УДК 007.51

USE MAKEBLOCK ULTIMATE 2.0 TO CREATE ROBOTS

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Build your first Makeblock project.

The Ultimate 2.0 is an advanced programmable robot kit comprising more than 550 mechanical parts and electronic modules for 10 custom robots and many more maker projects (Fig. 1). Compatible with the maker platform and Arduino, the kit lets your imagination take flight. The sky really is the only limit! Ideal for robot enthusiasts, build exciting projects with this kit and experience the joy of turning your ideas into reality.

Ultimate 2.0 has an impressive parts library; boasting more than 550 mechanical and electronic items, it
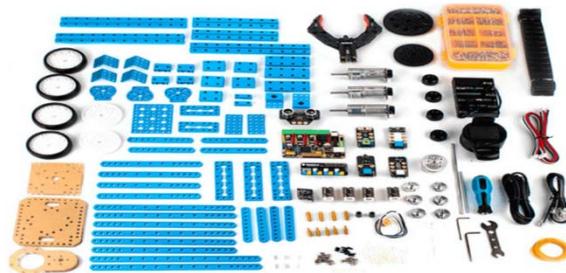
Fig. 1

provides a comprehensive range of features and includes everything you need for realizing your ideas. To give you a head start and allow you to learn the ropes of applied electronics and mechanical principles, 10 practical and interesting forms of construction are provided, including the Camera Dolly and Robotic Bartender.

The possibilities for maker combinations is infinite, you can truly let your imagination loose.

Mainboard MegaPi with powerful drive capability.

Empowering creativity.

Equipped with the powerful MegaPi main control board, Ultimate 2.0 makes the implementation of high-order functions a piece of cake. Think: synchronous drive and control of multiple motors and servos, sensor reading, Raspberry Pi communication and connection to high-power encoder motor driver boards. MegaPi has excellent motion control performance and is easily expanded, allowing you to build robots capable of carrying out complex functions like 3D printing, or even more difficult applications. With it, the door to the world of Making stands wide open for you.

MegaPi Pro. Main Control Boards.

Overview:

MegaPi Pro is an ATmega2560-based micro control board, and is fully compatible with Arduino programming. MegaPi Pro has powerful programming capabilities, and its output power is up to 120 W. MegaPi Pro has four port jacks, one 4-way DC motor expansion interface, one RJ25 expansion board interface, and one smart servo interface. Its strong expansion ability enables it to meet the requirements of education, competition, entertainment, etc. MegaPi Pro can be easily installed on the Raspberry Pi, and connected through serial ports. The motor can be quickly controlled with the Raspberry Pi together with corresponding program.

Technical Specifications:
- Main control chip: ATMEGA2560-16AU
- Input voltage: DC 6 V-12 V
- Operating voltage: DC 5 V
- Serial ports: 3
- I2C interface: 1
- SPI interface: 1
- Analog input ports: 16
- DC Current per I/O Pin: 20 mA
- Flash: 256 KB
- SRAM: 8 KB
- EEPROM: 4KB
- Clock frequency: 16 MHz

Features:
- Four motor driver interfaces can easily insert and take the encoder motor driver and stepper motor driver modules to drive DC motors, encoder motors, and stepper motors.
- One wireless communication module interface allows you to add a Bluetooth module or 2.4G module.

- One smart servo interface can drive up to six intelligent servos in serial simultaneously.
- One 4-way DC motor interface can drive four DC motors.
- One RJ25 expansion board interface can connect eight RJ25 interfaces.
- Three M4 mounting holes are consistent with those of Raspberry Pi.
- Over-current protection.
- Fully compatible with Arduino.
- Use RJ25 interface to wire.
- Supports Arduino programming and is equipped with dedicated Makeblock library functions to simplify programming.
- Supports mblock (upgrade version of Scrartch) for all age groups of users.

Interface Description:
- Red pin—firmware burning port
- Red socket—power output/motor output
- Yellow pin, black pin, black socket—I/O port
- White pin—smart management system interface
- Green connector—motor interface
- Yellow connector—4-way motor driving power port

White connector—smart servo interface

Easy transition from graphical programming to Python programming.
Helps you quickly move from novice to master.

Combined with the block-based programming software, Makeblock App and mBlock 3, Ultimate 2.0 allows you to simply drag and drop the function blocks to program your commands step by step, making the programming experience tangible and fun. Ultimate 2.0 is also compatible with Arduino, and can be connected to a Raspberry Pi, meaning you can build yet more interesting projects, in different programming languages, and achieve even more powerful robotics.

Industrial grade aluminum alloy parts.
Safe, durable and easy to use.

Most of the parts of Ultimate 2.0 are made of high-strength aluminum alloy. This makes the material light, strong and durable. The anodizing dyeing process is also environmentally friendly and non-toxic, and both enhance their appearance and prolongs their lifespan. Ultimate 2.0 has a standardized interface compatible with other building bricks, maker platforms, and industry-standard parts, which means you can use it to build quasi-industrial projects.

Changes in the design of the Robot Bartender.

During the period of work on the robot, the following upgrades were made (differences from the factory): ultrasonic sensor was installed (to avoid obstacles), cup holder, bottle holder has been modified(for different types of bottles), from the wheels was converted to tracked wheels(for better control) (Fig. 2).

Fig. 2. Robotic Bartender

References
1. Офіційний сайт Makeblock. [Електронний ресурс]. Режим доступу: https://www.makeblock.com/steam-kits/mbot-ultimate