

**Research Paper**

# Waste Management System Using RFID

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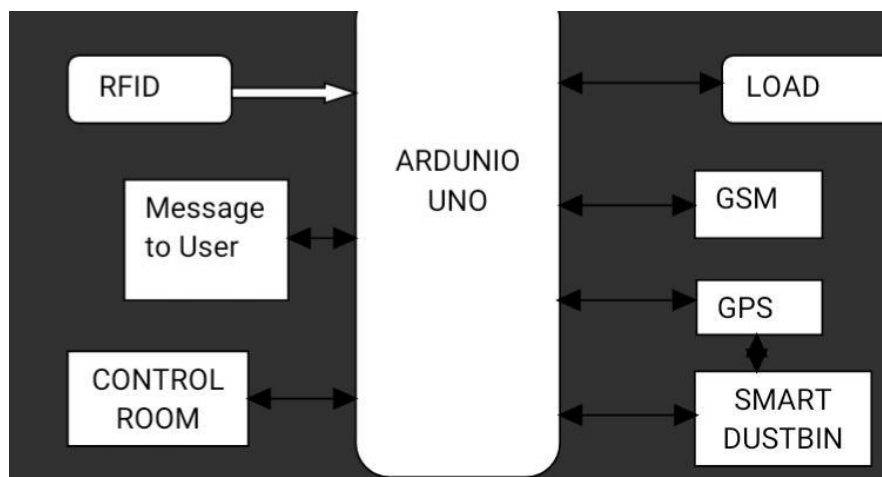
**Description**

In this modern world waste management plays a vital role. As we have increased to dump the wastes in our day-to-day life it has been a dilemma task for the workers to collect large amount of them and also it has become a lethargic mindset to dump wastes as many as possible. So here is a sublime idea to control the usage of wastes.

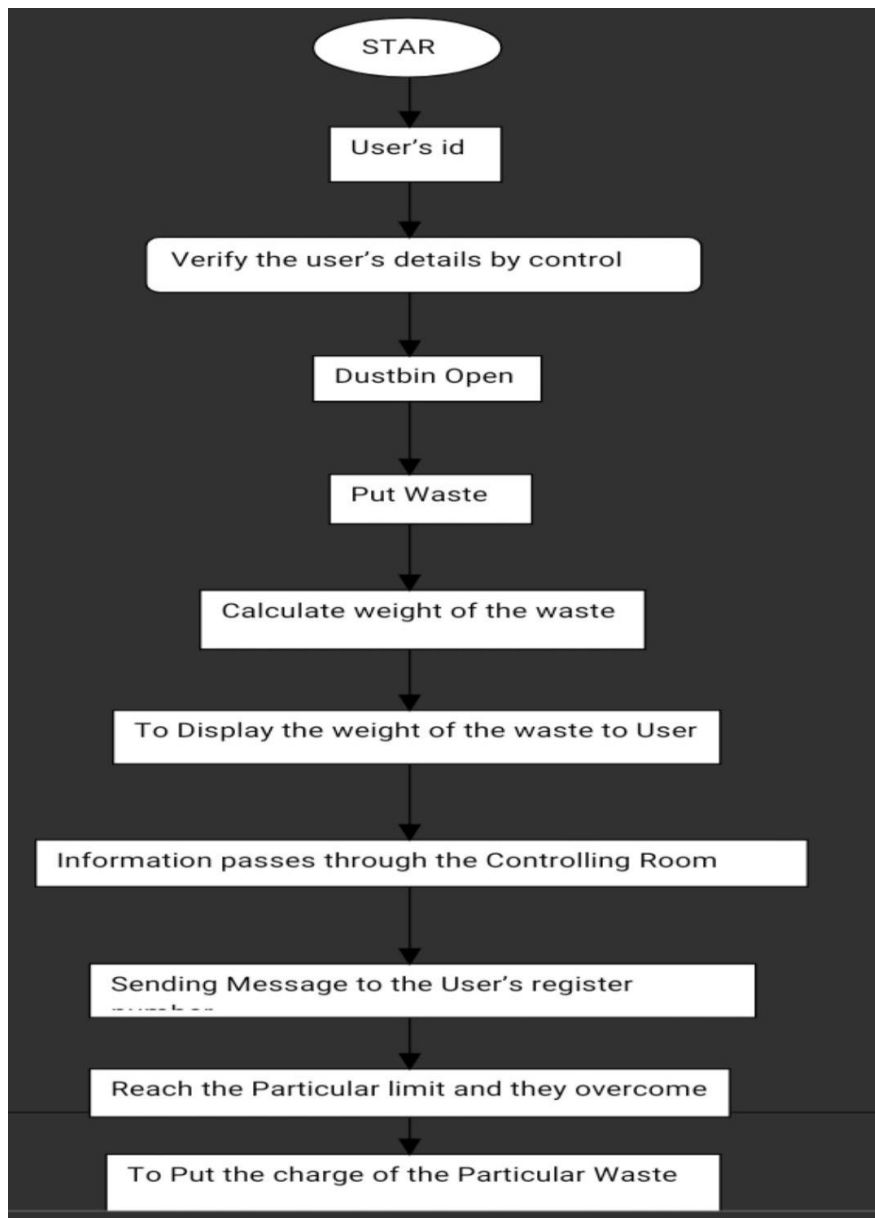


**BLOCK DIAGRAM:**

- Step1: The users identity card verification , and the bin was open.
- Step2: To put the waste and the particular system are calculate the weight of the users waste items.
- Step3: Then display the weight of the waste to user.
- Step4: The information was passes through the particular control room and the info message was send to the registered mobile number.
- Step5: Finally, in case the user reaches the particular limit , they put the charges to the user.



WORK FLOW:



PERIPHERALS DESCRIPTION:

The Waste Management system consists of a RFID tag, GPS,GSM and LCD display as well as a Dustbin and a Load cell.

**RFID:**

Radio Frequency Identification (RFID) is a technology that can be used to automate waste management by providing details about the waste and sending message to the system about the collected bins. In this paper, we are proposing a smart bin application based on RFID tags which contain information of each waste item. The wastes are tracked by smart bins using a RFID-based system without requiring the support of an external information system. Because of this system, the user is helped in the application of selective sorting and smart waste management system will come to know the status of the bin using ultrasonic sensors. Automatic Waste Management System helps to keep track of empty bins and also will give information about the filled bins to collective vehicles which will help them to collect filled bins with proper management automatically reduce the human.

**GPS:**

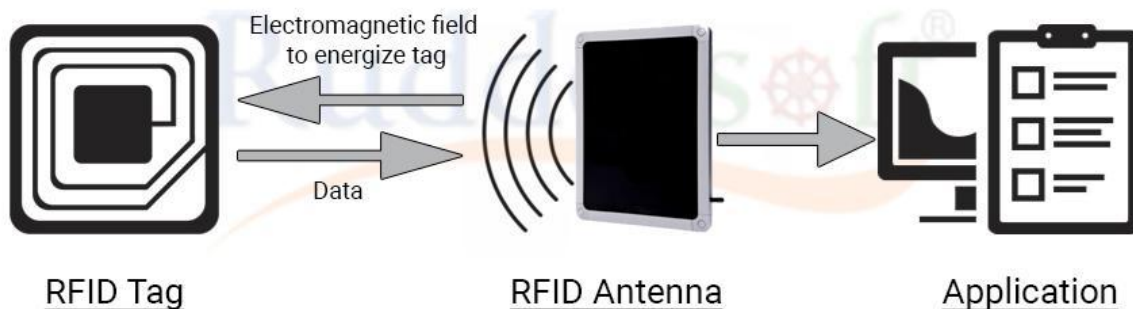
The Global Positioning System (GPS) is a satellite constellation supporting highly accurate positioning, navigation and timing (PNT) measurements worldwide. RFID: Uses. One of the primary uses for GPS-based asset location is vehicle location. As previously mentioned, the GPS unit on the vehicle can sometimes use the vehicle battery, giving it the power it requires. Passive RFID is ideal for tracking assets that can be read through a choke point

**GSM:**

‘Radio frequency identification’ (RFID) and ‘Global system for mobile communication’ (GSM) are a few fields in which security systems have propelled to new heights. RFID has been used widely for database management in places like malls and office areas.

**LOAD CELL:**

A load cell is a transducer that measures force, and outputs this force as an electrical signal. Most load cells use a strain gauge to detect measurements, but hydraulic and pneumatic load cells are also available. For a container weight monitoring solution, the most typical sensor approach is a load cell.



**CONCLUSION:**

We propose a new solution to enhance waste collection efficiency using the RFID technology fully relying on digital information attached to waste items. The presented system helps the user in correctly sorting and disposing wastes. The proposed idea can be implemented for smart cities where the residents would be busy enough with their hectic schedule and wouldn't have enough time for managing waste. The bins can be implemented in a city if desired where there would be a large bin that can have the capacity to accumulate the waste of solid type for a single apartment. The cost could be distributed among the residents leading to cheaper service provision.

**UNIQUENESS OF THE INNOVATION/ INVENTION**

The special attributes of this system are:

RFID tag is used.

It is operated entirely by authenticating the application by a RFID tag; hence it can only be accessed by the users.

It is entirely operated by the newly developed application and hence the same is managed.

If in any case, we have a threat of dumping large amount of wastes; fine amount is collected for each extra Kilogram of wastes that can be ensured.

The whole application is authenticated based on the basic authentication codes known only to us & the municipal corporation; hence it can't be easily identified.

The cost of implementation is relatively low.