Master thesis project

Development of an interactive robotic arm

Description:

Robotic arm control is essential for the validation and visualization of human hand movements. It provides a concrete interface between human intent and mechanical action. This technique enables accurate reproduction of human hand motions, which allows testing gesture recognition systems in real time.

The aim of this project is to design an innovative robotic forearm equipped with various sensors and actuators. This forearm will be controlled via an interactive LabVIEW interface to replicate predefined movements.

The project consists of the following tasks:

- State of the Art of robotic forearm/ robotic hand (latest technologies, 3D models specifications, applications, limitations …)
- 3D design of a novel robotic arm and print it through 3D printer.
- Implementation of nanocomposite filament sensors in the joints (elbow, wrist and fingers)
- Create a LabVIEW interface to control the arm movements and acquire the values of the resistances of the nanocomposite filament sensors and IMU values.
- Documentation of the work

Requirements:

- Good knowledge of 3D design
- Basic knowledge of LabVIEW and Arduino programming.
- Self-leaning and motivation

Supervisor:

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