Smart Dustbin System Experimental Results:

1. Ultrasonic Sensor Performance:

Objective: Evaluate the accuracy of the ultrasonic sensor in measuring object distance.

Experimental Procedure:

Place objects at distances 30 cm from the smart dustbin.

Record ultrasonic sensor readings for each distance.

Results

Distance Measurement Accuracy:

30 cm: Actual - 30 cm, Measured - 29.8 cm

2. Servo Motor Control:

Objective: Assess the responsiveness of the servo motor in opening and closing the dustbin door.

Experimental Procedure:

Trigger the servo motor to open and close the door based on ultrasonic sensor readings.

Results:

Servo Motor Response Time:

Door Opening: 1 seconds

Door Closing: 3 seconds

3. LCD Display Functionality:

Objective: Verify the proper functioning of the Liquid Crystal Display (LCD) in showing object distance and detected object messages.

Experimental Procedure:

Display real-time data on the LCD, including distance and messages.

Results:

LCD Display:

Object Distance: "Object at 25 cm"

Detected Object: "Object Detected"

4. System Integration:

Objective: Evaluate the overall performance of the smart dustbin system when all components are integrated.

Experimental Procedure:

Test the system in a controlled environment with various objects and distances.

Results:

System Response:

Accurate distance measurement triggering appropriate servo motor and LCD responses.