



MATRIX CATALOG 2025

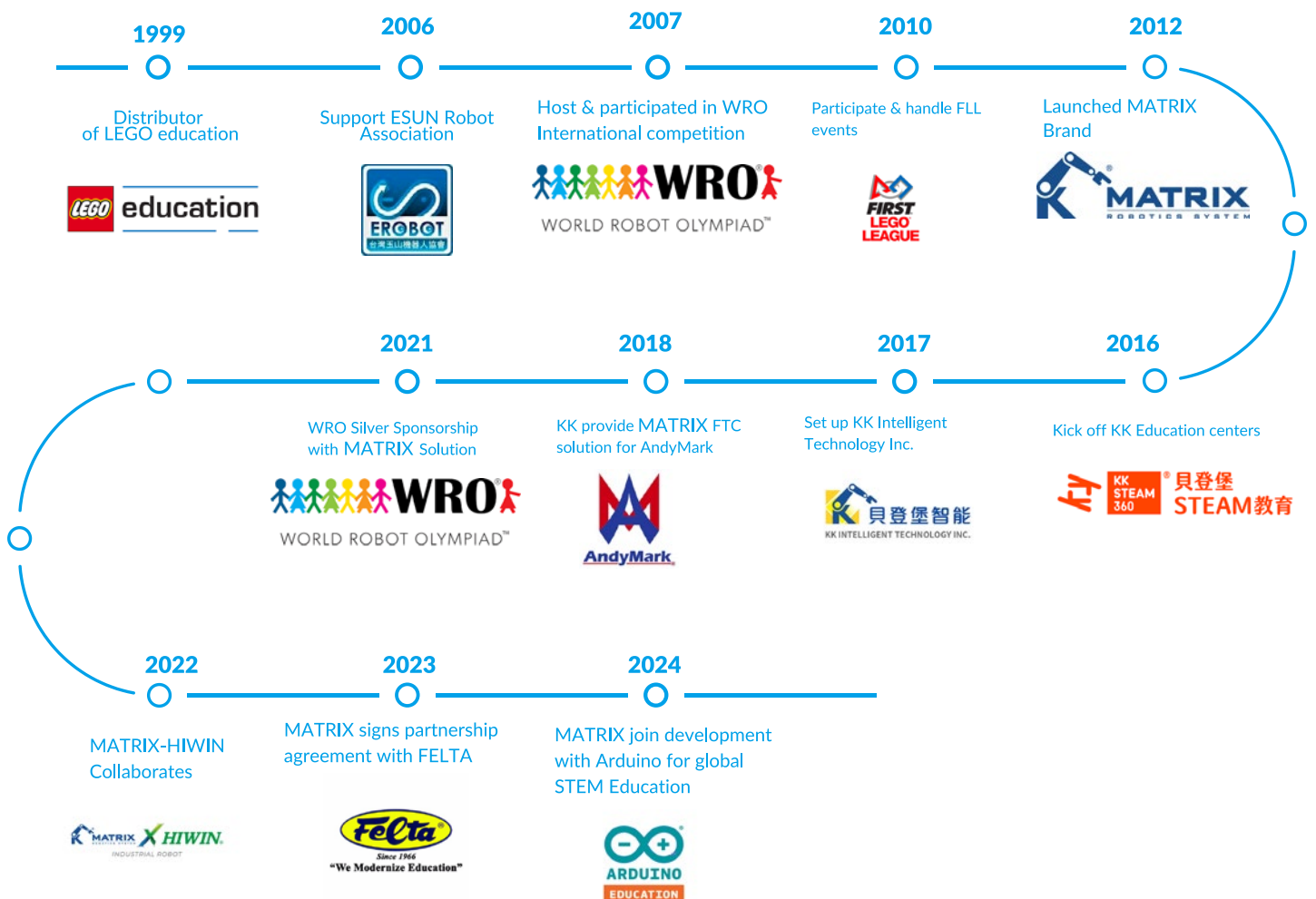


Our Milestones

KK initially operated booths in department stores. Over time, it evolved into a parent company, with MATRIX Robotics System emerging as a distinct brand under KKITC. This highlights MATRIX's role as a separate entity within the broader KKITC framework.



MILESTONES TIMELINE



Company Timeline

1994



Established

KKITC (K-Kingdom Intelligent Technology Inc.) has been focused on S.T.E.A.M. education for over 25 years. It distributes robotics products like LEGO® Education, MATRIX Robotics, and NI (National Instruments) to schools and industries.

2017



KK INTELLIGENT TECHNOLOGY INC.

2012



Launched

Uses strong aviation-grade alloy materials and metal parts, compatible with LEGO® bricks, for durable and versatile robotic designs.



Founded as association within MATRIX, based on AI for All. Robotics made simple.

A competition focused on promoting unity and global robotics competition with inclusivity at its core with different categories (Creator, Designer, Expert).

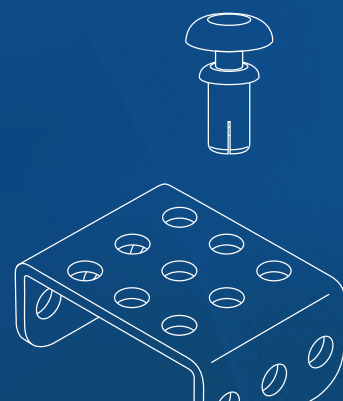
Vision

We aspire to bridge the education-industry gap by leading a global shift towards science and technology education. Our focus on MATRIX robotics, exemplified by our flagship competition support, MARC, is at the forefront of creating a well-equipped global community prepared for the challenges of the future.

Committed to excellence, we strive to provide innovative solutions that transform the landscape of education and industry.

Mission

To deliver STEM education and solutions to meet the needs of both society and industries.



About MATRIX

Bridging Education and Industry Through Robotic Excellence



International Events

International Connections

Global Partners

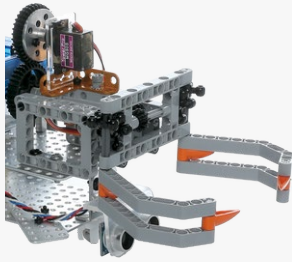
Project Based Curriculum

Functional and User Friendly Building System



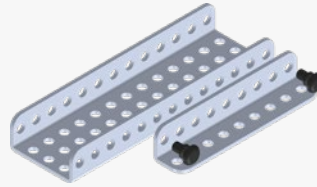
MATRIX Building System

1.



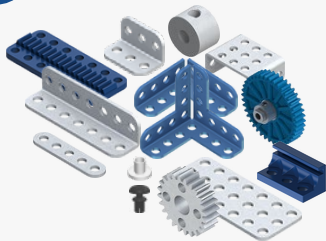
Compatible with Lego® Parts

2.



Easy Assembly

3.



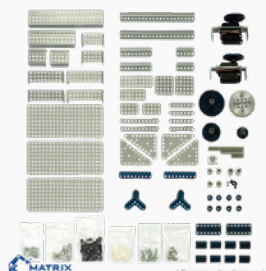
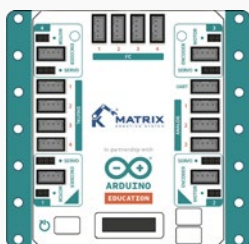
Various Shapes of Metal Parts

4.



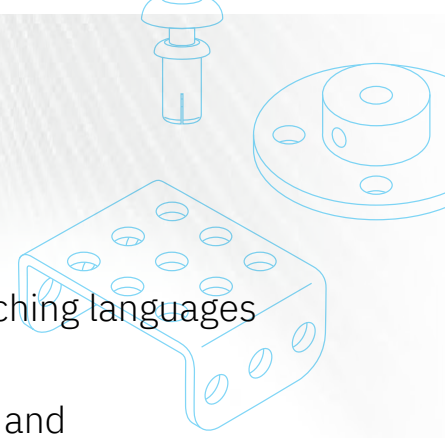
Stronger Mechanism and Accurate Movement

MATRIX Components



About STEM Education

- Compatible with various programming languages.
- Supports micro:bit and Arduino systems, widely used in teaching languages such as Scratch, Python, C++, MakeCode, and LabVIEW.
- Encourages active student engagement by exploring coding and its application in everyday scenarios



Software	Language
	
	
	 
	
	G-Code

- Academic collaboration involves the creation of rootics and educational materials in partnership with leading universities and National Instruments.
- Practical industry connections are facilitated through the MATRIX Robotic System. The STEAM course curriculum can be enhanced to align with both educational and industry standards, transforming it into a practical tool for the workplace.



Critical thinking and creativity skills



Life Application



Computing concepts



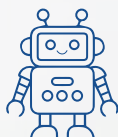
Problem-solving to real world solutions



Code symbol or program



Teamwork



Robotic Skills



Hardware and software skills



Assemble mechanical structure



MATRIXblock

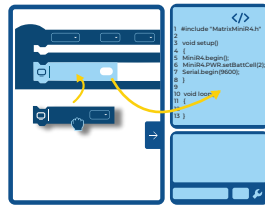
Visualized Your Code in Action for MATRIX Mini and MATRIX R4

A graphical programming tool based on Scratch, offering block to C++ previews and a serial port monitor for easy data debugging. MATRIXblock bridges the gap between block-based and text-based coding, ideal for beginners and educators.

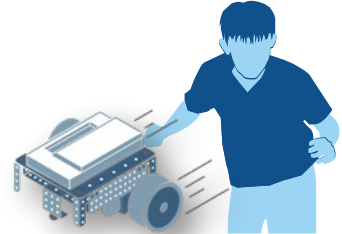
Drag



Drop



Create



Real time C++ code preview

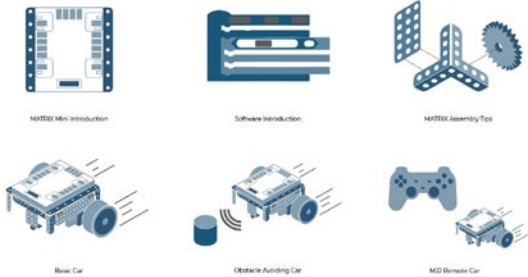
Multi-language support

Intuitive graphical monitoring

Simple serial text monitoring

Always-update basic courses

Examples



Built-in Lessons

Our built-in tutorials guide you through every essential aspect, helping you get up to speed fast.

Serial with Visualize

MATRIXblock includes a serial monitor with a graph view, letting you track and visualize sensor data easily in real-time.

Your Language, Your Code

Allowing students to read and comment on code blocks in their native language, making programming more intuitive and accessible.



Set Display Text Hello

設置顯示內容 哈囉

设置显示内容 哈囉

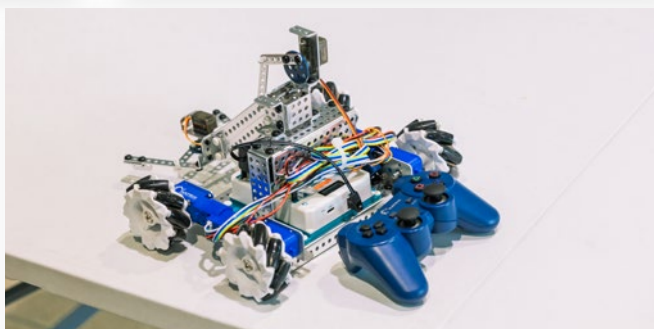
Not in your language? Contact us to add language translation! 🇨🇳 🇺🇸 🇩🇪 🇮🇹 🇧🇷



Check our website for further information

Social Responsibility

with  Hon Hai Education Foundation
鴻海教育基金會



Hon Hai Education Foundation

Provide resources for STEM education

Help schools in underprivilege areas

Workshops / seminars / competitions

Partners



Industry Relations



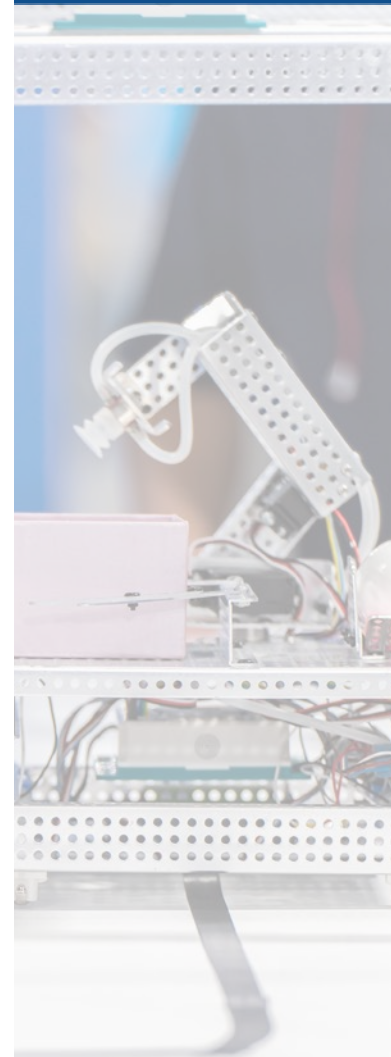
Smart Factory Best Partner
















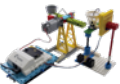
We've teamed up with HIWIN to create a Smart Factory that integrates MATRIX robotics with HIWIN's precision products.

Together, we provide metal parts and industrial-grade controllers, crafting advanced AI-integrated educational robots. This collaboration bridges the gap between education and industry, offering students a seamless transition to professional-level robotics while connecting them with cutting-edge technology and industry standards.



MATRIX Series Table

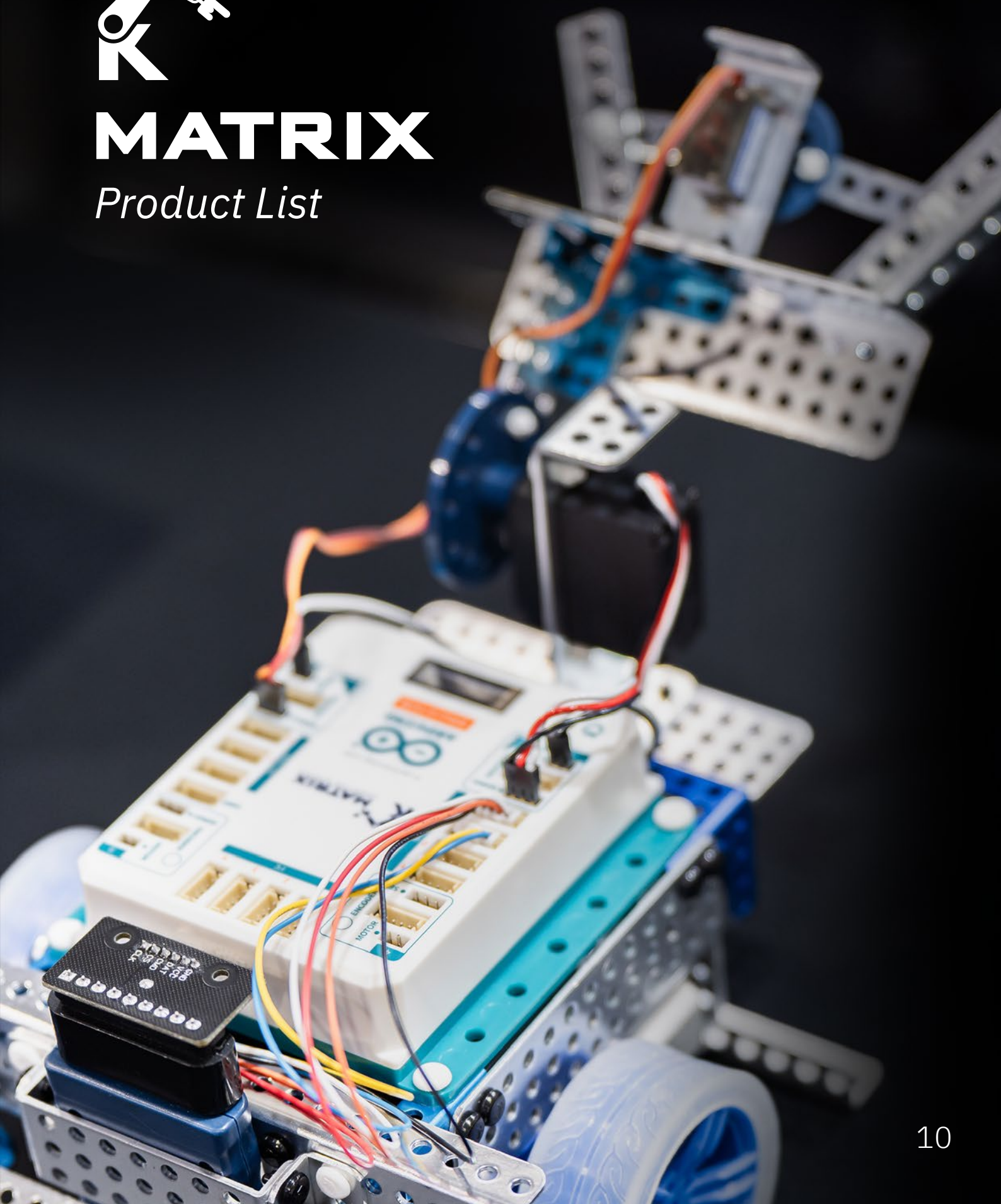


Controller				
 MATRIX MICRO (MMJ : LEGO Parts MM: MATRIX Parts)	 MATRIX MINI	 MATRIX MINI R4	 KNR (MyRIO Embedded)	
Series				
MMJ	MM	MR	MA	KNR
Set				
MMJ0001	MM2010	MR3000 MR120	MA300	
Age				
7+	9+	11+	15+	
Program				
 Microsoft MakeCode  MicroPython	 MATRIXblock  Arduino IDE	 MATRIXblock  Arduino IDE	 python  C Programming  LabView	
Competition				
 MARC Master AI Robot Cup  WRO WORLD ROBOT OLYMPIAD™	 MARC Master AI Robot Cup  WRO WORLD ROBOT OLYMPIAD™	 worldskills MARC Master AI Robot Cup  WRO WORLD ROBOT OLYMPIAD™	 worldskills WRO WORLD ROBOT OLYMPIAD™	
Expansion Pack				
		MJ2		
 compatible with LEGO® parts		MX300		
		MX120		
			M-Vision (MS-010) Programming : Python	



MATRIX

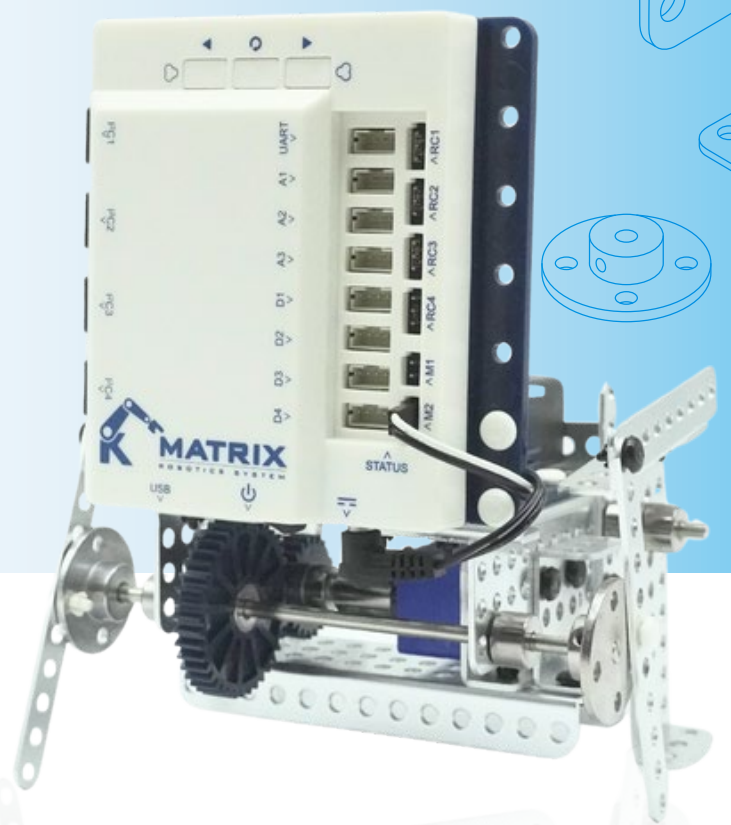
Product List



MR3000 MATRIX Mini Innovation Set

The MATRIX Mini Innovation Set (MR3000) is more than just a set of parts—it's a gateway to a world of innovation, creativity, and endless possibilities, seamlessly integrating education with technology.

Utilizing the MATRIX Mini 2.0 controller, similar to Arduino Uno R3, the set enables the creation of various types of mechanical designs, empowering students to develop their problem-solving and engineering skills. Students embark on hands-on tech exploration guided by educational sessions. MR3000 uses drag-and-drop block programming with MATRIXblock, making learning fun and easy.



Course Outline

The 12-unit robotics course offers a comprehensive journey into robotics, covering self-propelled cars, MATRIX Robotic System assembly, Scratch and MATRIXblock programming, advanced controls, sensors, motors, and creative design projects. Through hands-on activities, students build diverse robotic models, from basic to advanced, including Tracking and Obstacle-Avoiding Robots. The course enhances practical skills, mechanical principles, and programming, preparing students to tackle real-world robotics challenges confidently.

Expansion

Software

Competition

Teaching Objective

MX120
MX300
MJ2

MATRIXblock
Arduino IDE



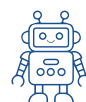
Critical thinking and creativity skills



Code symbol or program



Assemble mechanical structure



Robotic Skills



Hardware and software skills



Controller



MATRIX MINI CONTROLLER

Specifications:

- Dimensions : 10.4 x 10.5 x 2.5 cm
- Working voltage : 5VDC
- Input voltage : 6VDC - 24VDC
- Analog signal port x 3
- Digital signal port x 4
- PWM output port x 4
- DC motor output port x 2
- UART port x 1
- 12C port x 4
- Built-in program control button x 2
- Built-in reset button x 1
- Programmable RGB Tri-Color LEDs x 2



MR3000 Part List

Building System				Controller	
	01-0003 L Shaped Beam - 3 Hole 2 pc		10-0028 4mm D Shaft - 28mm 2 pc		12-0001 Tooth Belt - 7 Hole 1 pc
	01-0009 L Shaped Beam - 9 Hole 2 pc		10-0052 4mm D Shaft - 52mm 2 pc		12-0002 Linear Slide - 3 Hole 4 pc
	01-0313 L Shaped Beam XL - 13 Hole 2 pc		10-0132 4mm D Shaft - 132mm 2 pc		11-6050 MATRIX Quick Connector - 5mm 40 pc
	02-0007 Flat Beam - 7 Hole 2 pc		11-3404 M4 Flat Point Set Screw - 4mm 20 pc		11-6070 MATRIX Quick Connector - 7mm 20 pc
	02-0011 Flat Beam - 11 Hole 2 pc		08-0019 4mm Axle Collar with M4 set screw 6 pc	Motors/Wheels	
	04-0305 Gusset Plate 3 x 5 Hole 4 pc		08-0024 4mm Omni Thin Wheel with M4 set screw 2 pc		MTT-MG001-BK MATRIX TT Motor with metal gear box & Brackets (1 Pair) 1 pc
	05-0303 Flanged Plate 3 x 3 Hole 2 pc		08-0031 4mm to TT Adapter with M4 set screw 2 pc		TT-TIRE_B MATRIX TT Wheel (Blue Rim) 2 pc
	05-0309 Flanged Plate 3 x 9 Hole 2 pc		12-0024 M4 Gear - 24 Tooth 1 pc	Tools	
	06-0013 C Shaped Beam - 13 Hole 2 pc		12-0040 M4 Gear - 40 Tooth 1 pc		13-0010 MATRIX Steel Ball Caster 1 pc
					MR-000 V2-4 MATRIX Mini Controller Set (V2.4) 1 pc
					18650-HD 18650 Battery Box 1 pc
					MS-003V2-JST MATRIX Grayscale Sensor V2 Pack (JST) 1 pc
					MS-009-RJ12 MATRIX Laser Sensor Pack (RJ12) 1 pc
					HEXWRENCH M4 M4 L Shaped Hex Wrench 1 pc

MR Series

MR120 MATRIX Mini Starter Robot Set 2.0

MR120 is a basic set for entry level to learn programming. It contains MATRIX Robotic System parts and a Mini controller. Users can learn about electronics, mechanics, and software at the same time. With different teaching objectives, users can develop their ability to solve problems through their own creativity.



Course Outline

The twenty-unit curriculum covers self-propelled cars, MATRIX Robotic System, programming languages, and MATRIX MR120 assembly. Topics include motor and RGB LED control, button functions, advanced concepts like acceleration, gear shifting, and sensor applications. Later units explore servo motors, linkage and gear mechanisms, tasks for trucks and aerial ladder vehicles, and creative design with self-propelled soccer themes, aiming to provide a comprehensive understanding of robotics, programming, and creative design applications.

Expansion

MX120
MX300
MJ2

Software

MATRIXblock
Arduino IDE



Competition



Teaching Objective



Critical thinking and creativity skills



Code symbol or program



Assemble mechanical structure



Robotic Skills



Controller



MATRIX MINI CONTROLLER

Specifications:

- Dimensions : 10.4 x 10.5 x 2.5 cm
- Working voltage : 5VDC
- Input voltage : 6VDC - 24VDC
- Analog signal port x 3
- Digital signal port x 4
- PWM output port x 4
- DC motor output port x 2
- UART port x 1
- 12C port x 4
- Built-in program control button x 2
- Built-in reset button x 1
- Programmable RGB Tri-Color LEDs x 2



MR120 Part List

Building System		Controller		
01-0003 L Shaped Beam - 3 Hole 2 pc	04-0309 Gusset Plate 3 x 9 Hole 1 pc	12-0001 Rack Gear 1 pc	MR-000 V2-4 MATRIX Mini Controller Set (V2.4)	
01-0007 L Shaped Beam - 7 Hole 2 pc	05-0303 Flanged Plate 3 x 3 Hole 2 pc	12-0002 Linear Slide 4 pc	USB Cable 1 pc	
01-0009 L Shaped Beam - 9 Hole 2 pc	05-0307 Flanged Plate 3 x 7 Hole 2 pc	11-6050 Quick Connector - 5mm 50 pc	18650-HD 2C LI Battery Case 1 pc	
01-0021 L Shaped Beam - 21 Hole 2 pc	05-0309 Flanged Plate 3 x 9 Hole 2 pc	11-6070 Quick Connector - 7mm 30 pc	Sensors	
31-0013 XL L Shaped Beam - 13 Hole 4 pc	06-0013 C Shaped Beam - 13 Hole 1 pc	11-6120 Quick Connector - 12mm 20 pc	MS-003 V2 MATRIX Gray Scale Sensor V2 1 pc	
02-0005 Flat Beam - 5 Hole 4 pc	06-0021 C Shaped Beam - 21 Hole 1 pc	11-4403 M4 Nylon Shoulder Washer 20 pc	MS-009-RJ12 MATRIX Laser Sensor Pack (RJ12) 1 pc	
02-0009 Flat Beam - 9 Hole 4 pc	10-0132 4mm D Shaft 132mm 2 pc	Motors/Wheels		
03-0001 Beam Joiner - 1D Straight 2 pc	11-3404 4mm M4 set screw-flat point 8 pc	MR-002 MINI Micro Servo Package (MG90S) 1 pc	MS-004V2 MATRIX Miniature Switch V2 2 pc	
03-0002 Beam Joiner - 2D Right Angle 4 pc	08-0019 4mm axle collar with M4 set screw 6 pc	MR-008 Matrix TT DC Motor Set Matrix Micro Servo 1 pc	Tools	
03-0003 Beam Joiner - 3D Right Angle 2 pc	12-0024 Gear 24 Tooth 1 pc	TT Motor Wheels 2 pc	HEXWRENCH M4 M4 L Shaped Hex Wrench 1 pc	
04-0307 Gusset Plate 3 x 7 Hole 1 pc	12-0040 Gear 40 Tooth 1 pc	13-0010 Matrix Steel Ball Caster 2 pc	8020P-1 Crosshead Screwdriver 1 pc	

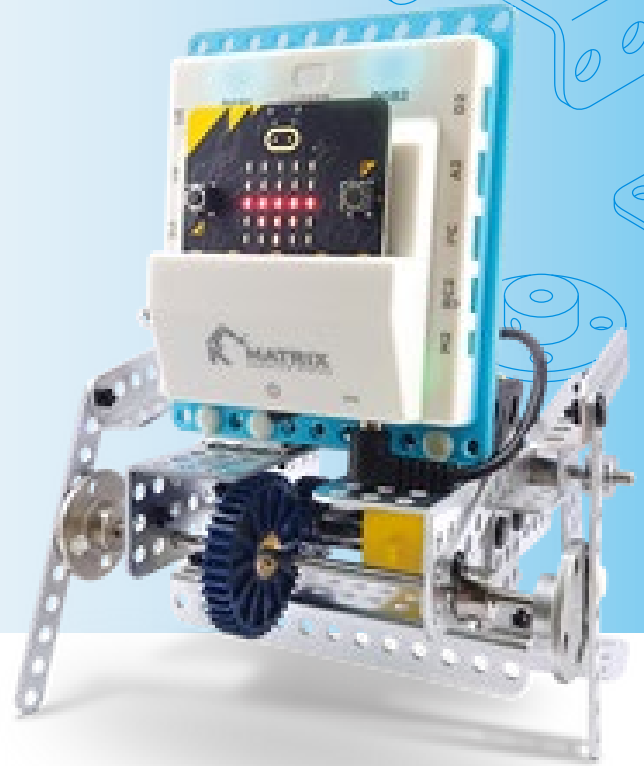
*All pictures shown are for illustration purpose only. Actual product may vary due to product enhancement.

MM Series

MM2010 MATRIX Micro Starter Robot Set 2.0

The MM2010 MATRIX Micro Starter Robot Set 2.0 uses the micro:bit controller as its core, providing an educational platform for learning various mechanical structures and basic programming.

Using the user-friendly MakeCode programming interface, users can write programs by simply dragging and dropping building blocks. This approach makes it easier to understand and spark interest in programming. Additionally, the MM2010 can be extended to support Scratch, MicroPython, Blockly, JavaScript, and other programming languages.



Course Outline

The curriculum covers twelve units on micro:bit programming and robotics assembly, introducing practical applications, mechanical concepts, and advanced topics like motion control and sensors. Students engage in hands-on projects, concluding with advanced concepts in Tracking Robots and Obstacle Avoiding Robots, aimed at developing programming, robotics assembly, and problem-solving skills.

Expansion

MX300
MJ2

Software

MakeCode
MicroPython



Competition



Teaching Objective



Robotic Skills



Life Application



Computing concepts



Assemble mechanical structure



Controller


























MATRIX Micro Controller

Specifications:

- Dimensions : 10.4 x 8.8 x 3.5 cm
- Working Voltage : 5VDC
- Input Voltage : 6VDC - 24VDC
- Analog Signal Port x 2
- Digital Signal Port x 2
- PWM Output Port x 2
- DC Motor Output Port x 2
- 12C Port x 4
- Built-in Reset Button x 1
- Programmable RGB Tri-Color LEDs x 2



MM2010 Part List

Building System				Controller	
	01-0003 L Shaped Beam - 3 Hole 2 pc		08-0024 4mm Omni Thin Wheel with M4 set screw 2 pc		11-6070 Quick Connector - 7mm 20 pc
	01-0009 L Shaped Beam - 9 Hole 2 pc		08-0031 4mm to TT Adapter 2 pc		11-3404 4mm M4 set screw-flat point 20 pc
	02-0007 Flat Beam - 7 Hole 2 pc		10-0028 4mm D Shaft 28mm 2 pc	Motors/Wheels	
	02-0011 Flat Beam - 11 Hole 2 pc		10-0052 4mm D Shaft 52mm 2 pc		
	04-0305 Gusset Plate 3 x 5 Hole 4 pc		10-0132 4mm D Shaft 132mm 2 pc		MTT-MG001-S MATRIX TT Motor with Brackets & Wheels (1 Pair) 1 pc
	05-0303 Flanged Plate 3 x 3 Hole 2 pc		12-0002 Rack Gear 4 pc		TT Motor Wheels 2 pc
	05-0309 Flanged Plate 3 x 9 Hole 2 pc		12-0001 Linear Slide 40 pc	Tools	
	06-0013 C Shaped Beam - 13 Hole 2 pc		01-0313 L Shaped Beam XL- 13 Hole 2 pc		
	08-0019 4mm axle collar with M4 set screw 6 pc		11-6050 Quick Connector - 5mm 40 pc		45591 Storage Box - Light Blue 1 pc

MM Series

MMJ001 MATRIX Micro Code:bit Car Set

The MATRIX Micro Code:bit Car Set is a flexible, line-following and obstacle-avoidance robot that connects learning with advanced robotics.

Compatible with **LEGO®** parts and the MATRIX metal robotics system, it allows users to build diverse projects and achieve various teaching goals. With this set, learners can develop programming skills while exploring real-world robotics applications.



Course Outline

The curriculum consists of twelve units, covering micro:bit programming from basics to advanced applications. Topics include LED control, variables, conditional loops, and sensor applications for robotics, culminating in advanced concepts like Obstacle Avoiding Robots with a Laser Sensor. The curriculum aims to provide students with a well-rounded understanding of micro:bit programming and its practical applications.

Expansion

Compatible with **LEGO®** parts MJ2

Software

MakeCode
MicroPython



Competition



Teaching Objective



Teamwork



Code symbol or program



Computing concepts



Problem-solving to real world solutions



Controller



MATRIX Micro Controller

MMJ0001

Specifications:

- Dimensions : 10.4 x 8.8 x 3.5 cm
- Working Voltage : 5VDC
- Input Voltage : 6VDC - 24VDC
- Analog Signal Port x 2
- Digital Signal Port x 2
- PWM Output Port x 2
- DC Motor Output Port x 2
- 12C Port x 2
- Built-in Reset Button x 1
- Programmable RGB Tri-Color LEDs x 2



MMJ0001 Part List

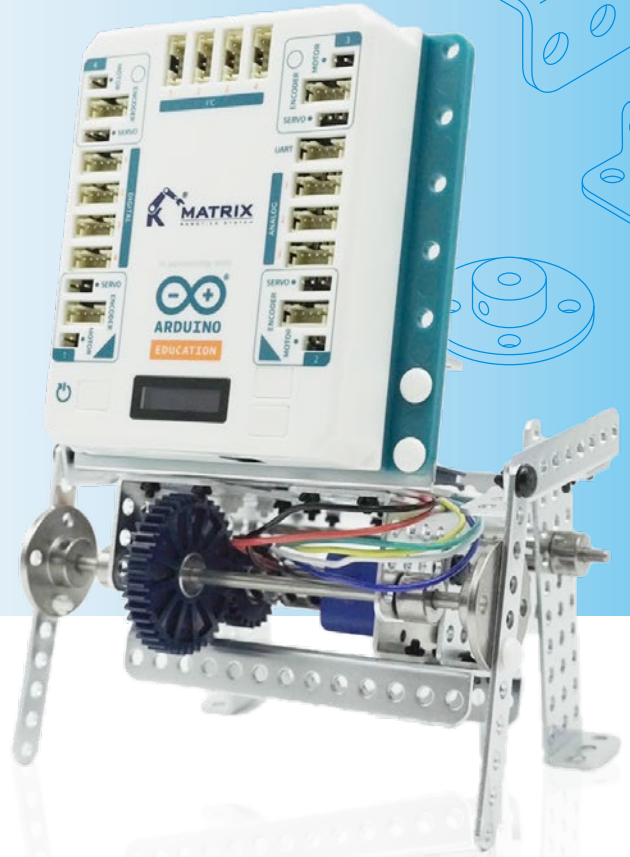
MATRIX	LEGO®	Third-Party Brick
 MMJ-000 Code:bit Car Set Matrix micro Controller 1 pc	 41239L Liftarm, Thick 1 x 13 2 pc	 32526 Liftarm, Modified Bent Thick L-Shape 3 x 5 2 pc
 MS-003V2 MATRIX Gray Scale Sensor V2 1 pc	 32525 Liftarm Thick 1 x 11 2 pc	 48989 Pin Connector Perpendicular 3L with 4 Pins 4 pc
 MS-009-JST MATRIX Laser Sensor Pack (JST) 1 pc	 32524 Liftarm Thick 1 x 7 1 pc	 2780 Pin with Friction Ridges 16 pc
 11-6120 MATRIX Quick Connector - 12mm 6 pc	 3705 Technic, Axle 4L 2 pc	 6558 Technic, Pin 3L with Friction Ridges 6 pc
 11-4403 M4 Nylon Shoulder Washer 6 pc	 4265c Technic Bush 1/2 Smooth 3 pc	 F56908 Wheel 43.2mm D. x 26mm Technic Racing Small, 6 Pin Holes 2 pc
 18650-HD 2C LI Battery Case 1 pc	 32526 Liftarm, Modified Bent Thick L-Shape 3 x 5 2 pc	 92911 Technic, Steering Ball Joint Large Receptacle 1 pc
		 F99948 Technic Ball Steel 18mm D. 1 pc
		 F41897 Tire 56 x 28 ZR Street 2 pc
		 F56908 Wheel 43.2mm D. x 26mm Technic Racing Small, 6 Pin Holes 2 pc
		 F88003-1 L-Motor (DuPont cable) 2 pc

MA Series

MA300 MATRIX R4 Robo Set

The MA300 MATRIX R4 Robo Set is a cutting-edge educational tool designed to harness the power of the Arduino® UNO R4 WiFi as its core. This set offers versatile and robust programming capabilities, making it perfect for learners of all levels. It fully supports third-party sensors, enhancing the robot's functionality and expanding its potential applications.

The set accommodates both beginners and advanced users by supporting MATRIXblock for intuitive drag-and-drop programming, as well as the Arduino IDE for more complex coding.



Course Outline

The twelve-unit course focuses on guiding students through the assembly of different robotic models, varying in complexity and functionality. Through hands-on activities, learners gain practical experience in constructing diverse designs, programming in MATRIXblock, enhancing their understanding of robotics assembly. This course allows students to explore practical applications, mechanical principles, and advanced topics including motion control and sensors. Culminating in complex concepts like Tracking Robots and Obstacle Avoiding Robots, the course empowers students to confront real-world challenges in robotics and programming with confidence.

Expansion

- MX120
- MX300
- MJ2
- M-vision
- AMR
(Autonomous Mobile Robot)




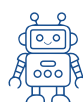

Software

- MATRIXblock
- Arduino IDE

Competition

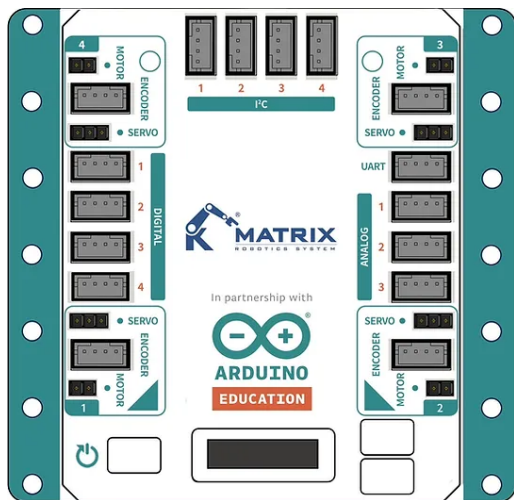
- MARC**
Master AI Robot Cup
- WRO**
WORLD ROBOT OLYMPIAD™
- worldskills**

Teaching Objective

-  **Critical thinking and creativity skills**
-  **Code symbol or program**
-  **Assemble mechanical structure**
-  **Robotic Skills**
-  **Hardware and software skills**



Controller



MATRIX R4 ROBO SET (MATRIX Mini UNO R4 WiFi) MA300

Specifications:

- Controller supports:
- 4x DC Motor Out
- 4x Encoder
- 4x RC Servo Out
- 4x I2C I/O
- 4x Digital I/O
- 3x Analog In
- 1x UART I/O
- 2x RGB LED
- 1x Buzzer
- 1x OLED Screen
- 2x User Button
- 1x Reset Button(Power Switch)



MA300 Part List

Building System				Controller	
	01-0003 L Shaped Beam - 3 Hole 2 pc		10-0028 4mm D Shaft - 28mm 2 pc		12-0001 Tooth Belt - 7 Hole 1 pc
	01-0009 L Shaped Beam - 9 Hole 2 pc		10-0052 4mm D Shaft - 52mm 2 pc		12-0002 Linear Slide - 3 Hole 4 pc
	01-0313 L Shaped Beam XL - 13 Hole 2 pc		10-0132 4mm D Shaft - 132mm 2 pc		11-6050 MATRIX Quick Connector - 5mm 40 pc
	02-0007 Flat Beam - 7 Hole 2 pc		11-3404 M4 Flat Point Set Screw - 4mm 20 pc		11-6070 MATRIX Quick Connector - 7mm 20 pc
	02-0011 Flat Beam - 11 Hole 2 pc		08-0019 4mm Axle Collar with M4 set screw 6 pc	Motors/Wheels	
	04-0305 Gusset Plate 3 x 5 Hole 4 pc		08-0024 4mm Omni Thin Wheel with M4 set screw 2 pc		
	05-0303 Flanged Plate 3 x 3 Hole 2 pc		08-0031 4mm to TT Adapter with M4 set screw 2 pc		TT-TIRE_B MATRIX TT Wheel (Blue Rim) 2 pc
	05-0309 Flanged Plate 3 x 9 Hole 2 pc		12-0024 M4 Gear - 24 Tooth 1 pc		13-0010 MATRIX Steel Ball Caster 1 pc
	06-0013 C Shaped Beam - 13 Hole 2 pc		12-0040 M4 Gear - 40 Tooth 1 pc	Tools	

KNR-RS021910 KNR Robotics Set

The MATRIX KNR Robot set is tailored for adept learners aiming to integrate the system and gain expertise using LabView. Improved speed, recognition processing, along with strengthened electromechanical integration, characterized this advanced learning tool.

Feature

High- precision/Image recognition/ FPGA applications/ PID control/ cross-platform integration and innovation applications

Competitions

Exclusively designed set for national skill competitions (WorldSkills), engineering technology competitions, and other events
Central component: myRIO 1950 controller operable through LabView, C language, and other programming languages
Compatible with motors, sensors, and related equipment adhering to competition standards
Utilizes MATRIX metal structural components for rapid robot assembly facilitates a swift learning curve, enabling active student participation in relevant competitions



Expansion

M-vision
AMR (Autonomous Mobile Robot)

Software

Python
C programming
LabView



Competition



Event-specific equipment

- National Skills Competition Engineering Technology and Art Competition.
- Robotics-related competitions in vocational categories.



Controller



MATRIX KNR Robot Kit

Microcontroller	NI myRIO
Memory	256 MB Flash, 512 MB RAM
Operating Voltage	5VDC
Input voltage	14VDC~26VDC
Analog input port	6 analog signal ports
Digital input and output port	4 (ultrasonic & infrared)
PWM output port	PWM output port 2
DC motor output port	4 DC motor output ports
UART port	UART port 1
USB port	2 (Type A & Type B) USB port
I2C port/ wire	I2C expansion RJ12 port 1
Built-in reset button	Includes 1 Reset button
Built-in user button	1 programmable button
Built-in LED	4 single-color LEDs



MATRIX

Series List

MR Series



MATRIX Micro Controller

The MR Series offers Arduino-based robot controllers designed for versatility and creativity. Paired with the MATRIX building system, it enables projects from simple tracking cars to complex omni-directional platforms. Let your imagination run wild and build robots that are truly your own!

MM Series



MATRIX Mini Controller

The MM Series is a versatile line of robot controllers designed to seamlessly integrate micro with robotics. At its core, the MATRIX Micro makes motor control easy and efficient, unlocking endless possibilities for robotics applications from education to innovation.

MA Series



MATRIX Mini R4 Controller

The MA Series features versatile Arduino-based controllers designed for robotics and beyond. With support for IoT integration, smart systems, and factory simulations, these controllers empower innovative solutions across education, competition, and real-world applications.

KNR



MATRIX KNR Controller

The KNR Series offers high-precision controllers designed for advanced applications like image recognition, FPGA processing, PID control, and cross-platform integration. Tailored for adept learners, it enhances skills in system integration using LabVIEW. With improved speed, accuracy, and seamless electromechanical integration, the KNR Series is perfect for driving innovation and mastering complex technologies.

MATRIX

Assembly Parts

MATRIX features aviation-grade alloy materials, offering various metal parts that enable limitless creative possibilities. The strong material enhances structural integrity and is compatible with LEGO® building system, combining durability with versatility.



L-Shaped Beam



Flat Beam



Beam Joiner



Gusset Plate



Flanged Plate



C Shaped Beam



Servo and Motor Plate



Adaptor



Spacer / Washer



D Shaft



Connector



Gear



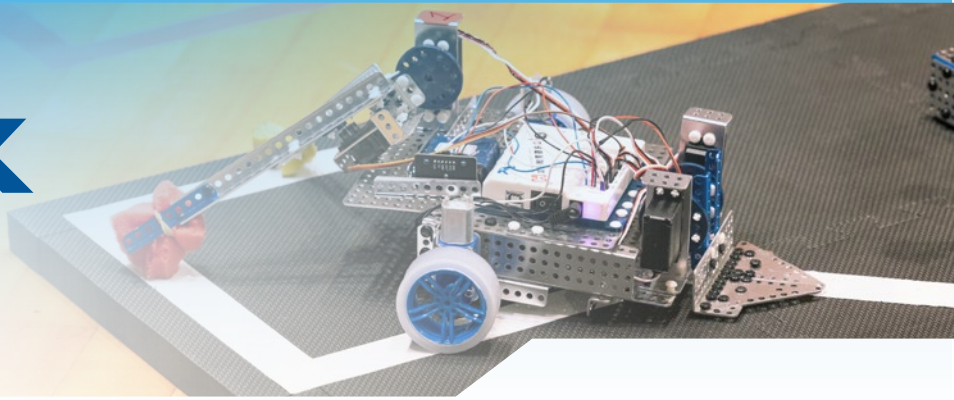
Wheel



Ball / Socket Linkage

MATRIX

Expansion Sets



MATRIX Model Robots 97-2003

Competition | Innovative & Advance Robotics

The set includes an expansion metal set and MATRIX motor controller, which can be controlled by the MATRIX mini controller to expand the number and performance of motors and design larger robots provide users with room for advanced learning and participation in competitions of a higher level of technology.

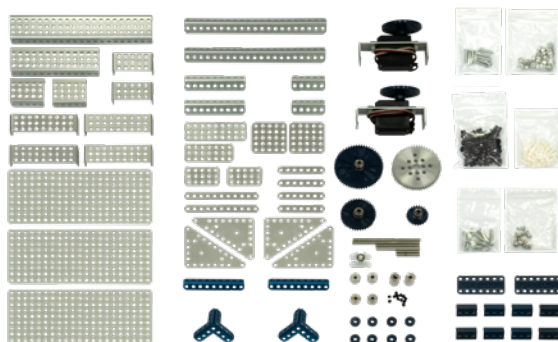
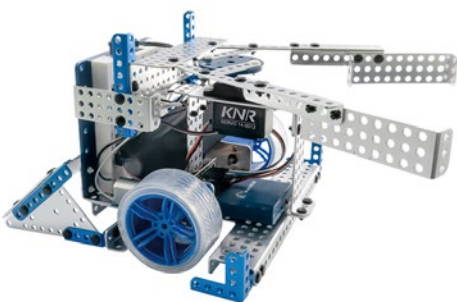
MATRIX Model Robots
97-2003

Specifications:

- Size : 10.5 x 10.4 x 2.5 cm
- Operating Voltage : 8.4VDC - 10.8VDC
- PWM : PWM Output Ports 4
- DC Motor Output : DC Motor Outputs 4 Ports
- I2C Ports/Wires : I2C Expansion RJ12 Cable 1 pc

MX120

The MX120 empowers users to construct powerful and fundamental robots using the MATRIX basic set. It enables learners to explore greater possibilities with their creativity. Thus serving as the competition set for the MATRIX AI Robot Cup (MARC).



* The image is for reference only. *

* The image is for reference only. *

POWERED BY



**MATRIX FTC Challenge Set
FTC-M100**



This MATRIX® FTC Challenge Set has over 700 MATRIX parts and comes with the AndyMark® NeveRest Motors that give your robot an absolute advantage in the FIRST Tech Challenge events.

FTC-M100 Part List

4 pc		01-0007 L Shaped Beam – 7 Hole
4 pc		01-0009 L Shaped Beam – 9 Hole
2 pc		03-0001 Beam Joiner – Straight
4 pc		03-0004 Beam Joiner – 2D Right Angle
2 pc		03-0005 Beam Joiner – 3D Right Angle
4 pc		03-0031 Beam Joiner XL - Straight
2 pc		03-0032 Beam Joiner XL - Right Angle
4 pc		04-0921 Gusset Plate 9 x 21 Hole
4 pc		05-0309 Flanged Plate 3 x 9 Hole
2 pc		06-0005 C Shaped Beam - 5 Hole
2 pc		06-0009 C Shaped Beam - 9 Hole
2 pc		06-0013 C Shaped Beam - 13 Hole
2 pc		06-0021 C Shaped Beam - 21 Hole
2 pc		06-0029 C Shaped Beam - 29 Hole
2 pc		06-0037 C Shaped Beam - 37 Hole
4 pc		06-0049 C Shaped Beam - 49 Hole
16 pc		07-0004 Bearing Plate
16 pc		08-0007 4mm Hub

8 pc		08-0019 4mm Axle collar
12 pc		09-0001 M4 Standoff Spacer 32mm
12 pc		09-0003 M4 Standoff Spacer 16mm
2 pc		10-0080 D Shaft 80mm
4 pc		10-0132 D Shaft 132mm
4 pc		10-0164 D Shaft 164mm
32 pc		11-3404 M4 4mm Flat Point Set Screw
150 pc		11-4108 M4 8mm Button Head Screw
50 pc		11-4116 M4 16mm Button Head Screw
50 pc		11-4124 M4 24mm Button Head Screw
150 pc		11-4502 M4 Hex Nut With Tooth Washer
50 pc		11-4503 M4 Hex Nut With Nylon Lock
8 pc		13-0004 Spacer 8mm
20 pc		13-0005 Spacer 4mm
4 pc		13-0024 Metal Gear 24 Tooth
4 pc		13-0040 Metal Gear 40 Tooth
6 pc		13-0056 Metal Gear 56 Tooth
2 pc		16-0001 Omni Wheel (With 4mm Wheel & Nut & Tube)

8 pc		17-0709 Triangle Plate 6-8-10 Hole
2 pc		31-0049 XL L Shaped Beam - 49 Hole
4 pc		13-0009 96mm Wide Wheel
2 pc		06-0302 C Channel 216mm
2 pc		06-0304 C Channel 312mm
2 pc		06-0309 C Channel 408mm
6 pc		08-0008 6mm Hub
30 pc		11-3106 M3 Hex Socket Head Cap Screws (6mm)
1 pc		14-0005 Battery Charger
2 pc		14-0006 Servo Ext Wire 200mm
2 pc		14-0007 Servo Ext Wire 450mm
1 pc		14-0014 Battery 12V 3000mAh Ni-MH
4 pc		50-0011 Servo with Metal Gears
1 pc		15-0012 Wrench for M4 Set Screw
1 pc		15-0013 Wrench for M4 Button Head Screw
1 pc		15-0015 Storage Box (MATRIX Black)
1 pc		15-0018 3mm Cross Screwdriver
1 pc		50-0015 Tool Kit

2 pc		am-2964b NeveRest Classic 40 Gearmotor
1 pc		am-3103b NeveRest Classic 60 Gearmotor
1 pc		am-3637b NeveRest Orbital 20 Gearmotor
1 pc		07-AM3637 Motor Bracket for am3637
3 pc		07-AM3103 Motor Bracket for am3103



MX300

This Expansion set can help you learn about small to medium-sized AMR systems. Additionally, it allows you to build a robot for competition purposes.

MATRIX Premium Set 97-2020

MATRIX Premium set is made of high quality alloy material, which is strong enough to strengthen the structure. More user-friendly, wider range of advanced applications for learning. Satisfy the need to participate in challenging competitions.



MATRIX

Sensors



MATRIX Miniature Switch MS-004 V2

The MATRIX Switch Sensor, a micro-switch, facilitates precise on/off detection through a digital signal. Its onboard LED operates synchronously with the button, providing a professional solution for seamless control and monitoring.



MATRIX Laser Sensor MS-009

The MATRIX Laser Sensor, utilizing I2C communication, offers precise and stable distancing with 21~1999mm detection range at 50Hz sampling. Accurate to 1mm, it provides a sophisticated solution for high-precision measurements, ideal for diverse applications.



MATRIX Motion Sensor MS-001

The MATRIX Motion Sensor, a 6-degree of freedom inertial measurement unit, communicates via the I2C interface. It supports Euler angle and raw accelerometer/gyroscope data, offering a comprehensive solution for advanced motion sensing applications.



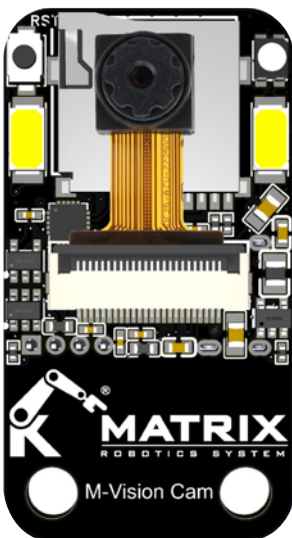
MATRIX Grayscale Sensor MS-003V2

The MATRIX Laser Sensor, utilizing I2C communication, offers precise and stable distancing with 21~1999mm detection range at 50Hz sampling. Accurate to 1mm, it provides a sophisticated solution for high-precision measurements, ideal for diverse applications.



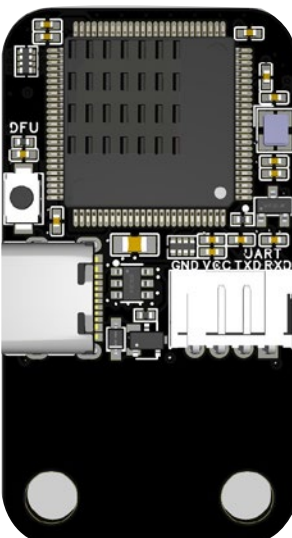
MATRIX Color Sensor MS-002 V2

The MATRIX Color Sensor, an RGB sensor, operates in low illumination with an on-board fill light. Users can set automatic fill light mode or adjust light PWM via the register table. It also supports gamma correction for color accuracy resembling the human eye.



MATRIX M-Vision

Serving dual purposes, being suitable for both competitive environments and educational contexts. With just one M-Vision Cam, you can accomplish both basic and advanced learning activities effortlessly.



MATRIX M-Vision Cam

Specifications:







- Processor: STM32H7
- Clock: 480Mhz
- Flash Memory: 2Mbyte (user available program storage space not less than 100Kbyte)
- SPAM: 1Mbyte
- Maximum Supported Resolutions: 640*480 and under
- Operating Voltage: 5V
- Operating Current: 200mA (without fill-in light activated), 350mA (with fill-in light activated)
- Port: USB Type-C, PH2.0-4P (UART communication)
- Fixing hole: M4*2
- *Note: 1Mbyte = 8Mbit*






MATRIX

Motors








Servo






MMRC-MG90S	MATRIX Micro Servo with metal gear box	
MRC-MG25-180	MATRIX RC Servo with metal gear box	
*MRC-MG17-335	MATRIX RC Servo with metal gear box	
*MRC-MG360S	MATRIX RC Servo with metal gear box	
*MRC-MG996	MATRIX RC Servo with metal gear box	
*MRC-MG6225-PDI	MATRIX RC Servo with metal gear box	

TT Motors








METT MG001	MATRIX TT Encoder Motor with metal gear box	
MTT MG001	MATRIX TT Motor with metal gear box	
MTT SG001	MATRIX TT Motor	

DC Motors

ME12DC-0001	MATRIX 12V DC High Speed Encoder Motor	
ME12DC-0002	MATRIX 12V DC Middle Speed/Torque Encoder Motor	
ME12DC-0003	MATRIX 12V DC High Torque Encoder Motor	
GBP302-H-R/58	KNR 15V High Speed Motor	
GBP303-L-R/67	KNR 15V High Torque Motor	
am-2964a	NeveRest Classic 40 Gearmotor Anderson Powerpole 15A	
am-3103	NeveRest Classic 60 Gearmotor Anderson Powerpole 15A	

am-3637	NeveRest Orbital Gearmotors Anderson Powerpole 15A 19.2 to 1 (~334RPM)	
*14-0001	MATRIX 9V DC HS Motor	
*14-0009	MATRIX 9V DC HT Motor	
*14-0011	MATRIX Motor with Anderson Powerpole	
*14-0015	MATRIX Motor with 6mm D Shaft	

Bracket and Accessory

07-0001	Micro Servo Bracket	
*07-0002	Servo Bracket	
07-0009	RC Servo Bracket	
07-0005	DC Motor Double Flanged Bracket - 5 x 7 Hole	
07-0010	DC Motor Hub Bracket	
07-2331	DC Motor Double Flanged Bracket - 23 x 31 Hole	
07-AM3103	DC Motor Double Flanged Bracket – am3103	

07 AM3637	DC Motor Double Flanged Bracket	
07 0004	Servo Bearing Beam	
07-0006	Servo Horn Wheel Brace	
07 0007	Servo Horn Wheel Brace	
07 0008	TT Motor Bracket (Set of Left and Right)	
13 0012	Micro Servo Horn Wheel	
13 0002	RC Servo Horn Wheel	

MATRIX

Accessories



MATRIX JOYSTICK II MJ2

The MJ2 is an advanced Wireless Joystick that utilizes mature 2.4G wireless transmission technology. It supports the simultaneous connection of over 20 devices, providing a robust anti-interference feature and a stable signal. Ideal for competitive scenarios.

Feature

The MJ2 stands out as a highly recommended model for participation in the MASTER AI Robot Cup (MARC) Competition.

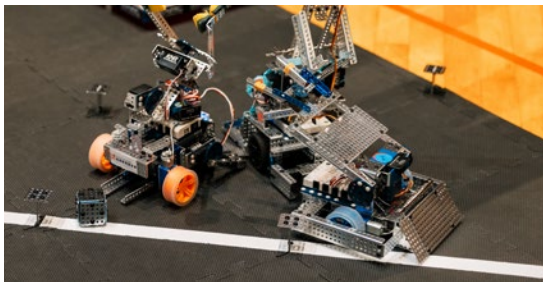
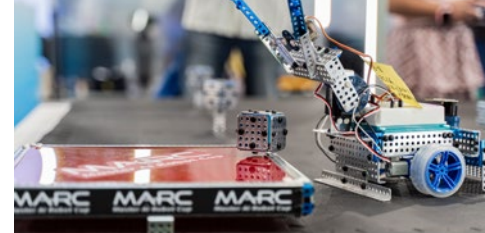
MATRIX Joystick II

MJ2

- State of art 2.4GHz wireless technology
- Use 2 AAA Batteries (not included)
- Ergonomic Analog Sticks and directional Pad for superior control.



About MARC Master AI Robot Cup



Promoting and building a community where individuals unite through Matrix robotic education.



MARC (Master AI Robot Cup) envisions a seamless integration of robotics competitions with international companies. With Taiwan's leadership in robotics and AI education, our aim is to establish a global robotics competition brand. MARC prioritizes inclusivity by offering significant support to foreign athletes, aiming to attract more international teams and reduce barriers to participation.

Vision

Our commitment to inclusivity and support for athletes aims to establish MARC as a premier global brand, inspiring creativity and excellence in the dynamic field of robotics. Redefining robotics competitions with international collaboration and cutting-edge technology.

Mission

At MARC, our mission is to empower individuals worldwide through robotics, fostering collaboration, and innovation. We strive to provide accessible platforms.

Why MARC Master AI Robot Cup

- Technical workshops conducted with prestigious institutions
- Insightful industry tours and collaboration
- Master AI Robot Cup (MARC) competition
- Networking opportunities
- Cultural integration activities
- Showcases

See our MARC Catalog for more info



**Check the website
for more information!**

MATRIX *AI Robotics Certification*

Certify your professional development and take your skills to the next level with our MATRIX certification opportunities! tailored to your expertise, guided by experts. Project-Based, Progress-Tracked, and Ready for Your Next Level.

Associate Level



A comprehensive certification designed to attract individuals with specialized knowledge and experience in utilizing Matrix technology for various applications.

Professional Level



Crafted to uplift individuals with existing expertise, this innovative certification explores the intricacies of utilizing Matrix Robotics Systems across diverse applications.

Grandmaster Level



The certification offered represents the highest level of proficiency in Matrix Robotics Systems, showcasing mastery of Matrix technology and its applications. Holders are recognized as leaders and experts.

Unlock Your Robotics Potential
at the MATRIX Project Hub!



Project Hub: The MATRIX CAMPAIGN

#DevelopMATRIXR4ROBO

Dive into free software, top-notch technical docs, and endless learning resources. Get expert help and join a community that takes your skills to the next level. Whether you're just starting or a seasoned pro, everything you need is right here!



Submit Your Info

Fill out the Google form with your name, email, and address. Share your robotics experience and upload a 2-page resume (PDF).



Selection

Participants will be chosen based on their experience. If selected, you'll be informed and receive a free MA300 kit!



Share Your Feedback

Use the MA300, create videos, and share your experience.

Post using   

#DevelopMATRIXR4ROBO
and inspire others!

For more info check our facebook page



