SHADOW ROBOT ARM

- The Arm of the Robot built copies action of what your hand does .
- The robot arm rotates about 5 degrees of freedom
- The Arm also memorizes the action and repeats until it is reset .

Team Name: FuTech

Specifications

1) Degrees of freedom of bot – 5 (5 motors essentially).
Robot arm should be able to lift reasonable weight.

2) Total 5 Sensors attached on the arms of person to detect motion. Action copied on the robotic arm. Speed of the action is kept aside for simplicity.

3) Trying to keep the robot wireless.

Principle / techniques to be used

- Accelerometer based motion sensing, Wireless module for signal transfer, memory chip for storing
  the actions and retracing them.
- Using various gears for turning arms using motors. Making the hold stronger, and designing system which can sustain appreciable load.
- Arduino coding for motion analysis,copying and repetition.
- Focus on battery based use . If possible , shall change it in the end to the mains power supply .

Uses and Applications

1) Major application in Industry and Factories for enhanced production and a step towards Robot based production. Easy interface for setting the repetitive action and again resetting at our will shall make it do work of multiple machines at the same time , thus enhancing the production better and simulated at will

2) Can also be used as supplementary robot for performing work which is not within human limits (For eg lifting a 1 ton weight, using bot)

Link of Fully realised project -

TIme Line (A total of 6 Weeks)

Week 1 - Component gathering , learning coding and gathering information of how to feed memory in the bot . Fixing the Mechanism of movement and preparing a rough design of the bot .

Week 2 - Arduino assembly and preparing the motion sensors

Week 3+ week 4 - Attaching the motors and mechanical assembly of the robot . Testing the robot as fast.

Week 4 - motion feeding and applying the estimated mechanism

Week 5 - Debugging and innovating,value additions to the design and functioning of the bot.For example adding modules to the bot so that it will function only on commands like lift ,etc. .

Week 6 - Final improvements and innovations in the product made so far .

We expect our project to finally be something like
https://www.youtube.com/watch?v=-vB3TE6QD2g

The Motion sensing as - https://www.youtube.com/watch?v=ggLge1Rw2z4

Motion Imitation - https://www.youtube.com/watch?v=ZUwthSarABc

Some other important links -
1)https://www.youtube.com/watch?v=AUseKV4cGWU&ebc=ANyPxKq_t-AqZuneE9Ymrf-mr4mq

_IxpYwS2MysOJ1biTeB9uGEI8_V1J014uQjDIPKakaODQ8hZZ0y8MyH1eUgHwCBDMMlscQ&nohtml5=False
2) https://www.youtube.com/watch?v=FHnbmZ5OFgY&nohtml5=False

PS - There may seem nothing new in the idea , however , with our contribution , we can innovate and make the current system better . And that matters . So please take this into account too .

Components and pricing -
Accelerometer sensor -300
Flex sensor-500
Arduino M0 -1500
XBee module series 1-1000 *2=2000
Small electrical components like l293d ,ic 7805
Mechanical components like servo motors and material to build the arm.
Total cost-Around 5-6K.