Pneumatically Controlled Mechanical Hand

TEAM MEMBERS
Ernie Ayon
Eric Hamer
Ron Huereca
Carmody Rauch

BACKGROUND: Since the beginning of time, warfare has left millions of people dead or maimed. Technology has made it increasingly easier to kill. The need to preserve human life is necessary in order to be a successful nation. Technology needs to provide the way to preserve human life. Such improvements have yet to come, as warfare still uses human soldiers. Industry can use similar technology for more complex grappling abilities and safety during hazardous tasks.

INTRODUCTION: In order to preserve human life during warfare, it is necessary to use remote mechanical soldiers to protect the troops. Future wars can be fought by machines rather than humans, or can be fought with the machines acting as shields for the average soldier. During peacetime, a mechanized soldier can provide industry with assistance in various situations; including complex grasping and moving hazardous materials.

DESIGN: The Pneumatically Controlled Mechanical Hand is a practical beginning of an entire exoskeleton. This project is made up of a mechanical hand, pneumatic system, Motorola 68HC11E9 microcontroller, and a control glove. The glove converts movement from a user's hand into digital data that is wirelessly transmitted to the 68HC11E9. The microcontroller accepts the data and outputs control signals to the pneumatic system. The controlled pneumatic cylinders provide the power needed to make the mechanical hand move. All of this happens fast enough to be instantaneous to the naked eye.