Arduino Braccio ++

SKU T050002   **Barcode** 7630049203259

Arduino Braccio ++, the revolutionary, eco-friendly arm-evolution of the Tinkerkit Braccio robot.

Overview

The next evolution of the Tinkerkit Braccio robot, Arduino Braccio ++ is a robotic arm designed solely for higher education, including engineering schools and university institutes of technology – or even advanced high school and college students studying the sciences, industrial science or technology.

Arduino Braccio ++ is fully optimized and can be assembled in several ways for multiple tasks, such as moving objects, mounting a camera and tracking your movements, or attaching a solar panel and tracking the movement of the sun. Its uses are almost limitless.

Students will learn real life applications of physical concepts through lifting, placing, and rotating an item. These concepts include motions, forces, torque, gear ratios, stability, and weight of payload.

Arduino Braccio ++ offers a multitude of expansive possibilities from the very outset, including a new Braccio Carrier with LCD screen, new RS485 servo motors, and a totally enhanced experience. The main material used to build the Arduino Braccio ++ structure is a recycled and eco-friendly plastic called EcoAllene, a plastic material obtained from recycled polylaminate found in food cartons, meaning that all the plastic parts of Arduino Braccio ++ are sustainable and 100% recyclable.

In addition to the open-source hardware in the kit, there's an **e-learning platform** with step-by-step instructions, lessons, and other learning materials. The content involves projects and lessons on how to use and test the different parts of the hardware (including the display, joystick, buttons and intelligent motors) and covering   kinematics, dynamics, and control at university. For high school, it also covers computer-integrated manufacturing.

Playing with motors

The Arduino Braccio ++ offers a multitude of expansive possibilities from the very outset, including new RS485 servo motors. You can simply program and communicate with the new, intelligent Arduino smart servo motors, which are at the very heart of this new revision. The motor receives commands from the Arduino Nano RP2040 Connect board and also transmits data back and forth. This type of motor configuration and communication is compatible with industrial standards.

*EcoAllene plastic is a recycled material, the color of the components may vary

FAQs

What are the differences between the Tinkerkit Braccio and the Arduino Braccio ++ ?

We have made many updates and improvements to the original Tinkerkit Braccio robot to create Arduino Braccio ++. These include:

- A different carrier with RS485 serial communication, an LCD screen, and a joystick

- The kit now includes an Arduino board

- Instead of classic servo motors, the kit includes Arduino smart motors

- USB-C® powers the carrier and motors, and can be even used for charging your computer

- We are using a more sustainable material, Ecoallene, instead of ABS plastic

- You have a bigger base on which to mount the Arduino Braccio ++

- Improved packaging, allowing you to mount and transport your Arduino Braccio ++ in the box

- New, dedicated online content

Is this kit suitable for distance learning?

Yes, the new kit allows for both remote and in-class use. The online educational platform and content can be accessed from wherever students are, as long as they have an internet connection. The kit also includes all the hardware students need for the lessons and projects.

How is the content structured?

Arduino Braccio ++ includes an online learning platform with educational content. The content is structured with a how to get started section, four lessons, and three projects.

The lessons are meant to be taught chronologically, as students will need to apply their previously learned knowledge to the next lesson.

The content includes teacher notes, activities, and challenges for the students which follow the main topics inside the lessons, building up in complexity one after another.

What are the minimum knowledge requirements for using the kit?

To use Arduino Braccio ++, students need basic programming knowledge and should be familiar with Arduino.

How many students can use the kit?

Up to three students can use the kit.

How many lessons are included in the kit and what are they?

The content comes with four lessons and a getting started guide. The lessons teach students about the different components included in the kit. Students will learn how to use the different features of Arduino Braccio ++ and how to solve problems related to the components.

After going through the lessons, students will learn about topics related to the basic movements possible by Arduino Braccio ++, such as motions and forces, kinematics, manufacturing processes, torque, gear ratio, and control. Students will be able to use the buttons, joystick, program-specific movements, modify the position of the motors, and craft final positions for Arduino Braccio ++.

What are the projects?

In contrast with the lessons (that focus on the separate components of Arduino Braccio ++), the projects integrate the components to the whole assembly parts of the arm. Students apply what they learned during the lessons and build their knowledge on how the assembled Arduino Braccio ++ works.

For any questions and support assistance, please contact us at:

https://www.arduino.cc/en/contact-us/

Educators also have access to our self-support feature, which provides access to the help center articles available in the content platform (see the "help" bubble in the bottom right corner).