Cost-effective Open Source fully 3D printed Robot Arm

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ABOUT
BCN3D Moveo

BCN3D Technologies keeps taking important steps in order to achieve his goal of bringing the digital manufacturing technology to everyone. The BCN3D Moveo, a robotic arm design from scratch and developed by our engineers in collaboration with the Departament d'Ensenyament from the Generalitat de Catalunya. Its structure is fully printed using additive manufacturing technologies and its electronics are controlled by an Arduino.

COMPANY
Education Department of Catalonia

INDUSTRY
DIY & Hobby, Education, Electronics / Robotics

APPLICATION
Hobby, Research and Education, Functional parts: End-use parts.
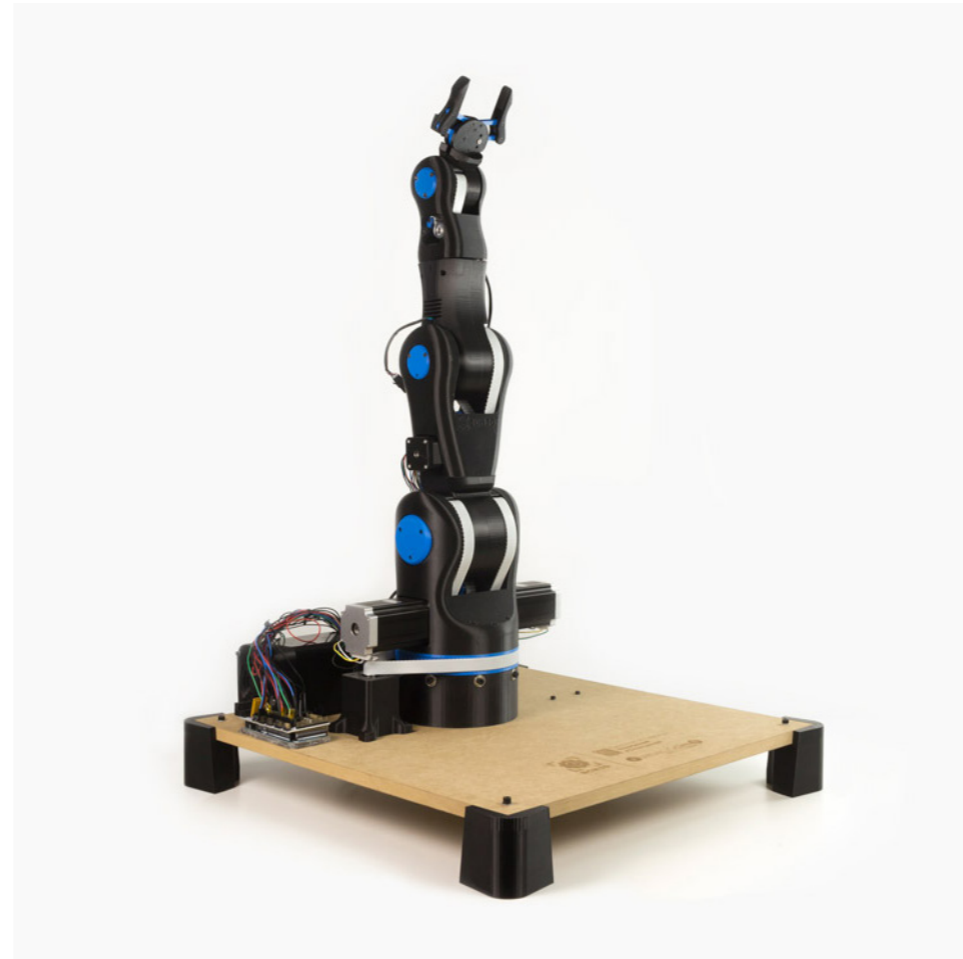
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CHALLENGE

One of the Departament d'Ensenyament (Education Department of Catalonia) worries is the high price of the materials the grade students must use on their internships. Holding that in mind, an Open Source robotic arm, adaptable by the students and low cost reproducible could take several educational itineraries: mechanical design, automatism, industrial programming, etc.

Thus, the BCN3D Moveo should allow the educational centers to enjoy a modifiable and easily accessible for the students, at a price far lower than the usual industrial equipment they used to have to acquire, with enough output for training purposes.

SOLUTION

By using 3D printing technology, prototyping and producing the BCN3D Moveo was cost-effective and quick. Thanks to the versatility that the BCN3D Printers offers, engineers were able to fabricate end-use pieces of the Moveo in a straight-forward workflow.

The BCN3D Moveo was made of ABS, an excellent choice for creating final products demanding mechanical and thermal properties. Furthermore, it has an attractive matt surface quality.

RESULT

The BCN3D Moveo files are available for everyone so that means that anyone is able to obtain all the necessary information in order to print and assemble his own BCN3D Moveo at home. The information has been uploaded on the Github platform, a website where users around the world share their designs. Thus, the users are able to find the bill of material (BOM), where all the needed components for the assembling of the arm come detailed, as the CAD designs, so anyone is able to modify the BCN3D Moveo design as they wish.

Furthermore, the Github users will find the STL files for the structure printing and the assembling, fine-tuning and firmware upload manuals, which will be available both in English and Spanish.

Thanks to this project motivated by the Departament d'Ensenyament and developed by BCN3D Technologies everyone will be able to fabricate their own robotic arm at home, no highly technical knowledge needed.

COSTS

Nowadays, standard robot arms are commercialized for thousands of euros. In contrast, the price of BCN3D Moveo materials is lower than 400 euros. This has allowed several schools to provide their students with machinery to better understand essential aspects of robotics, mechanics and electronics.

In addition, because the robot arm is Open Source, anyone is able to modify it and make changes or improvements, such as changing the robot's final tool.

You can find all the documentation regarding the BCN3D Moveo here:
https://www.bcn3dtechnologies.com/en/bcn3d-moveo-the-future-of-learning/

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About BCN3D technologies
BCN3D Technologies is one of the leading manufacturers of desktop FFF 3D printers worldwide. Based in Barcelona, the activity of BCN3D began in 2012 and its aim is to help innovators and creatives to change the world, by offering them the best possible experience to materialize their unique ideas.

https://www.bcn3dtechnologies.com
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