Robotic Arm Control Using Virtual Reality

Bachelor’s Thesis / Master Project

Overview:
Robotic arms can carry out tasks that are beyond our physical limits. However, they still need significant user feedback to accomplish these tasks. They crave constant user attention in non intuitive ways which in return trigger user errors. In addition teleoperation systems always have the risk of creating delays between user commands and reaction of robot to the commands as another source of error.

This project aims to cope with these problems by introducing a more intuitive and autonomous control interface. Such that users will be able to control the arm without any prior training. User’s hand position will be tracked by leap motion controller and will be interpreted before being sent to the arm.

Objective:
- Integrate Unity 3D and leap motion controller.
- Create a virtual robot arm using Unity assets.
- Use inverse kinematics to control the arm.
- Optional: Transfer virtual arm transformations to a real robotic arm.

Qualifications:
- Student of Information and Computer Engineering, Computer Science or Electrical Engineering
- Strong programming skills.
- Optional: Familiarity with C#, Unity 3D

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