

Makeblock mBot2 Review Guide Book

mBot2

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Makeblock is a leading brand of DIY robotics and education platforms for makers, STEM learners, and educators. Our building block platform of over 500 mechanical parts and easy-to-use electronic modules and graphical programming software makes it fun and easy for everyone to construct their dreams.

www.makeblock.com is the official website of Makeblock's global brand.

store.makeblock.com is the online store of Makeblock, which supports direct mail to home and after-sales service in the United States.

Makeblock Media Kits

Official Website	Official Store	YouTube	Facebook	Instagram	LinkedIn
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Meet mBot2!



[Watch video](#)

Powered by CyberPi, this innovative and easy-to-build mBot2 will inspire kids to learn, grow, and play in limitless ways. Complete with Wi-Fi connectivity and community, everyone can step into the world of CS and technology learning utilizing precision movement control with encoder motors, expandable mBuild modules, and structural parts that come together in a unique programmable design.



mBot2 shield

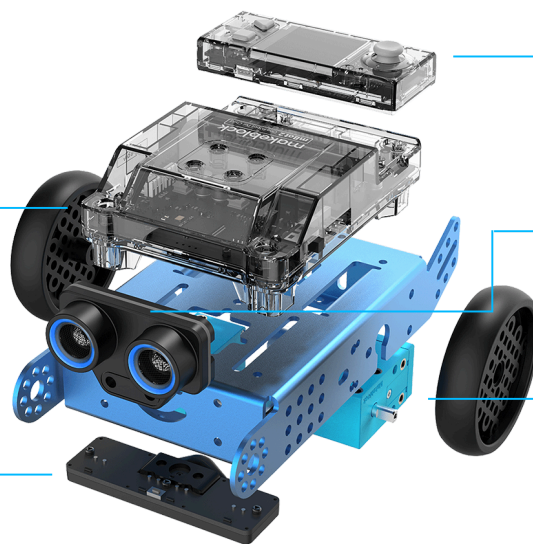
compatible with a variety of external components ,and includes a built-in lithium-ion battery.

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Quad RGB sensor

Four sensor probes support color recognition ,as well as basic and advanced line detection programs.

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CyberPi

ESP32 microprocessor for wireless communication, and compatibility with block-based and Python coding.

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Ultrasonic Sensor 2

Object detection is accompanied with 8 programmable LEDs for an enhanced interaction.

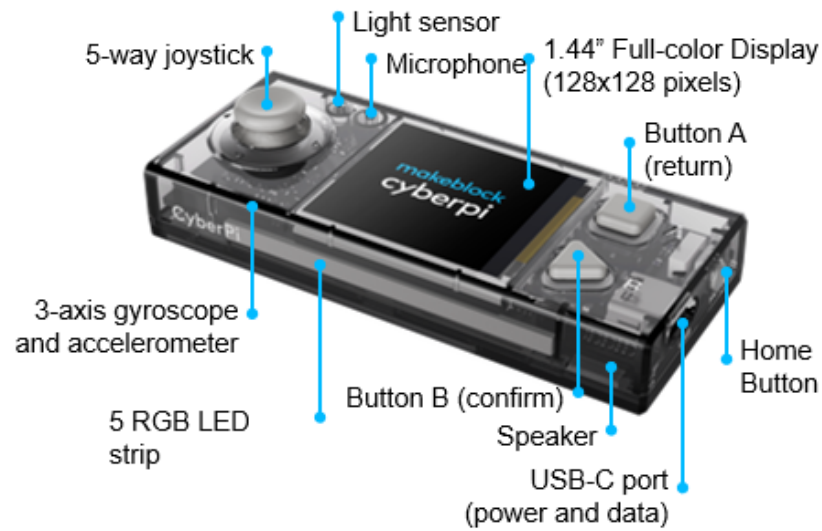
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Encoder Motors

1 degree detection accuracy ,distance traveled, and up to 200 RPM can be precisely controlled.

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***All-round Performance Improvement**



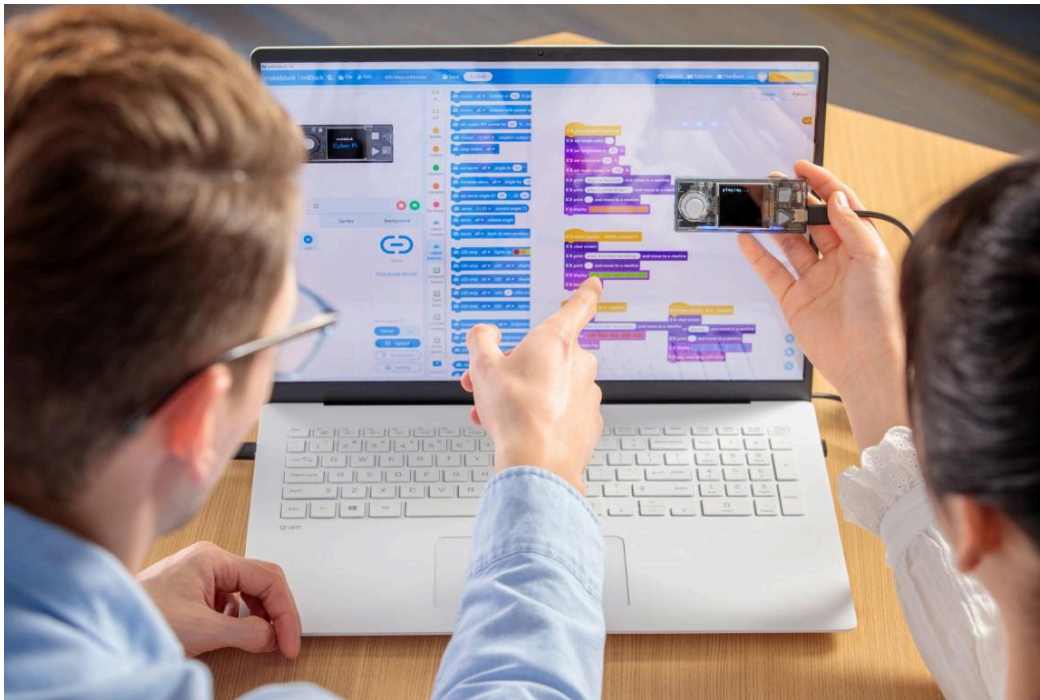
***Integrated memory and Operating System allows to store and manage up to 8 programs in the controller.**

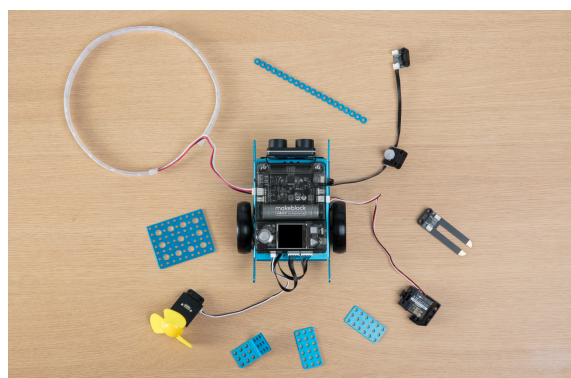
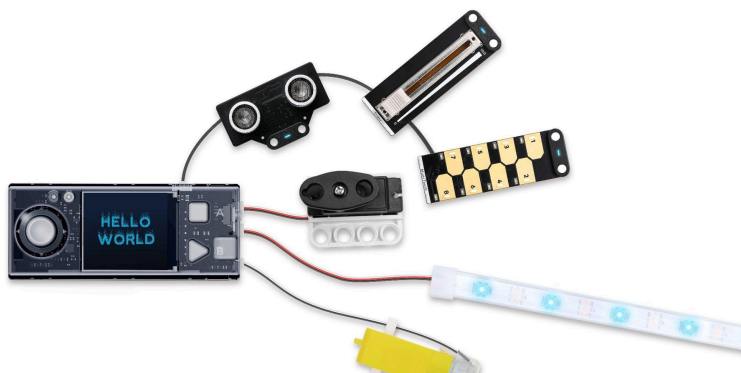


Unique Product Features

➤ **Versatile microcontroller: CyberPi mainboard**

Certified in 2020 by the [Open Source Hardware Association](#), CyberPi is a powerful and versatile microcontroller for education. Its integrated 8 different sensors, full-color display and Wi-Fi/Bluetooth communication capabilities allow a wide range of applications on curriculum topics for Computer Science, Robotics, Data Science and Artificial Intelligence, in connection with other areas of the curriculum such as Math, Physics, etc.

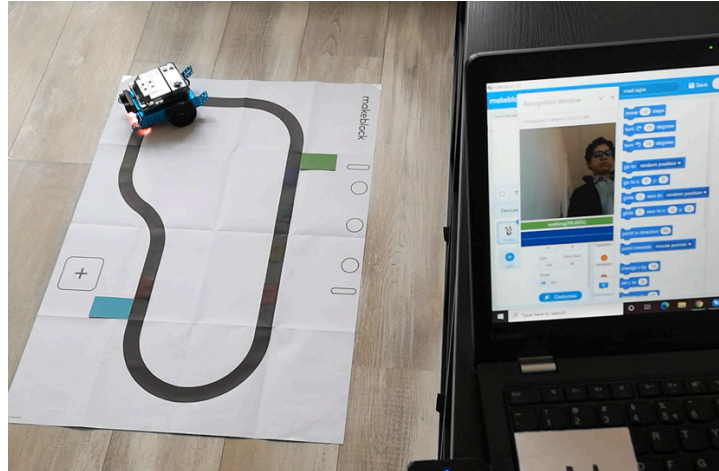




*Multiple built-in sensors give great capabilities to the microcontroller to explore different learning topics



*Use a standalone CyberPi as a smart device to communicate with mBot2, creating a smart ecosystem or a fun remote controller.

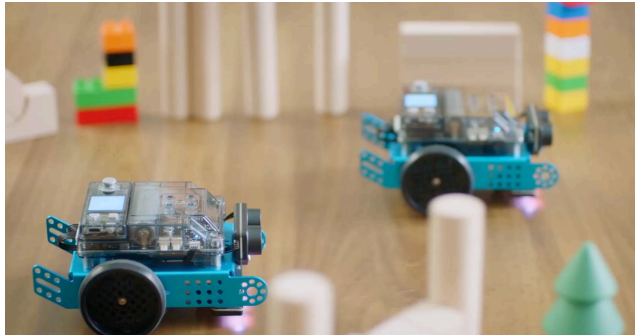


[Watch video](#)

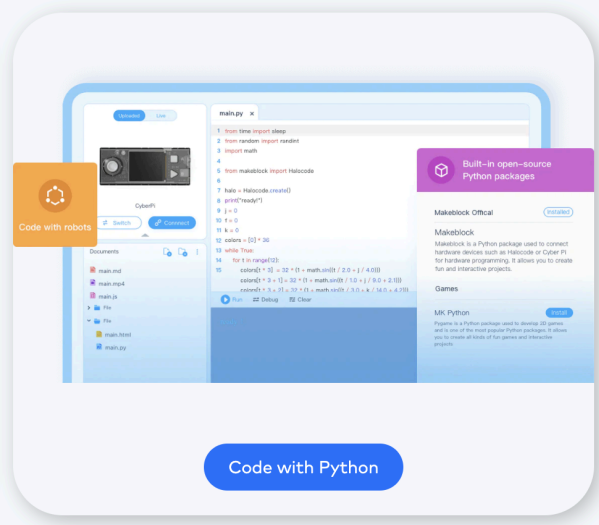
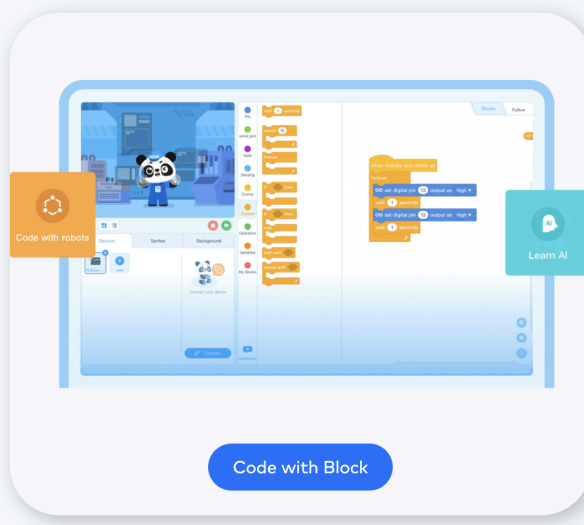
*Smart transportation - an example with mBot2 for smart factory / smart public transport.

➤ **Easy to build, play and learn**

It takes only 30 mins to build the robot. Afterwards, students can easily start App control driving, voice control, piano playing etc. through [Makeblock App](#). mBot2 is an interactive robot for classroom time. Furthermore, it can be extended to learn coding. The [mBlock coding platform](#) supports block-based coding and Python coding. Whether students have coding experience or not, they can learn coding step-by-step with mBlock.



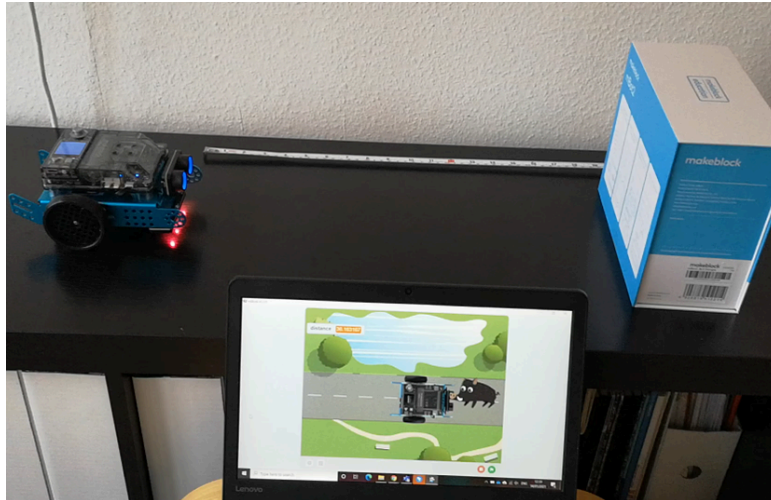
Best Coding Tools Designed for Teaching STEM



➤ Precision In Movement Control

mBot2 integrates the CyberPi 3-axis gyroscope and accelerometer and high-accuracy encoder motors. Students can precisely control the rotation, speed and position of the wheels and the robot. Lessons can be more realistic and didactic in comparison with

robots that have less control of their motors. The motors can also be used as servos, and even knobs to feedback data to the system, making possible the integration of principles in Math, Physics and Engineering.

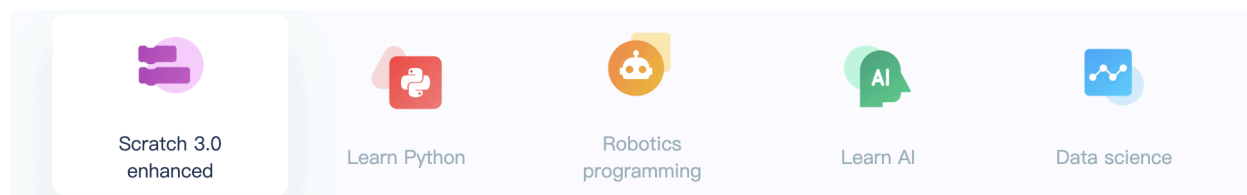


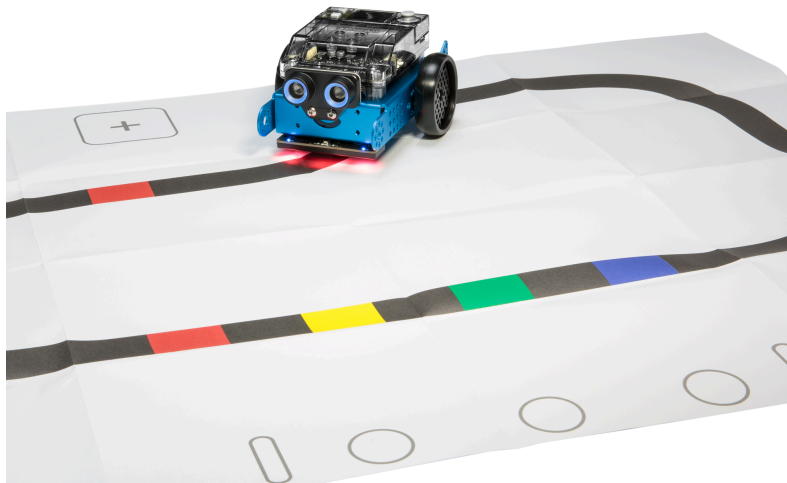
[Watch video](#)

*Precise distance traveled measured by degrees of rotation on wheels and live-update of the data to the programming stage.

➤ Easy Step Into Computer Science & Technology Learning

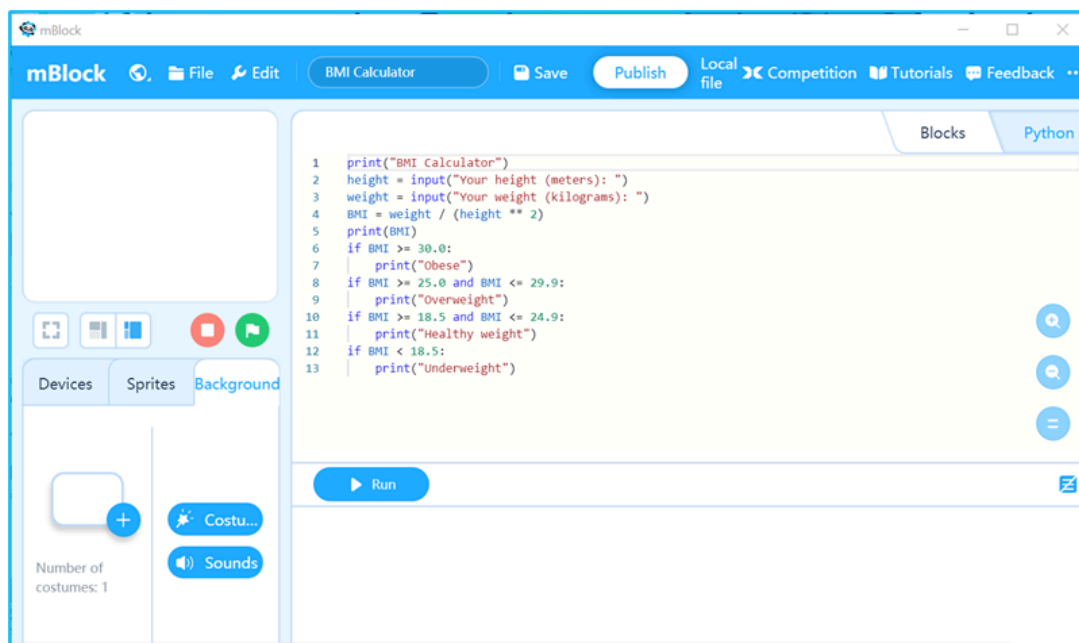
Students can begin with block-based coding, and as they develop their skills, they can move into Python coding, all within the **mBlock5 platform**. Both sprites and devices can be programmed in mBlock. Create a Machine Learning model and use it, for instance, to recognize traffic signs hand-painted by students. When connected to a network, you can collect, visualize and process data from different devices, and even upload them to the cloud.





[Watch video](#)

*Expand the power of block-based coding with the Extensions in mBlock.



*The Python editor is based on Python3, and it can incorporate the full power of all the libraries available, covering Math, Data Visualization, AI, and more.

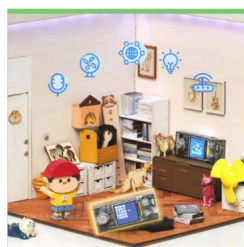
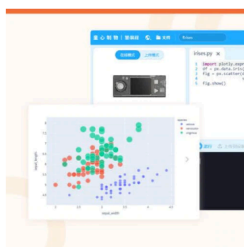
➤ Step-by-step tutorial and curriculum

We want to be sure kids are excited about learning and building their own robot. That's why we've also included a complimentary tutorial and sample coding projects to help

them get started. Perfect for beginners completely new to programming and coding.

Please check the details of the tutorial and curriculum in the next section.

➤ Equipped with latest technology for education



Explore Fundamentals of Data Science & CS

With both the powerful mBlock software and easy-to-use coding robot, teachers can introduce data science and computer science into classrooms and visualize the learning outcomes.

AI and IoT Learning Encouragement

Featuring an onboard microphone and high-quality speaker, CyberPi works with mBlock's cognitive services to make speech recognition and text reading much easier, helping students explore advanced technologies.

Precise Movement with Encoder Motors

Thanks to its premium quality encoder motors, mBot2 can move precisely as students code on mBlock. Meanwhile, it can also perform outstanding rotation controls.

Network Ability via WiFi

With the built-in Wi-Fi module of Cyberpi and mBlock's cloud broadcast function, mBot2 can connect with each other or the Internet. Hence, students can perform a task together as a team.

➤ Powerful battery and sensors

Built-in long-lasting battery:

Integrated in the shield, no need to install or exchange an external battery.

Product	LEGO EV3	LEGO SPIKE	mBot1.1	mBot2
Battery Capacity	2,050 mAh	2,000 mAh	1,800 mAh	2,500 mAh

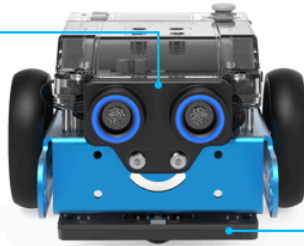


Next generation sensors:

Provide more accurate performance and consistency for mBot2.

Ultrasonic sensor

- Equipped with LEDs to enhance the visual communication.
- Improved consistency of measurements.



Quad color sensor

- Dual function, line following & color sensing.
- Ambient light calibration for better performance.

Quick Start Guide and Tutorials

Download Playing and Coding Apps:

Makeblock App: makeblock.com/software/makeblock-app

Program with mBlock5 App: <https://mblock.makeblock.com/en-us/>

Use the Preset Programs of mBot2:

<https://support.makeblock.com/hc/en-us/articles/1500006184261-Use-the-Preset-Programs-of-mBot-Neo>

Tutorial Collection:

<https://support.makeblock.com/hc/en-us/sections/1500001036301-mBot-Neo-mBot2?page=1#articles>

Getting Started Activities:

<https://education.makeblock.com/resources/res-lower-secondary/85070/>

Video:

https://drive.google.com/file/d/1j6_I9VVYmlub_ZUPTnBB55gYinePFMhn/view?usp=sharing

Highlight information in video

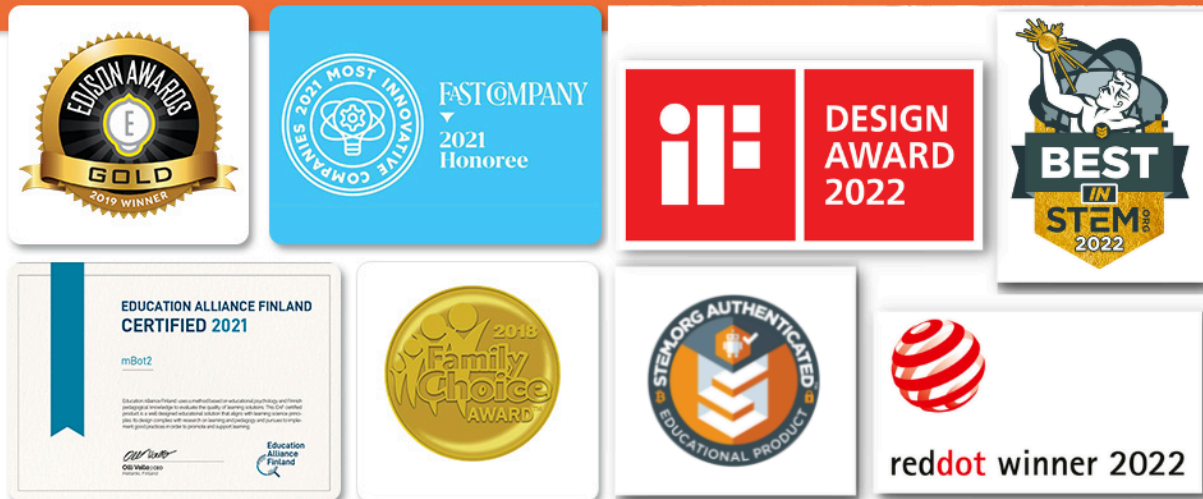
- mBot2 is a smart educational robot for playing and learning.
- Equipped with a powerful and versatile CyberPi mainboard, Encoder Motor, WIFI, Full-Color display, and more than 8 different Sensors, mBot Neo could inspire children to build, play and create in limitless ways.
- Easy step Into computer science & technology Learning.
- Precision in movement control through encoder motors.

A STEM-Inspired Programmable Robot Designed for Young, Hands-On Programmers

- Friendly For Beginners
Easy to put together with only one screwdriver, equipped with simple visual instructions guide
 - Multiple ways to Control
Wi-Fi connection, Voice control, USB connection, Bluetooth control
 - STEM Education
Gain awareness of robotics and mechanics from learning building process
 - Safe and high quality robot
Aluminum chassis and encased components provides sturdy construction
-

Global Awards

Global Awards

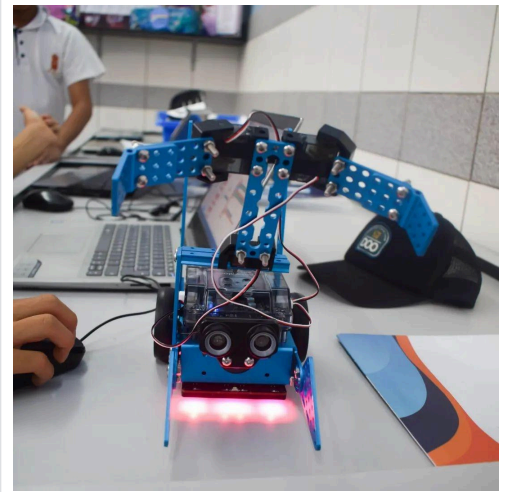


Our Customers Love Us!

Source	What they said	photos
https://www.instagram.com/p/CoNJsuhl.xxd/?utm_source=ig_web_copy_link	Love his passion for everything robots. @makeblock #mbot #neo	

https://www.instagram.com/p/CnVwBi1ujCZ/?utm_source=ig_web_copy_link

Every day is better than yesterday... We were born to fly and everything is possible with hard work and perseverance...



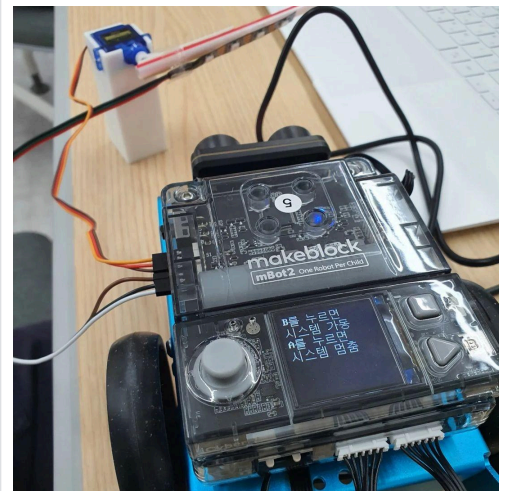
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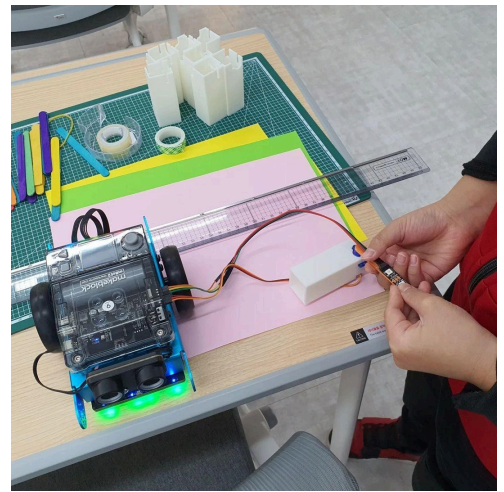
The third-class computer lab, in collaboration with @scuoladirobotica, started with the assembly of the #mbot2.



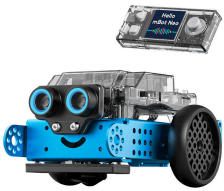
https://www.instagram.com/p/CZO0L9zPU6H/?utm_source=ig_web_copy_link

It is fun and good to have a convergence class using various types of Mbot 2 parking breaker rather than one.





mBot & mBot2 Comparison

Type	 mBot 1.1	 mBot2
Control board	mCore	CyberPi
Processor	ATmega328 / P	ESP32-WROVER-B
SPI Flash memory	/	8MB

Store multiple programs simultaneously	/	8
Support multi threading	/	YES
Wireless communication	Either Bluetooth or 2.4G (depends on the version) IR	Bluetooth, Wi-Fi and Wi-Fi LAN
Inputs and onboard sensors	Button Reset button Light sensor	5-way joystick Button x2 Reset button Light sensor Microphone Gyroscope-accelerometer
Outputs	Buzzer RGB LED x2	1.44" full color display Speaker RGB LED x5
Expandable electronic modules	RJ25 ports x4, one component per port	mBuild port x1, connect 10+ components in series
Additional interfaces	/	2-pin interface x2 3-pin interface x4
Extension ports	4RJ25 Ports 2 DC Motor Ports	4 Servo Ports 2 DC Motor Ports 2 Encoder Motor Ports 1 mBuild Extension Port
Voice output	Buzzer	Speaker
Line following sensors	2	4
Obstacle avoiding	YES	

Programmable LEDs	YES
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If you have any questions, please feel free to contact us at us@makeblock.com