

CAN SENSOR

Robotics at the rehabilitation service

Heaxel's Icone robotic system supports neurorehabilitation therapies, designed for patients with neurological damage. The system has the CAN-based HEX-E sensors from Onrobot integrated.



The rehabilitation system from Heaxel with Onrobot's CAN-based sensors integrated (Source: Onrobot)

Heaxel, an Italian company based in Rome, designs and develops medical devices for robot-mediated rehabilitation. Their first product is Icone, a robotic system to support neurorehabilitation therapies, designed for patients with neurological damage.

Given the importance of the interaction between the patient and the robot, under development, the company needed to use a sensitive element to measure movements and forces. For this reason, the company decided to turn to Meko, a distributor specializing in collaborative robotics solutions. After an analysis of the main offerings, the Heaxel engineering team decided to choose Onrobot and the HEX-E sensor. Integration of the sensor is enabled via CAN or other interfaces. Functions of the sensor can be selected and programmed directly in the programming interface of the robot using the plug and play installation.

“In robotic rehabilitation it is essential to guarantee a high level of safety: this is ensured by measuring with high accuracy the force, in intensity and direction, that is exchanged between the robot and the patient to whom the rehabilitation therapy is administered.” underlined Jacopo Tosi, Biomedical Engineer and R&D Manager of Heaxel. “The Onrobot sensor responded best to our process measurement, control, and safety needs.”

In detail, the sensor provides accurate force and torque measurements along all six axes, integrates into any type of robotic application and ensures precise movement control, according to the company.

“We chose the Onrobot sensor for its simplicity of connection during the data acquisition phase, a key element in the application of icons, and for its reduced need for maintenance guaranteed by the optical sensitive technology, which allows us to focus on the our core business without risk, ” highlighted Iacopo Portaccio, Biomedical Engineer and Production Manager at Heaxel.

Heaxel has equipped a HEX-E sensor in each icon system to measure the interaction forces when the robot is used by the patient during a rehabilitation session. The commercial phase has just begun, but icons are already present in some Italian and European hospitals. Due to the FDA registration, it is also opening up to the US market and since beginning of 2021 commercial activities began in the Asia-Pacific area.

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