

Meet Emma - the robot that can aid in sports therapy and TCM treatment



Emma, a robotic arm with a 3D-printed massage tip controlled through a proprietary cloud-based computing software demonstrates a therapy session at TCM clinic Kin Teck Chong on 18 July 2016.

Photo: The Straits Times

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SINGAPORE - Chinese physicians and physiotherapists will soon be able to have their very own robot assistant to help them with their therapy.

The robot will not only consistently deliver high quality therapy but will also help to reduce the shortage of trained therapists in Singapore, said its 32-year-old creator Albert Zhang.

Emma, short for Expert Manipulative Massage Automation, was unveiled on Monday (July 18) by year-old technology start-up AiTreat.

"We have designed Emma as a clinically precise tool that can automatically carry out treatment for patients as prescribed by a physiotherapist or Chinese physician," said Mr Zhang.

"Our aim is not to replace the therapists who are skilled in sports massage and acupoint therapy, but to improve productivity by enabling one therapist to treat multiple patients with the help of our robots," added Mr Zhang who graduated from NTU's Double Degree programme in Biomedical Sciences and Chinese Medicine in 2010 and has been working as a licensed TCM physician in Singapore for the past five years.

The robot has a customised, fully rotatable 3D-printed massage tip which allows it to carry out highly-articulated movements. It also has a 3D-stereoscopic camera for vision, a user-friendly interface and recommended guidelines for various sports injuries.

Robot helps in sports therapy and TCM treatment

Photo sources: The Straits Times



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Built-in safety features work in tandem with advanced pressure sensors to ensure the comfort and the safety of its patients. To maintain a consistent quality of therapy, Emma has sensors and diagnostic functions that will measure the progress of the patient and the exact stiffness of a particular muscle or tendon.

These detailed diagnostics are uploaded to the cloud where the progress of each patient can be generated into a performance report. The report is then used by therapists to measure and monitor the patient and adjust the treatment programmes.

Patient trials began last week at Kin Teck Tong's Sports Science and Chinese Medicine Clinic at the Kallang Wave Mall.

During the clinical trials, Emma treated 50 patients from varying age groups and occupations with a variety of conditions such as stiff neck and shoulders, muscle pulls, lower back pain and tennis elbows.

AiTreat, which spent six months developing their first prototype after receiving a grant from Spring Singapore's Ace Start-up grant, plans to focus next on developing its second-generation robot that is more mobile and compact.

By the end of this year, once Angel Investment is secured, AiTreat will rent these therapist robots to other TCM clinics for customers to receive treatments.

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