

Project Design Phase-I Solution Architecture

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Team ID	NM2023TMID18964
Project Name	INTELLIGENT DEEP LEARNING GARBAGE CLASSIFICATION USING

Solution Architecture

The system is designed to decrease the improper use Of valued human resources like human effort, time and cost and the need for smart waste collection and monitoring system. This study has been carried out in two parts- The first part integrating the real system and developing smart services for smart collection and monitoring, and the second part was implementing the system for specific city to prove it.

- A. Smart Bin:** In this work, we used five bins. Each bin or container consists of a Radio Frequency (RF) transmitter, Ultrasonic sensor with Arduino. The Ultrasonic sensor which is placed near the top of the bin, and used to sense the waste level in the bin. The Radio Frequency signal is transferred only when the sensor is in a high state whenever the Smart Bin is full.
- B. Smart and Monitoring System:** The Smart and monitoring system is the heart of the whole structure of this system. It is located in the Control center which consists of Arduino mega 2560, GSM/GPRS, SIM800C, GLCD screen and Radio Frequency (RF) receiver which gets the state of the bins by RF communication.

C. Waste Vehicle: Trucks or vehicles with mobile phone, when bins are filled of trash. The central system will send SMS to the vehicles to go to the place where the bins are located to empty them. If the vehicle doesn't go to empty the bin after one hour, the system will send SMS to another vehicle.

Example - Solution Architecture Diagram;

