**Group-11 Tanish Goyal**

**Thru-MG#2**

**Ball Collector Robot (Project)**

**Parts:**

1)Gripper

2)Servo motor

3)Arduino controller

4)Bluetooth

5)Robot Base

6)Robot Wheel

7)BO Motor

8)Ball

**Working:**

In the Ball Collector robot assembly, we integrate the servo motor with the gripper mechanism, enabling it to grasp the balls effectively. This servo motor-driven gripper is pivotal in facilitating the collection process by securely holding onto the balls during retrieval. Subsequently, we establish a connection between the motor and the wheel assembly, affixing it securely to the robot's base structure. This wheel assembly plays a crucial role in manoeuvring the ball collector, allowing it to navigate and position itself appropriately for collecting the balls.

Once the mechanical components are assembled, we proceed to establish the electrical connections by interfacing the entire circuit with an Arduino microcontroller. The Arduino serves as the central control unit for the robot, orchestrating its movements and operations based on programmed instructions. Through proper wiring and configuration, we ensure seamless communication and coordination between the various components, including the servo motor, wheel motor, and other peripheral devices.

With the hardware setup complete, we transition to the software aspect by programming the Arduino with the necessary code to govern the robot's behaviour. This code encompasses instructions for controlling the servo motor to manipulate the gripper, as well as commands for driving the wheel motor to propel the robot forward, backward, or in any desired direction. The programming logic is designed to ensure efficient and precise operation of the ball collector, enabling it to perform its intended function effectively.

Once the code has been written and validated, we upload it onto the Arduino board, thereby transferring the instructions to the robot's control system. This step is crucial as it enables the Arduino to execute the programmed commands autonomously, without the need for continuous external intervention.

In summary, the Ball Collector robot assembly involves the integration of mechanical and electrical components, culminating in a functional system capable of autonomously collecting balls. By combining precise mechanical design with intelligent software programming, we create a versatile and efficient robotic solution for ball retrieval tasks.