Minimally Invasive Cyber Touch System

1. Research Team

Project Leader: Prof. Behrokh Khoshnevis, *Industrial and Systems Engineering*

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2. Statement of Project Goals

The goal of this project is to create a new cyber touch system which will be light, responsive, and inexpensive to produce.

3. Project Role in Support of IMSC Strategic Plan

The proposed system is a general purpose haptics device and hence it will be related to multiple issues in the IMSC Strategic Plan.

4. Discussion of Methodology Used

The methodology is based on novel way of using standard RC servo modules to provide position as well as object hardness feedback. The system operates independently of finger positions and hence it may be detached from fingers (unlike current gloves).

5. Short Description of Achievements in Previous Years

A haptic device for breast self examination training was designed and developed during our first year of involvement in IMSC.

5a. Detail of Accomplishments During the Past Year

We have tested the servo systems by connecting them to a PC. We have designed the mechanical hardware and are in the process of developing the driver software and linking the software to commercial software for a 3D space position sensor system.

6. Other Relevant Work Being Conducted and How this Project is Different

There are several haptic glove systems being developed using cables, pneumatic cylinders, etc. Our approach used direct servo connection and the entire system is self contained without external servos, pumps, etc. The cost of our system is significantly lower than others currently in the market.

7. Plan for the Next Year

We plan to integrate the system with a 3D position sensor. We also plan to extend the system to multiple fingers.

8. Expected Milestones and Deliverables

Hardware completion, May 2003
Software integration, June 2003
System demonstration June 2003

9. Member Company Benefits

The system may be quickly commercialized and used in haptics applications.

10. References

N/A