Project: Analysis and Design of Anthropomorphic Robot Hand

Researcher: Assistance Professor Dr.Saroj Saimek, Mr.Thanawat Vuttichaitanakon

Introduction

Anthropomorphic Robot Hand proposes analysis and mechanical design of a robot hand that resembles physiological structure and motion of the human's hand. Due to the high dexterity and the flexible grasping capability of the human hand, the robot hand bears these advantages can be applied to variety of hazardous manufacturing processes to reduce risk of workers or can function as a prosthetic hand for handicapped people.

Problems

In generally, the hand assembled in the industrial robots is gripper that used to control the basic function such as stretch and compress to catch the objects. It could be use with the objects that is non-complex shape. Therefore, there are the developed the one degree of freedom, many degree of freedom and the positioning of the gripper to work in many situation. This is the developing of robot hand that resemble to human hand to increase ability of grasping the complex objects in many shape that affect the performance of working increased.

Method

The anthropomorphic robotic hand consists of five fingers each of them has three degrees of freedom (DOF), entirely 15 DOFs, 5 DOFs less than the human hand.

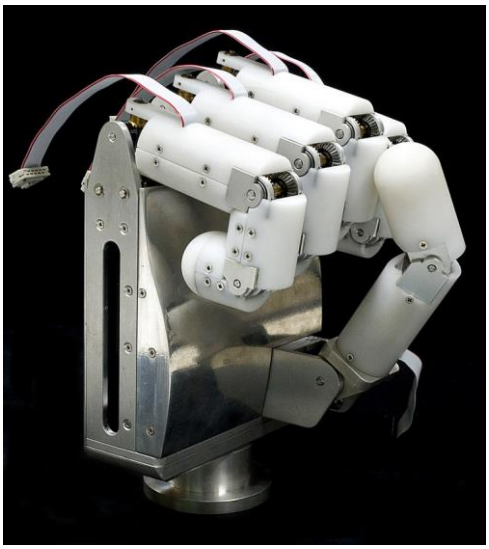

Figure show the Prototype of Anthropomorphic Robot Hand

The mechanism of this hand is 1.5 times larger than the human's finger. It is driven by servo motors. The transmission system is composed of gears, timing belts, and pulleys.

Expectations

The Prototype robot hand that operates and movements closely to human hand grasps many objects with different shape.

Sponsor

Bureau of the Budget, Thailand

King Mongkut's University of Technology Thonburi
Address: 126 Pracha U-Tid, Bangmod, Thungkru, Bangkok 10140 THAILAND
Tel. +66 (0) 2470-9691, 2470-9339 Fax. +66 (0) 2470-9703 http://fibo.kmutt.ac.th