



# INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

## VOICE CONTROLLED ROBOTIC ARM

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**Abstract:** This study has been Today, Innovation is increasing fastly with expansion of human needs. Addressing towards the issues will make life simpler easier, consistent, which comes under Robotics studies. The Robots have become the most important part of human life. They make everything easier from high to low. Robots are highly used in industries for the heavy workloads. They can easily work under harmful conditions in which human can't work. Robots are more efficient and have higher accuracy. Due to the huge applications, robot became the well known thing that the researcher came forward to improve by making out modern designs , mechanism , controllers and new plans that make robot more efficient, effective and reliable. The present robots have heavy servo motors which consume high power and possess higher cost. They have high maintenance cost as well. With respect to these difficulties in mind, this paper proposes a robotic arm that uses certain ICs like L293D motor driver, having less consumption of power and can be cheaply available so that it can be easily used by small scale industries and can be maintained easily without much expenditure. Moreover, this robotic arm can be controlled through voice

**Index Terms** - Robotic Arm, Robots, Studies, Sensors, Motors.

### I. INTRODUCTION

The word "Robot" started from Czechoslovakia word robota, important work[1]. A meaning utilized by robot organization of USA is: "A robot is a programmable multifunction controller intended to move material, parts, apparatuses, or specific gadgets through factor modified movements for the exhibition of an assortment of errands [2]. In the exceptionally creating time, society and labor supply are the basic compels for culmination of undertaking[3]. The robotization is assuming significant part to preserve human endeavors in the vast majority of the ordinary and habitually conveyed work [4]. The possibility that the machines can start to mimic humans activities, in the manners that anyone have not thought about, the primary intentions in the formation of robots have been exceptionally viable[5]. In the first place, as present day industry of robotics has become mind boggling, there have been a developing requirement for finishing work in conditions which are hazardous for people[6]. For instance, work in an extreme atomic reactor plant frequently requires contact with the radioactive elements and materials[7]. Second, as the robots turned out to be further developed and more affordable, they can be used in industry circumstances where the working circumstances are not hazardous, as undesirable for different reasons [8]. These circumstances regularly include high levels of the accompanying: - Heat, Poisonous gases, Noise, Risk of injury by machines, Monotonous exhausting work[9]. Pick and spot robots are valuable in straightforward get together activities, for example, stuffing circuit printed sheets and stacking and dumping parts from the machines[10].

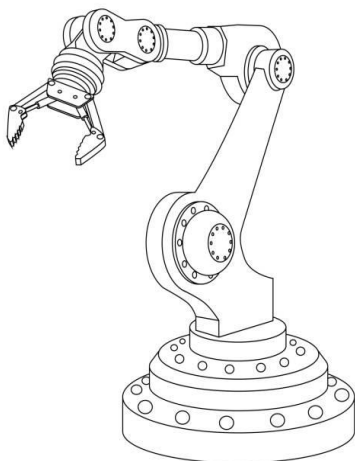


Fig.1: The model



Fig.2: Robotic Arm

**II. PROPOSED VOICE CONTROLLED ROBOTIC ARM**

The proposed Voice Controlled Robotic Arm is based on IoT. This robotic arm is capable of doing the task which are difficult to humans. It will consume less power as compared to normal robots. The proposed model can be controlled through voice which will be an additional feature to the ongoing working models. The instruction will be sent by the Arduino to the Bluetooth module which is interfaced to the mobile. The mobile handset will send the command to the microcontroller Arduino UNO and it will directly work according to it.

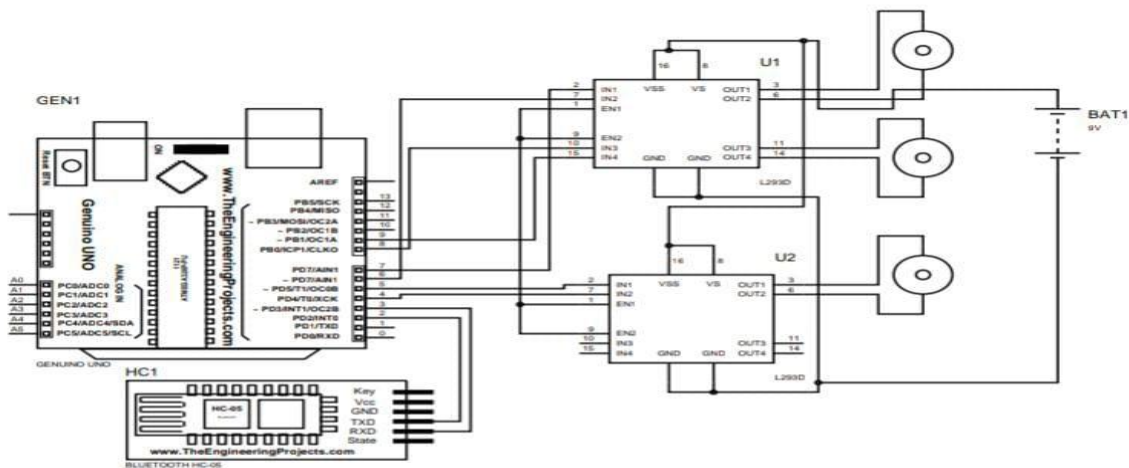


Fig.3: Block Diagram

**III. PERFORMANCE COMPARISON**

The existing robots required continuous monitoring so that there would not be any mechanical faults. They have high initial investment due to the heavy motors, chips and microcontroller. The robots have high power consumption as well and required high maintenance cost.

The proposed model does the same task efficiently but with better advantages. The proposed model uses ICs and servo motors and an Arduino UNO which consume less power and cheaper as compared to existing ones.

Table: Performance comparison table

Parameters	Existing Robotic Arm	Voice Controlled Robotic Arm
Power Consumption	1000 Watt	200 Watt
Maintenance	High	Low
Load	10 Kg	Up to 50Kg
Speed	Average	Fast
Repeatability	0.2mm	0.55mm

#### IV. CONCLUSION

Automated arms, numerous regions are developable. On account of the automated arms, most of the tasks are made easier and simpler and the subsequent blunder level has lowered to a minimum level. For instance; some drug-giving machine robots and a projected robotic arm has created. Furthermore, the ability and capacity of moving the robotic arm is additionally expanded, and when a camera is fixed in finger region of robot and the awareness is expanded, it very well may be utilized in a wide scope of uses from the clinical area to the mechanization frameworks. With the mechanical arms created along these lines, automated arm area, which is available to advancement, will keep its significance later on. This robotic arm have a reasonable Bluetooth module and a micro-controller with android application. Load capacity of this robotic arm is higher than the average capacity of existing ones. The overall average repeatability of the voice controlled robotic arm is higher. The essential hypothetical and reasonable data for this reason has been acquired and the vital framework has been laid out for the task. During the method involved with making and fostering the venture, a ton of hypothetical information has been moved to training. It has been guaranteed that , this is an appropriate with the end goal of the undertaking.

#### References

- [1] Priyambada Mishra, Riki Patel, Trushit Upadhyaya, Arpan Desai “Review of Development Of Robotic Arm Using Arduino UNO”, International Journal on Recent Researches in Science, Engineering and Technology, ISSN: 2348-3105 Volume 5, Issue 5, May 2017.
- [2] The Areepen Sengsalonga , Nuryono Satya Widodo “ ObjectMoving Robot Arm based on Color”, Signal and Image Processing Letters, Vol.1., No.3, November 2019, pp. 13-19 ISSN 2714-6677.
- [3] Kurt E. Clothier and Ying Shang “A Geometric Approach for Robotic Arm Kinematics with Hardware Design, Electrical Design, and Implementation” Hindawi Publishing Corporation Journal of Robotics Volume 2010, Article ID 984823, 10 pages doi:10.1155/2010/984823.
- [4] Timothy Karl Findling “Robotic Arm Tracing Curve Recognized by Camera”, Florida Institute of Technology, Melbourne, Florida December, 2016.
- [5] Shamsheer Verma “Hand Gestures Remote Controlled Robotic Arm”, Advance in Electronic and Electric Engineering. ISSN 2231-1297, Volume 3, Number 5 (2013), pp. 601-606.
- [6] Mohammed Abu Qassem , Iyad Abuhadrous , Hatem Elaydi “Modeling and Simulation of 5 DOF Educational Robot Arm”, International Journal of Mechanical and Mechatronics Engineering Vol:5, No:3, 2011.
- [7] Pawan Shivaji Shinde, Aaditya Manoj Sonawane, Kumar Sunjay Gaikwad, Omkar Vijay Pawar “REVIEW PAPER ON INDUSTRIAL PICK & PLACE ROBOTIC ARM”, NOVATEUR PUBLICATIONS, International Journal of Innovations in Engineering Research and Technology [IJIERT], ISSN: 2394-3696 .
- [8] Omolemo Godwill Matlou and Adnan M. Abu-Mahfouz “Utilising Artificial Intelligence in Software Defined Wireless Sensor Network”, Conference Paper · November 2017 DOI: 10.1109/IECON.2017.8217065 .
- [9] Sanzhar Rakhimkul, Anton Kim, Askarbek Pazyzbekov and Almas Shintemirov “Autonomous Object Detection and Grasping Using Deep Learning for Design of an Intelligent Assistive Robot Manipulation System”.
- [10] Dr.T.Sunil kumar, K.sarath, Sd.Famil, A.V.S.Bhagyesh and Sk.Althaf “Design and fabrication of pick and place robotic arm”, 2nd National Conference on Recent Trends in Mechanical Engineering, GIST, Nellore, Conference Paper · August 2020.