FABRICATION OF FLEX SENSOR OPERATED ROBOTIC ARM

ABSTRACT:

The integration of medical science and engineering has made the task like complicated surgery by robotic arm simpler. To capture the motion of human limbs, sensors can be used. These units can be worn for video game character modeling, virtual reality, and activity recognition. The arm moment is reciprocated almost exactly by the robotic arm. Data capture is achieved with the special motion capture sensor called "Shape Tape" that is worn by the human operator. Any human arm or even leg, neck or spine moment can be mapped on to any of the robotics. Flex sensor robotic arm deals with controlling a bionic/robotic arm with the help of motion sensing technology by Flex Sensors. The system is basically a master-slave system wherein the master motion sensing glove sits on hosts arm sensing motions of the finger and then using this data to control the servos which control the finger movement of the slave bionic/robotic arm.

FLEX SENSORS:

Flex sensors are analog resistors. These resistors work as variable analog voltage divider. Inside the flex sensor are carbon resistive elements with thin flexible substrate. When the substrate is bent, the sensor produces a resistance output correlated to the bend radius. Smaller the radius, higher will be the resistance value.

ADVANTAGES:

- Medical robotics is a growing field and regulatory approval has been granted for the use of robots in minimally invasive procedures.
- Robotic arms are being used in performing highly delicate, accurate surgery, or to allow a surgeon who is located remotely from their patient to perform a procedure using a robotic arm, controlled remotely.
- More recently, robotic arms can be used autonomously in surgery.