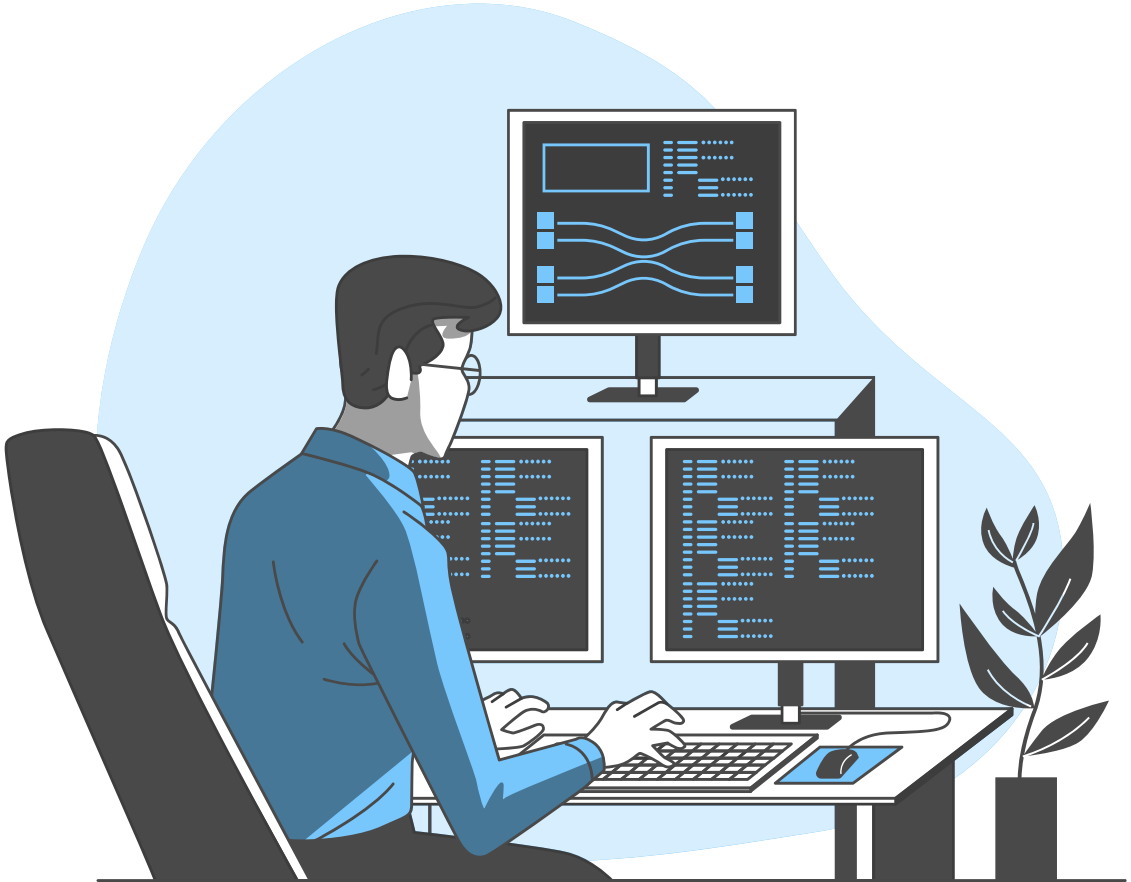


Industrial Robot Arm

Idris Group ;
Idris Yahya & Ahmad Sami & Ibrahim Saber

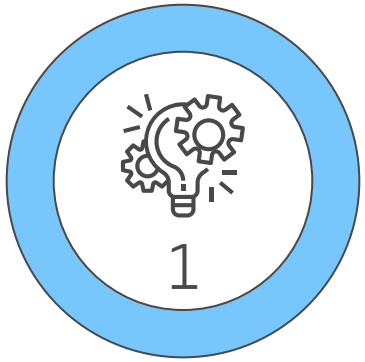
Operation

Project Operation Summary :

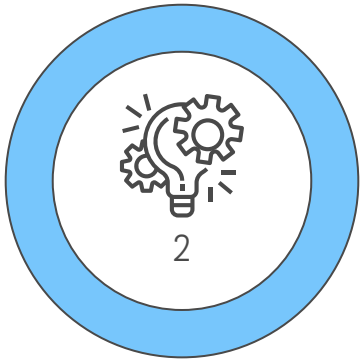
system design includes three main parts:

1. The hand gloves
2. 2. The robotic arm
3. 3. The navigation platform

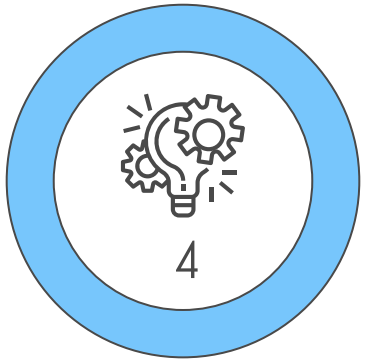
Wireless gesture controlled robotic arms are designed and implemented to prevent the involvement of human in the dangerous work like the biohazardous areas or performing a heavy lifting task. The robotic arm is designed to act after the operator actions and duplicate it by using sensors that are placed on a glove worn by the human hand to senses the gesture or movement of the hand, and send it to a microcontroller, where the sensed data will be processed and then sent through a RF transmitter to a RF receiver on the robotic arm part, where it will be processed by the second microcontroller, which will translate the sensed data to the motors of the robotic arm and the navigation platform to perform the movement according to the data input given by the operator.



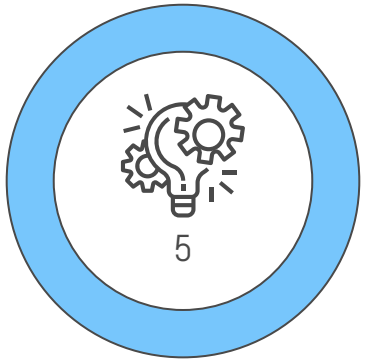
Typical robot sizes range from a reach of 0.5 to over 3.5 m and carrying capacities from 3 to over 1000 kg. There are also a number of four axis articulated arms. These have been developed specifically for applications such as palletising, packing, and picking where it is not necessary to orientate the tool.



The Components of a robotic arm are the shoulder, elbow, and wrist, Scara robot has 4-axis. The 3 axes are nothing but 3 translational motion in X, Y, and Z directions, and the fourth axis will be used to rotate the tool.



It will be .. 1- Wait 5 minutes for the green lights.
2- Never step/jump over the guardrail.
3- ROBOT Arm, stay on the workspace during the operation.
4- Players, stay off the workspace during the operation.
5- No wandering during the operation.



FOR THE ARM CONTROL WE WILL USE THE NEXT

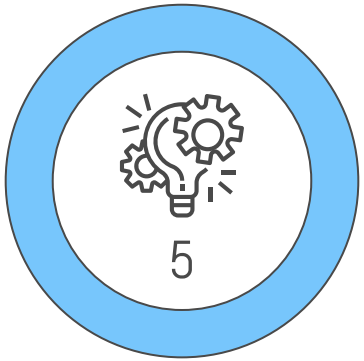
1-Motor Column : To choose which motor will be controlled .

2-ON / OFF button : to turn the controller on / off to save values and run the arm .

3-Degree column: to choose the degree of motor with range slider.

4-Value column: to shows the degree chosen by the slider and make sure of it.

5-SAVE button : to save values in data base for the chosen motor based on the range slider



This chapter consists of the technical and detailed information for the design and implementation of gesture controlled robotic arm with vision . With a visual aid of a schematic diagram , an overall block diagram of the entire system and the working principle explaining how the prototype works with the help of a flowchart . After explaining the hardware part of the system , the program section for this chapter provides the coding explanation for the system . The chapter concludes with the hardware results for the prototype .

Warranty

Since it is a large product with so many pieces, the product is warranted for a period of 360 days(a year). The warranty does not cover: -any modification made to any hardware or firmware of the Product. -abuse, misuse or improper storage of the Product