

A Study of Bilateral Force Reflecting Manipulators

Melissa Morris and Ming Z. Huang
Florida Atlantic University
Department of Mechanical Engineering
Boca Raton, FL 33431

ABSTRACT

Bilateral force feedback manipulators used as controllers allow an operator to control a 'master-slave' telerobotic system while having a sense of touch. This sense of touch can be related to what the slave manipulator is in contact with, or can provide information about how far a motion has deviated from the desired path. This paper presents a study of the bilateral manipulators. In the first part of this paper, a short review of bilateral force feedback devices is presented.

The second part of the paper presents a conceptual overview of a cable-drive, force-reflecting bilateral manipulator being developed at FAU. The cable-drive is chosen for study due to its unique potential for achieving large motions, rather than the small motions available with other systems. This capability would make the controller ideal for use in rehabilitation or athletic training.