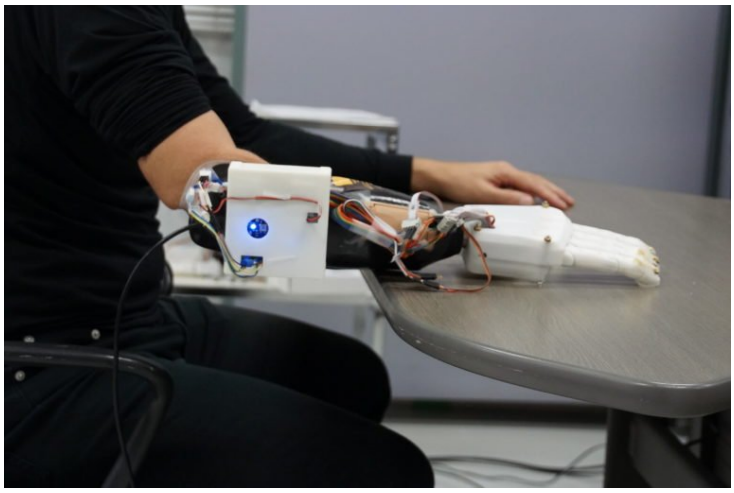
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Japanese scientists develop 3D printed prosthetic hand

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The team is planning on creating a training plan in order to make the best use of the hand



The Biological Systems Engineering Lab at Hiroshima University, Japan has developed a new 3D printed prosthetic hand combined with a computer interface, which is their cheapest, lightest model that is more reactive to motion intent than before. Previous generations of their prosthetic hands have been made of metal, which is heavy and expensive to make.

Electrodes in the socket of the prosthetic equipment measure electrical signals from nerves through the skin— similar to how an ECG measures heart rate. The signals are sent to the computer, which only takes five milliseconds to make its decision about what movement it should be. The computer then sends the electrical signals to the motors in the hand.

“The patient just thinks about the motion of the hand and then robot automatically moves. The robot is like a part of his body. You can control the robot as you want. We will combine the human body and machine like one living body.” explains Professor Toshio Tsuji of the Graduate School of Engineering, Hiroshima University.

Hiroshima University Biological Systems Engineering Lab tested the equipment with patients in the Robot Rehabilitation Center in the Hyogo Institute of Assistive Technology, Kobe. The researchers also collaborated with the company Kinki Gishi to develop the socket to accommodate the amputee patients’ arm.

However, this hand is not quite ready for all wearers. Using the hand for a long time can be burdensome for the wearer as they must concentrate on the hand position in order to sustain it, which caused muscle fatigue. The team is planning on creating a training plan in order to make the best use of the hand and hope it will become an affordable alternative on the prosthetics market.