

COZMO CLENCH

The vast majority of robots in use today perform labour tasks for humans. Mostly, Pick and place robots are commonly used in modern manufacturing environments. Pick and place automation speeds up the process of picking up parts or items and placing them in assigned locations. Pick and place robots handle repetitive tasks while freeing up human workers to focus on more complex work. Robotic arms are the main feature of pick and place robots. A gripper is the mechanical or electrical End Of Arm Tooling device that enables the manipulation of an object. There are many different types and sizes of grippers designed to pick up a wide variety of parts and materials. In this project, We are going to use Parallel Motion Two-Jaw Gripper. These grippers perform 120-degree pivoting fingers that can completely retract and provide extra clearance that is beneficial for certain applications. We developed a prototype of this pick and place robot for this event. We used motor drivers to control the speed and direction of the robot. We used the Bluetooth controller to control the pick and place robot. Servo motor is used to precisely control the movement of the robot arm. An external battery is attached to power the robot. In reality, These manufacturing robots perform repetitive tasks, reduce margins of error to negligible rates, and enable human workers to focus on more productive areas of the operation.

TEAM MEMBERS:

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List of components used:

S.NO	Components	Number of Components required
1	Arduino ATMEGA Board	1
2	L293d Motor driver	2
3	DC geared motor	4
4	MG995 Metal Gear Servo Motor (180 Degree Rotation)	3
5	Plastic wheels	4
6	HC-05 Bluetooth Module	1
7	Gripper and robot arm	1

GRIPPER MECHANISM:

The gripper which is utilized by us in this project is a Parallel Motion Two-Jaw Gripper. This gripper includes tooling jaws or fingers that grasp an object. Movement of the Grippers are done using servo motors which helps it to pick up, place, hold and release objects while an action is being executed. Gripper should be attached with the robotic arm to make the rotation to hold the object .Servo motors help the arm to make the precise movement.By the assistance of the HC-05 Bluetooth module, We are able to control the robot arm and gripper of this robot . These jaws move 120-degree parallelly on both sides which provide extra clearance to grab the objects. The precise gripper utilized in our task comprises a couple of movable jaws , the inward hold which is of measurement 0.011m around is deliberately used to pick little items like Thick Marker which is to be saved in a glass .Then, Cardboard shape which is of aspects 7cm×7cm (± 2 cm), and a Plastic light Water Bottle with 500ml water, and a standard tennis ball, in comparative manner when the bot arrives at the pickup zone according to the order given by the controller, these jaw extends to firmly hold the objects. We developed the gripper parts by 3D model printing and combined these parts to create this gripper. We firmly attached the robot arm with base at center position to balance the weight perfectly.