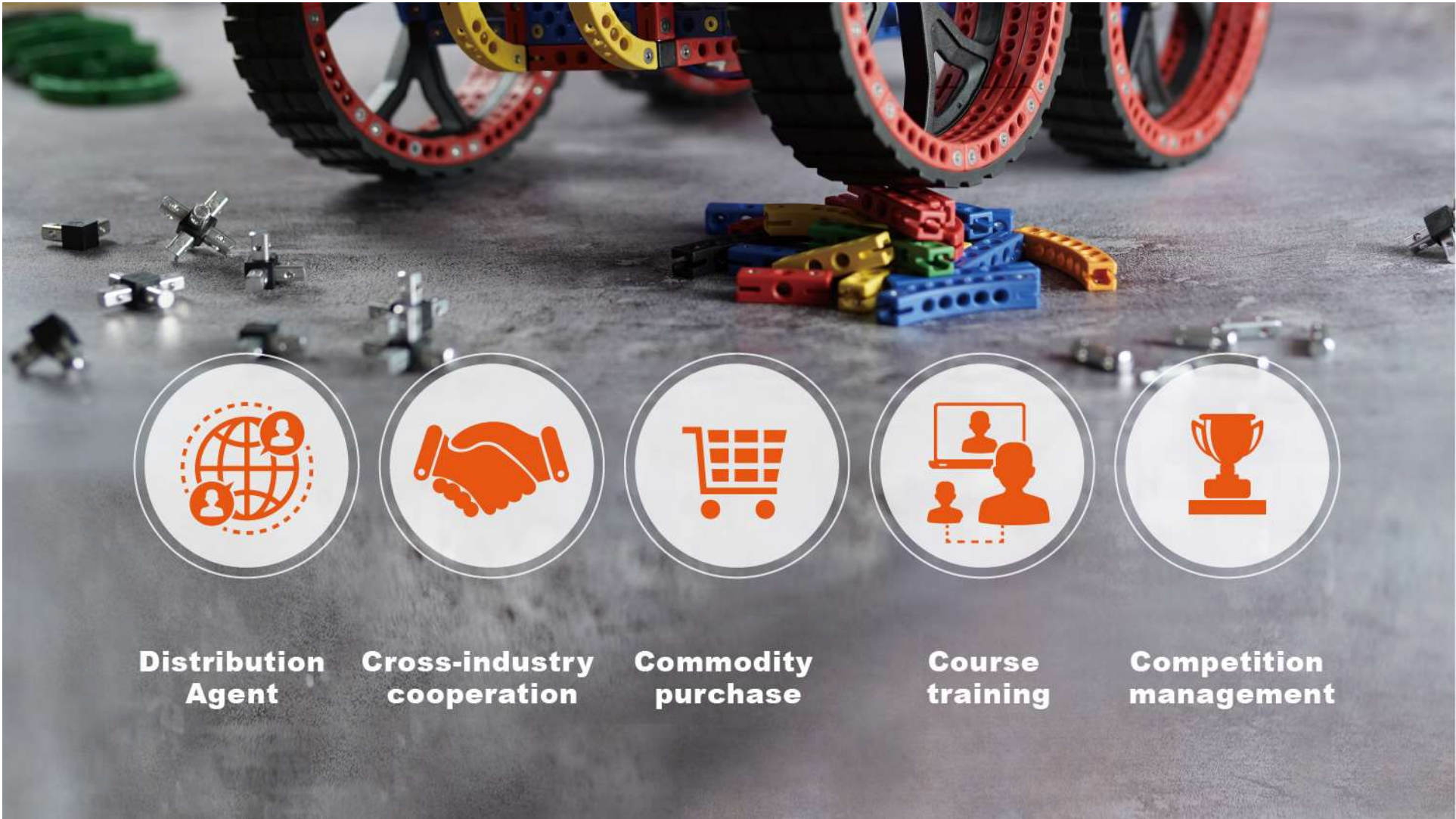
自由增加產品頁

4



Made in Taiwan , Globally renowned

Recognized as a powerful new player in robotics education area.



Distribution Agent



Cross-industry cooperation



Commodity purchase



Course training



Competition management



CAGEBOT
CONCRETIZE YOUR IDEAS

Jennifer Wu

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www.cagebot.com

Create changeable structures at your pleasure