

# MOTION CONTROLLED ANIMATRONIC HAND

## TEAM MEMBERS:

DONE BY:

Samiya Iftkhar

*Arshad Ahmed*

Tahreen Nazia

Shadma Ahmed

Khansa Aiman

Sahil Vudanrao

## ***DESCRIPTION:***

The whole hand is designed in a way similar to the human hand. In order to maintain stability in hand gestures we have attached the **micro servo motors** by defining the path of each finger individually and by giving accurate values of **flex sensors** via glove which the user will be wearing. The hand mimics the motions given by the user wearing the glove. The movement in fingers is obtained by attaching fish strings to the fingers and attaching them to the shaft of their respective servo motor.

Flex sensor is a passive resistive device that is used to detect bending or flexing.

A **servomotor** is a [rotary actuator](#) or [linear actuator](#) that allows for precise control of angular or linear position, velocity and acceleration. It consists of a suitable motor coupled to a sensor for position feedback. It also requires a relatively sophisticated controller, often a dedicated module designed specifically for use with servomotors. The direction of servo motors shaft is adjusted according to the rotation of the fingers .

### ***WORKING:***

The servo motors are aboard on the hand which is made of wood and placed systematically so as to avoid collision of shafts. When the flex sensors on the glove are bent , they give a certain range of values which are given to the Arduino MEGA 2560 . And the further operation is done through programming in Arduino. The servo motor is given a signal as an output from the Arduino board and a relevant motion is obtained in hand. In simple words, the values of flex sensors have been mapped to give the degree of rotation of the servo motors. To reduce errors in computation, average values of a flex sensor in a short duration were determined . The whole setup has been powered by a Lithium-Polymer Battery (Li-Po)

The wrist mechanism was carried out by an Ultra Torque Servo Motor with a massive torque of 33 kgcm ( at 6V) and the elbow motion was carried out by a 10RPM DC motor which had an ultimate torque of 160kgcm.

PICTURES OF BOT :







