AUTOMATIC WASTE SEGREGATION SYSTEM

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Introduction

- Waste segregation is an important step in proper waste management. Manual segregation is time-consuming, unhygienic, and often inaccurate.

- To solve this problem, we have developed an **Automated Waste Segregation System** using a robotic arm integrated with a moisture sensor and a metal detector.

- The system picks up waste, checks its properties, and automatically sorts it into Wet, Dry, and Metal Waste categories.

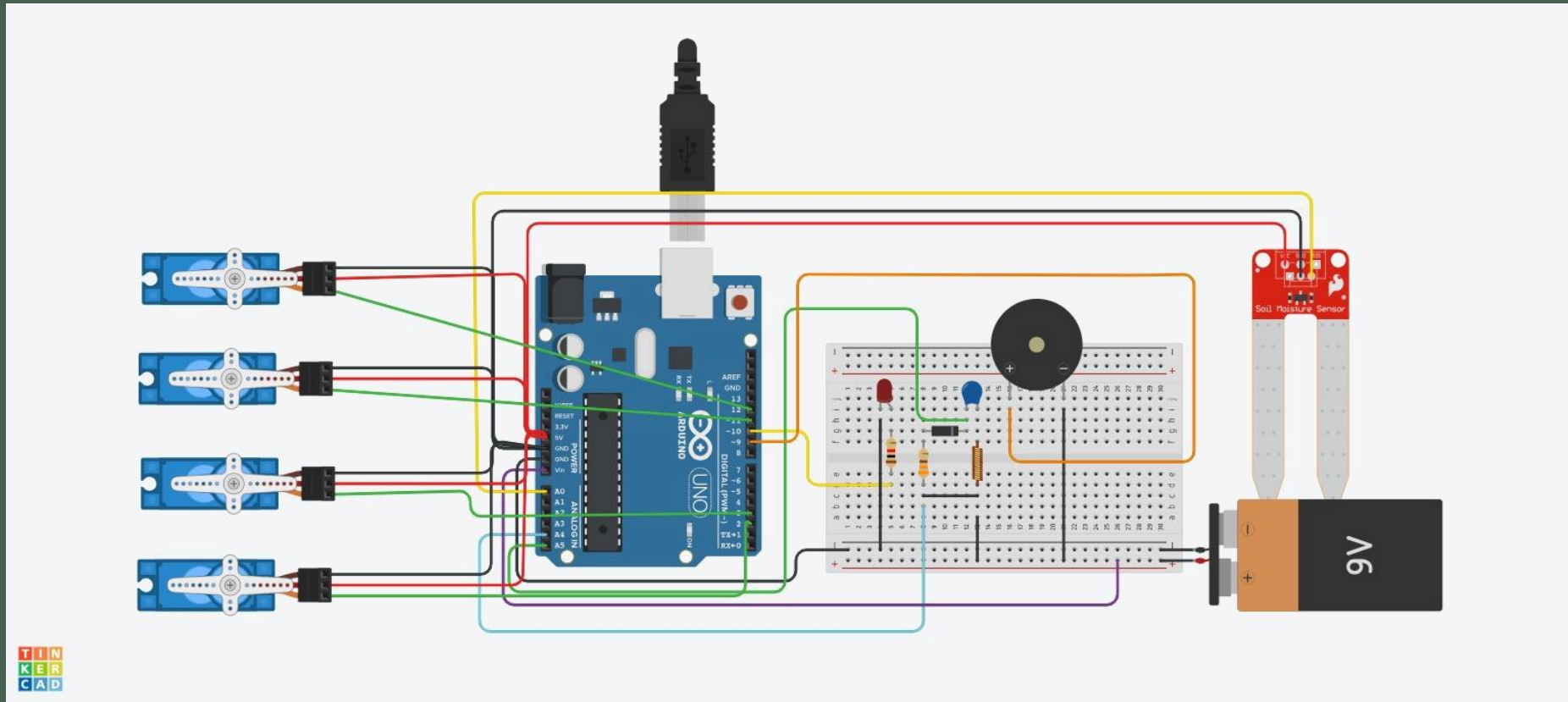- This project helps reduce human effort, improve efficiency, and promote safer waste handling.

Objective

- To design a system that automatically picks and segregates waste.
- To classify waste into Wet, Dry, and Metal categories.
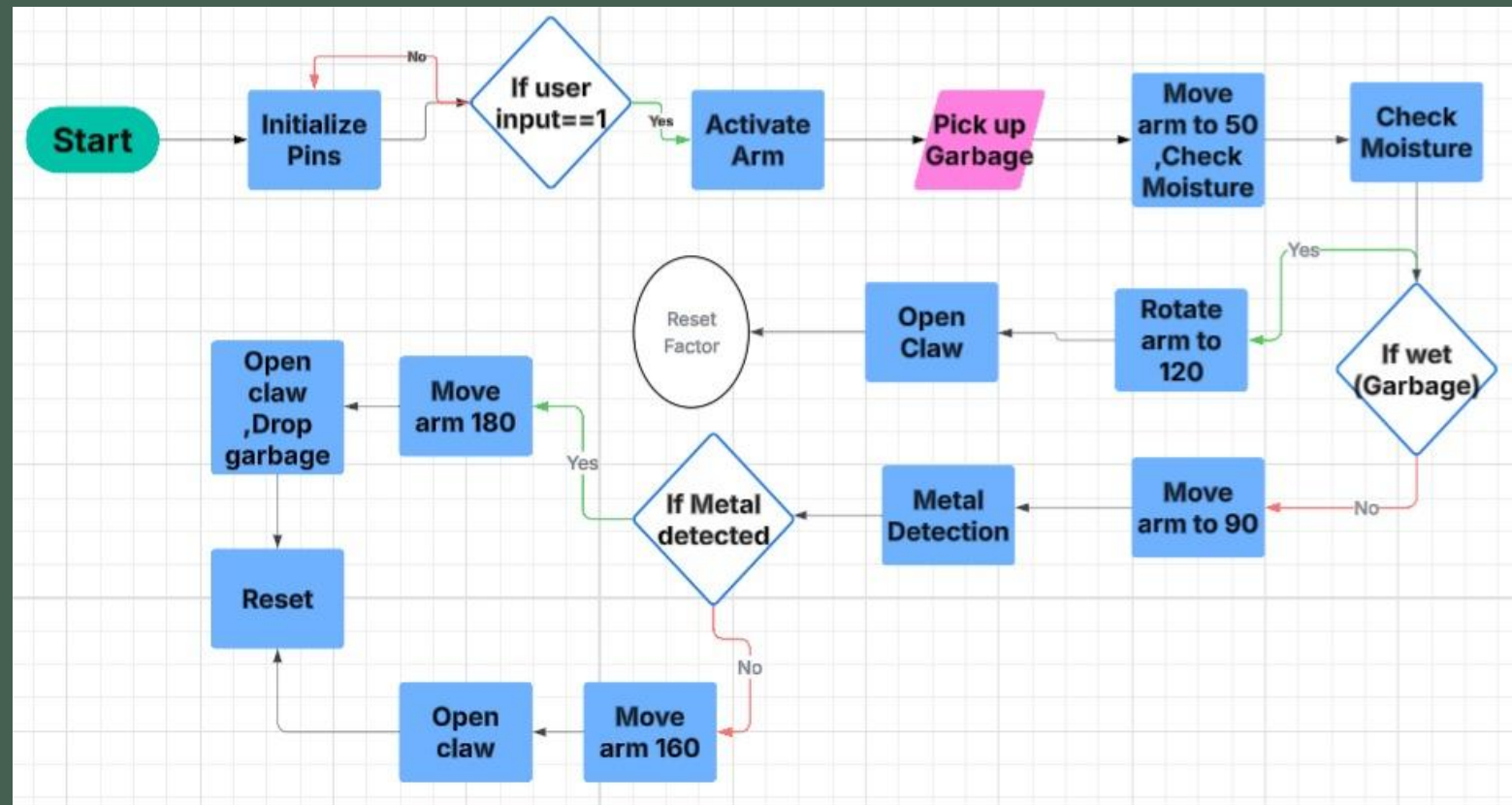- To reduce human effort and health risks in waste management processes.

Block Diagram
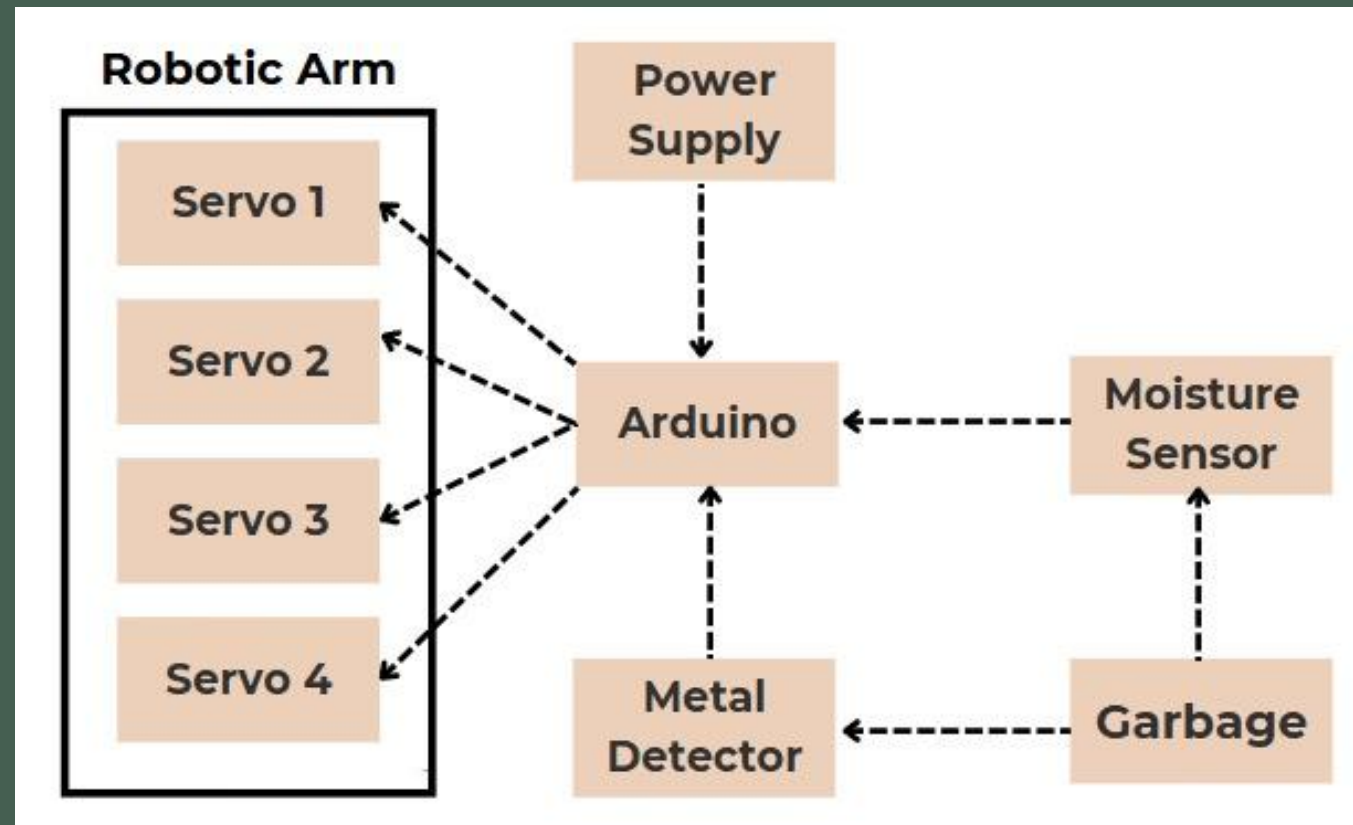
Circuit Diagram

Flowchart

Algorithm

- Start the system.
- The robotic arm picks up a waste item.
- Check the waste using the moisture sensor.
- If the waste is wet: Drop it into the Wet Waste Bin.
- Else: Move the waste near the metal detector.
- If metal is detected: Drop it into the Metal Waste Bin.
- Else: Drop it into the Dry Waste Bin.
- Return the robotic arm to the starting position.
- Repeat the process for the next waste item..
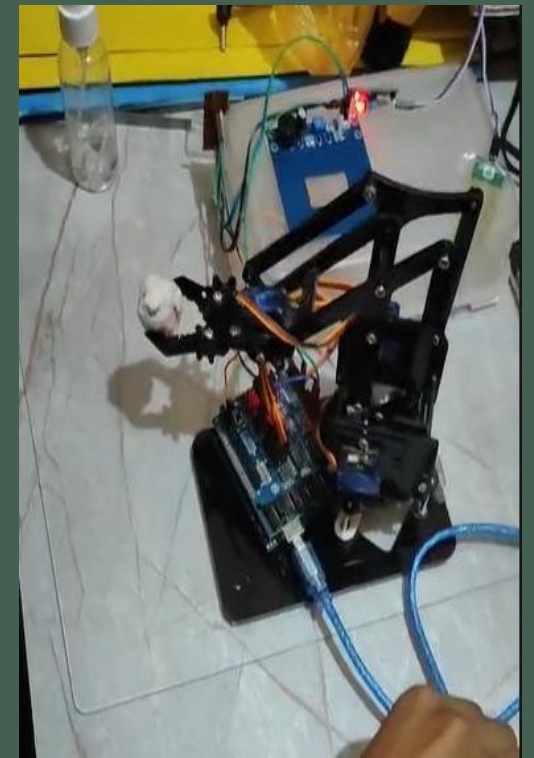
Testing the circuit for Dry Waste

Grabbing the Waste
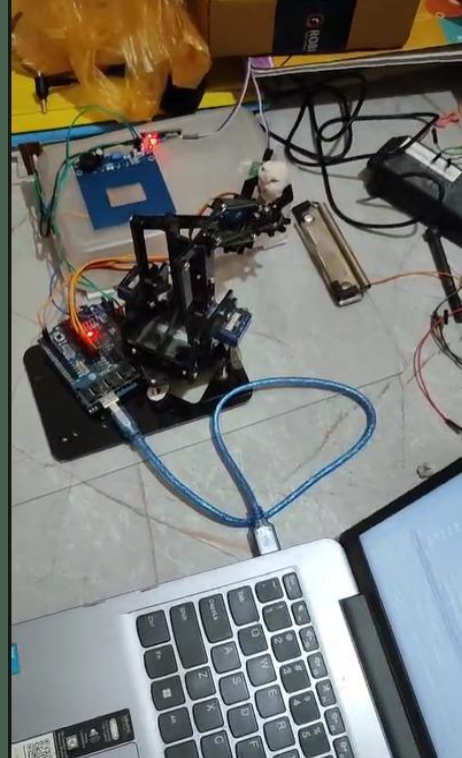
Checking the Moisture Level

Checking if Metal or Not

Dropping the Object

Conclusion

- The system is capable of efficiently classifying waste into Wet, Dry, and Metallic categories without human intervention.

- It reduces manual effort, improves the speed and accuracy of waste management, and promotes a cleaner and safer environment.

- In the future, this system can be enhanced by adding more sensors, integrating AI-based object recognition, and making it suitable for large-scale waste management applications.