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Development of a pneumatic three finger gripper that will incorporate a force feedback control system

Joshua Lewis & Guilherme DeSouza

In this project I was given the task of designing a three finger gripper. This gripper was to be mounted on one of the Puma 200 robotic arms that is currently in use in the Electrical and Computer Engineering robotics laboratory. The gripper was designed to have three fingers to increase its ability to handle irregularly shaped objects while keeping the design complexity to a minimum. A pneumatic actuator was chosen to drive this device in order to incorporate force feedback into the control of the gripper. Force feedback is desirable because it allows the gripper to apply minimal force to an object in order to pick it up without damaging it. With all of the details of the gripper designed, the next step will be to create the force feedback control system for the gripper so that it will be able to function in the classroom.