Introduction
Most human interactions with the environment depend on our natural ability to navigate freely using our body to manipulate objects. An ideal interface for a humanoid robot control is a natural user interface, easy to use, requiring practically no training. Teleoperation is a term describing that remote control of a machine, mainly used in robotics.

Methods
In order to combine Matlab environment with Kinect sensor, OpenNI framework was used. With this software it is possible to convert the data from a sensor device to the data ready to use by applications. Using Kinect's data - points in space, and connecting them to specified vectors such as arm, forearm, spine etc. allows us to calculate angles between them.

Aim
The aim of this thesis was to create a Human-Computer Interaction (HCI) interface with Microsoft Kinect Sensor's skeleton tracking of a user and the usage of Kinect's data in inverse kinematics algorithms. Gathered data is used to project human body movement onto a humanoid robot.

The requirements are: to follow human motion with servos' speed no less than 10RPM and an average time delay no greater than 0.2 seconds.

Results
Using Kinect as a natural interface for operating humanoid robot arms is very comfortable. One does not need any additional equipment or other "physical" connection with a machine.

Conclusions
While using Kinect and Bioloid along with Matlab it is possible to imitate arm movement and gestures in a satisfactory way. However due to the safety of plastic parts, wiring and the servos, movement needs to be limited both in the range and speed.