

Smart waste bottle collection ATM for Smart City

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Abstract : As cities worldwide experience rapid expansion and an influx of residents, the management of waste becomes an increasingly daunting task. Traditional waste collection methods struggle to cope with the mounting volume of waste, particularly concerning recyclable materials like plastic bottles. In response to this pressing challenge, this paper presents a novel solution: the Smart Waste Bottle Collection ATM for Smart Cities. This innovative system leverages advanced technology and Internet of Things (IoT) capabilities to transform the waste collection process, with a specific emphasis on plastic bottle recycling. The Smart Waste Bottle Collection ATM incorporates intelligent sensors, a user-friendly touch screen display, and a GSM module, offering a seamless and intuitive experience for both city dwellers and waste management authorities..

Key Words: The Smart Locking System, Unauthorized Access Prevention, Dynamic OTP Protocol

1. INTRODUCTION

In an era where environmental sustainability is paramount, our project offers a solution to address the pressing issue of plastic bottle waste in urban areas. Introducing the Smart Waste Bottle Collection ATM, a cutting-edge waste bottle collection machine designed to make collecting both effortless and rewarding. Users simply deposit their plastic bottles, and with the aid of specialized sensors, the machine accurately tallies them. The count is promptly displayed on a screen, accompanied by rewards such as coins or vouchers, aimed at incentivizing greater participation in recycling efforts. Additionally, to further enhance the user experience, the machine incorporates a coin distribution system.

I. LITERATURE SURVEY

Title	Author	Year	Review
Smart Technologies in Waste Management	John Smith	2020	Discusses IoT and sensor-based solutions for waste management.

Plastic Waste Impact on Marine Ecosystems	Michael Thompson	2017	Highlights of the ecological consequences of plastic waste in oceans. Review the studies highlighting growing problem of waste management in urban environments
Innovations in Plastic Waste Collection	Alexander Green	2019	Presents new Methods for Efficient collection and sorting of plastic waste. Explore case studies or pilot projects that have successfully implemented in IoT based solutions for waste management in urban environments.
Technological Solutions for Waste Management	Dr. rober jakson	2011	Research highlighting limitations of traditional waste collection methods.

II. BLOCK DIAGRAM

Interface for Users the touch screen display serves as the main interface for users to engage with the Smart Waste Bottle Collection ATM. Through the screen, users can navigate various options and execute actions with a simple touch. Sensors for IoT as part of the IoT sensor array, the inclusion of an ultrasonic sensor is noteworthy. This sensor is tasked with gauging the waste level within the collection bin. Once a predetermined threshold is met, the sensor initiates specific actions, such as issuing alerts to waste management authorities or activating the waste compaction mechanism.

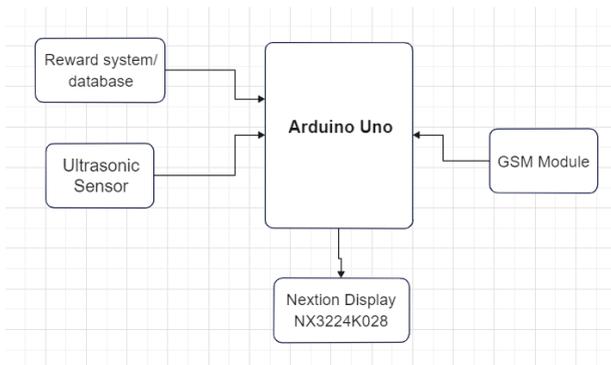


Figure 1: Block Diagram

III. CIRCUIT DIAGRAM

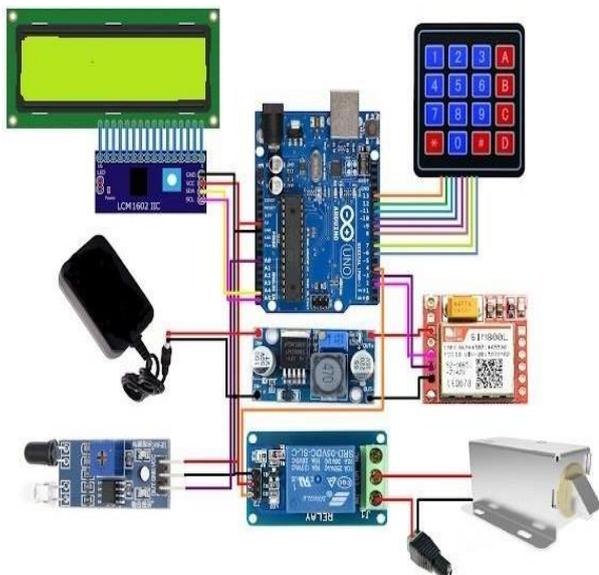


Figure 2: Circuit Diagram

IV. RESULTS

Name of Equipment	Condition	Result	Display
GSM Module	5 sec Delay	When count reaches 50	Alert to waste
		When count does not reaches 50	add plastic bottles
IR Sensor	Detects Bottle	Disply the count on screen	Displays the count
	Does not detect Bottle	Dose not add	-

Table 1 : Result

V. CONCLUSION

The Smart Waste Bottle Collection ATM project presents a forward-thinking and sustainable solution to address plastic bottle waste in urban areas. By leveraging innovative technology, community engagement, and a rewards-based approach, the project aims to create a positive impact on both the environment and the city's overall well-being. It is very important to have a robust way of managing the waste, so that not only the whole process becomes efficient, but also, the disposal of waste is done in a productive way.

VI. REFERENCES

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