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ROBOTIC ARM FOR MILITARY APPLICATIONS

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Abstract -The system is designed to develop a pick and place robotic arm vehicle with catching gripper that is designed for safety reasons. The robotic vehicle is android application controlled for remote operation. At the transmitting end using android application device, commands are sent to the receiver to control the movement of the robot either to move forward, backward and left or right etc. and are received by Bluetooth module connected to the system. At the receiving end four motors are interfaced to the microcontroller where two of them are used for arm and gripper movement of the robot while the other two are for the body movement of the ROBOT vehicle. The main advantage of this robot is their soft catching arms that is designed to pick and place the objects from one place and are placed at destination. The android application device transmitter acts as a wireless remote control." they can work in physical conditions that are uncomfortable or even dangerous; they can operate in airless conditions; they do not get bored by repetition and they cannot be distracted from the task at hand."(C.Kesava Krishna, 2B.Gopi Chandra Kumar 1M.Tech student, Department of ECE, SVCE, A.P, India, 2016 IJEDR | Volume 4, Issue 2 | ISSN: 2321-9939)

Key Words:Sensors, LCD display, Servomotors, Buzzer, Battery, IC

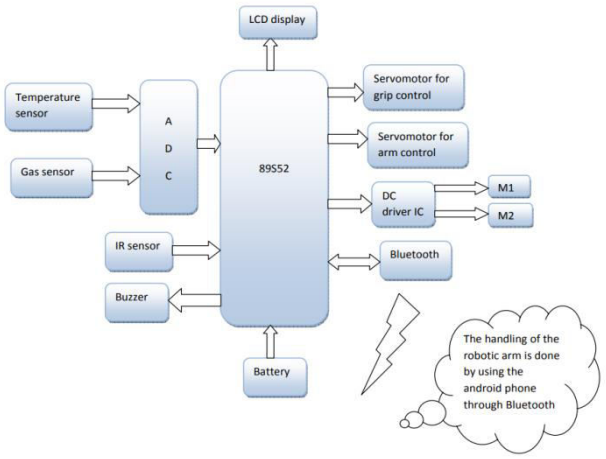
1. INTRODUCTION

Robotic is this a branch of engineering science and technology related to all robots and their designs, manufacture, application, structural disposition. Robotic is related to electronics mechanics, and software.
Industrial robots are mainly found in a variety of locations including the automobile and manufacturing industries. Robots can be cut and shape in fabricated parts, assemble machinery and inspect manufactured parts. Some types of jobs robots can do: load bricks, die cast, drill, fasten, forge, make glass, grind, heat treat, load/unload machines, machine parts, handle parts, measure, monitor radiation, run nuts, sort parts, clean parts, profile objects, perform quality control, rivet, sand blast, change tools and weld. Outside this manufacturing world robots perform other important jobs. They can be found in some hazardous duty service, CAD/CAM design and prototyping, maintenance jobs, fighting fires, medical applications, military warfare and on the farm.
TYPES OF ROBOTS AS PER APPLICATIONS:
Robots can do a lot of different tasks in many fields. And this number of jobs entrusted to robots is growing steadily. That is why one of the best ways how to divide robots into types is a division by their application.
INDUSTRIAL ROBOTS: Robots In today are being utilized in a wide variety of industrial applications. Any job that involves repetitiveness, accuracy, endurance, speed, and reliability can be done much better by robots, which is why many industrial jobs that used to be done by humans are increasingly done by robots.
MOBILE ROBOTS:
Which is known as Automated Guided Vehicles, or AGVs, these are used for transporting material over large sized places like hospitals, container ports, and warehouses, using wires or markers placed in the floor, or lasers, or vision, to sense the environment they operate in. An advanced form of the AGV is the SGV, or the Self-Guided Vehicle, like PatrolBot Gofer, Tug, and Speci-Minder, which can be taught to autonomously navigate within a space.
AGRICULTURE ROBOTS: Although the ideas of robots planting seeds, ploughing fieldsand gathering the harvest may seem straight out of a futuristic science fiction book, nevertheless there are some several robots in the experimental stages of being used for agricultural purposes, such as robots that can pick apples.
TELEROBOTS: These robots are used in places that are hazardous to human being or are inaccessible or far away. A human operator located at any distance from a telerobot controls its action, which was accomplished with the arm of the space shuttle. Telerobots are also useful in nuclear power plants where they, instead of humans, can handle hazardous material or undertake operations potentially harmful for humans.
SERVICE ROBOTS: Japanese are in the forefront in these types of robots. Essentially, this category comprises of any robot that is used outside an industrial facility, although they can be sub-divided into two main types of robots: one, robots used for professional jobs,

and the second, robots used for personal use. Amongst the former type are from the above mentioned robots used for military use, and then there are robots that are used for underwater jobs, or robots used for cleaning hazardous waste, and the like.

"The pick and place robot is a microcontroller based mechatronic system that detects the object, picks that object from source location and places at desired location."(BabSy, Ashly & Augustine, Chinnu & Thampi, Chinnu & George, Maria & P, Abhilash & Jose, Philip. (2017). Pick and Place Robotic Arm Implementation Using Arduino. IOSR Journal of Electrical and Electronics Engineering. 12. 38-41. 10.9790/1676-1202033841.) For detection of object, infrared sensors are used which detect presence of object as the transmitter to receiver path for infrared sensor is interrupted by placed object.

2. Methodology



2.1 System Architecture

Robot is any machine that does work on by itself, automatically after it'sprogrammed all by human being. Here we are going to design & implement a small model of pick and place robot, which will pick and place object anywhere within 360degrees and 30 cm diameters around it. Reason choosing for this project is, the most extensively form of machine is used in most of the industries like vehicle manufacturing, shipyards, assembling machine etc.

3. RESULT

"Latest enhancement in robots has enabled robotic technology to find a solution too many practical problems that humans experience in their routine life, activities."

(Ishwarya, V &Lavanya, B & Jerlin, J & G., Kavya. (2019). Development of Robotic Arm with Suction and Grinding Mechanism for Sewage Cleaning.International Journal for Research in Applied Science and Engineering Technology. 7. 2321-9653.10.22214/ijraset.2019.3192.)To build a pick and place robot for picking an object from one place and placing that at desired location. The temperature and gas sensors used for monitoring temperature and gases which will alert us when parameter exceed occurs. The robot can be controlled from android phone using Android APP.

4. CONCLUSIONS

The aim of this work is the development of wireless control of a pick and place robot using Android application .The micro controller used is an 89s52. The temperature and Gas monitoring is done with the help of sensors connected to the system and accordingly controlling action will be taken place. The robotic arm is controlled with the help of Android APP.

5. ACKNOWLEDGEMENT

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