Human Armnoid

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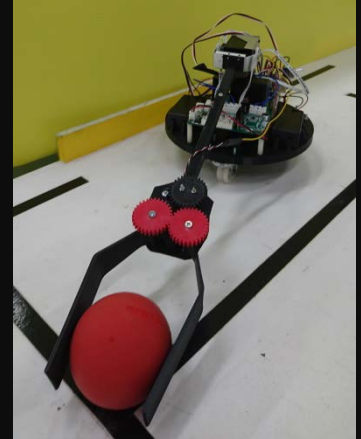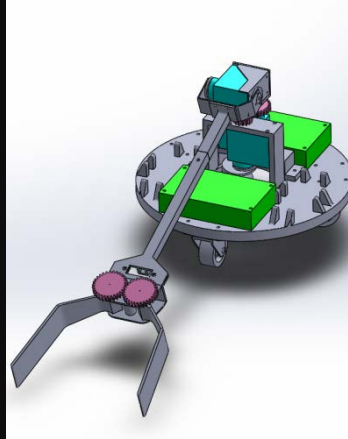
MEMS Sensors Used for the Application
・Accelerometer Sensor
・Gyroscope Sensor

Summary of the Application

We have developed a robot which can move according to predetermined movements of the human arms.

MEMS accelerometer and gyroscope sensors mounted on the arms capture the movements which are sent in real time to the robot by a wireless zigbee.

Features of the Application

The robot can be easily operated with intuitive movements of human arms. Furthermore, the robot can carry objects that would be difficult to be carried by humans.

Novelties and Possibilities of the Application

Our application can contribute to the following areas:

Tasks in hazardous environments: perform tasks in dangerous places for humans such as in nuclear power, chemical plants and so on.

Care welfare: persons with trouble in a lower half of a body will be able to bring objects using the "human armnoid robots".

Fabrication Process

The robot has been designed by a 3D-CAD and then fabricated by 3D-printer technology.

Since 3D-printers are able to exactly reproduce 3D-CAD data, robots can be easily fabricated at any time. Therefore, this technology is suitable for mass production.

Resins such as ABS and PLA have been used for structural materials. Thus, we have succeed in weight reduction in comparison to standard robot fabrication which uses mainly metal parts.

We have expanded the action range of the robot by the use of wireless zigbee technology.

Sensors mounted on the arms, wireless system and the robot are controlled by Arduino compatible microcontroller boards.

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