



MACHINE VISION & CONTROL AUTOMATION

Control Easy Technology Sdn. Bhd. (924757-A)

Industry Machine Vision, Motion, PLC & PC Control Automation Systems.

Education Control Training Systems.

No 28G &1, The Atmosphere, Jalan Atmosphere 5, Bandar Putra Permai,
43300 Seri Kembangan, Selangor, Malaysia.

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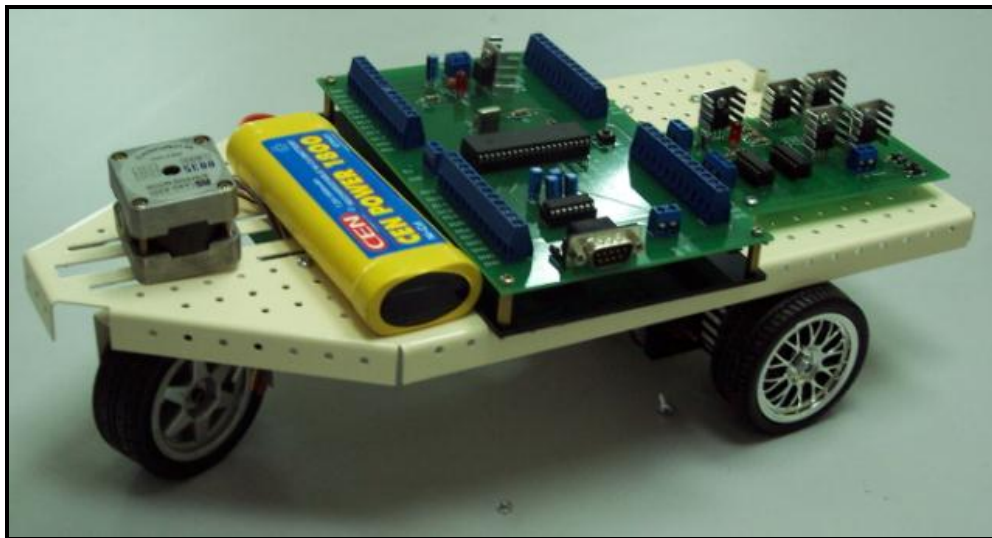
E-mail: sales@controlez.com www.control-easy.com

MECHATRONICS PROJECT KIT MODEL : EZ-RC003

Mechatronics is a discipline, which integrates mechanics, electronics, control and computer technologies to enhance the performance of products, systems and processes. Typical products using the similar principle of mechatronics are camcorders, computer disk drives, industrial robots and automobiles. Hence, The Mechatronics Project Kit enables students to develop skills in:

- Mechanical assembling
- Electrical assembling
- PIC Microcontroller Programming
- Project Management

Programming of the PIC is done through MikroC Language. The Mechatronics Project Kit provides the means for students to design a self-guided vehicle from a set of modules, including two drive modules, two steering and one jockey wheel solutions. Upon finishing the project, the autonomous wheeled vehicle will be able to follow a predetermined circuit.



Front drive with stepper motor controlled steering and Back uses two motors running from dc motor & servo motor of control signals for independent drive and direction control.

Each of the dc motor controller board has a MOSFET H-bridge and capable of driving a dc motor and servo motor independently. Three signals are required for dc motor and servo motor operation, they are one pulse width modulated signal and two TTL.



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The dc motor controller board has a set of optical photoelectric sensor to detect both the wheel speed and distance traveled. A circuitry is present to condition the back emf signal of the motor for analogue to digital conversion.

This Mechatronics Project Kit came along with steering :

uses a stepper motor controlled single wheel mounted onto a shaft, which can rotate 360 degree. The back portion come with dc motor and servo motor and differential speed control for the direction and speed.

A manual is provided detailing the parts available, manual for mechanical assembling, electronic assembling as well as programming examples for every module.

Items included in the supply:	
1.	<u>Microcontroller Development PIC 18F8720-EZ Target Board with Bootloader</u> Powerful Microchip PIC18F8720 controller running at 25 MHz Linear program memory for 128 Kbytes Linear data memory for 3840 bytes 1 Kbyte of data EEPROM MikroC 2K Code, PIC programming language 100,000 erase/write cycle enhanced Flash On-board AC-DC power supply low dropout voltage regulation Regulated +5 Vdc sourced from screw terminal connectors RS-232 DB9 serial port for downloading program into PIC target board ICD2 on board connector 16 analogue input channels with 10 bit analogue to digital converter Digital I/O ports are also available via 26-way and 40-way IDC
2.	<u>Development Part Components</u> RS232 serial communication cable LCD 2 x 16 3 x 7-segment display 4 x 4 keypad
3.	<u>Mechatronics Project Kit</u> Buggy DC Motor Drive PCB DC Motor Buggy Hobby Servo Motor Drive PCB Hobby servo motor



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4.	<u>Buggy Multi PCB</u> Reflective Opto Sensors PCB Photoelectric sensor
5.	<u>Metalwork Kit</u> Rectangular Chassis Axle Single Wheel Steering Bracket Straight Bracket, Short Straight Bracket Sensor Bracket
6.	<u>Castor Kit</u> Castor Block Castor Bracket Wheel & Axle
7.	<u>Wheels Kit</u> Wheel (pair) 25mm tyre (pair) Pulley set Rotary encoder label

Engineering & Development

Microcontroller PIC 18F8720 system supported by Programming with C Language
& Assembly Language MPLAB

Software CD - Micro C 2K Demo code
PIC 16F8720 Microcontroller training
Manuals & Teaching materials c/w exercises

Training at site
-3 Days Training
-3 - 5 persons



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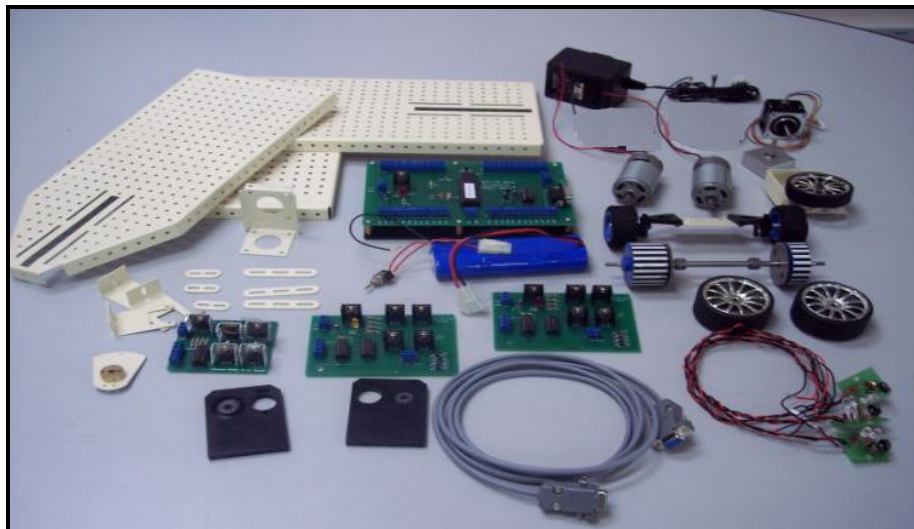
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Mechatronic Project Kit Modules

Curriculum Coverage

- Electronic control system
- PIC usage and development
 - PIC Programming
- PC interfacing and applications
- Analogue and digital I/O interfacing
 - Electrical wiring
 - Mechanical construction
- Power electronic H-Bridge FET motor drive
 - Stepper motor drive control
 - Servo motor drive control
 - Sensors functionality
- Rotary encoder functionality
- Organizing and manage project

NOTE: Complete Technical Specifications and detailed additional information available

REQUIRED SERVICES

-Electrical supply : 220-110V/ 50-60Hz
-Computer (PC)

DIMENSIONS & WEIGHT

Dimensions approx. :
500 x 300 x 200 mm.
-Weight approx. : 5 kg.

*Specification subject to change without previous notice, due to continuous improvements of the product