

# HUMAN MOTION CAPTURE ROBOTIC ARM

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## ABSTRACT

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The main aim of this project is to design a robotic arm that able to imitate the movement of human's arm and translate it to robotic arm's joints automatically. This robotic arm should has a "brain" to process the entire incoming and outgoing signal including their capabilities to interpret these signals into the positional signal independently without the needs to build up mutual interaction with high performance personal computer systems. Therefore, the motion of robotic arm is depending on the human's arm which acts as the controller system.

To achieve this project, robotic arm's construction is a concernment. For every joint part that has been designed should be able to eliminate the resistance of gravitational force. Therefore, weight balancing mechanism should always bear in mind. Furthermore, circuitry conditions are important. Power supply must be able to provide sufficient current to all the motors in order to perform simultaneous rotation. RF transmission, which has low transmitting power, causes trouble in communication. However, an alternative transmission method by wire connection is attached to the system for optional selection. Besides that, synchronizing all the motors are the huge tasks to coordinate the position. However, this was done by soft programming.

Overall, the entire project is worked properly. The arm is approach to the movement as human does. All the progress of project was going well as in the plan. Aims are achieved by the fulfillment of objectives. However, there are some limitations exist in the project such as precision of position is conditionally affecting the performance. This error rate is the main problem caused by the sensitivity of the accelerometer.

In conclusion, the successfulness of achieving the aims and objectives turned the hypothesis of imitation by robotic arm toward human motion to a reality fact.