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# Smart Garbage monitoring system

**Abstract:**

Waste management is one of the primary problem that the world faces irrespective of the case of developed or developing country. The key issue in the waste management is that the garbage bin at public places gets overflowed well in advance before the commencement of the next cleaning process. It in turn leads to various hazards such as bad odor & ugliness to that place which may be the root cause for spread of various diseases. To avoid all such hazardous scenario and maintain public cleanliness and health this work is mounted on a smart garbage system. The main theme of the work is to develop a smart intelligent garbage alert system for a proper garbage management .

## INTRODUCTION

The ultimate need of the hour for a developing nation is the key for "Smart City". The influential ecological factors that poses to be a threat to this may include: hazardous pollution and its subsequent effects on health of humanity, alarming global warming and depletion of ozone layer etc. Mostly Environmental pollution may be owing to the Municipal Solid Leftovers (MSL). A Proper maintenance becomes mandatory for an efficient and effective removal of the generated Municipal Solid Leftover]. It is perceived that often the waste space gets too much occupied due to irregular removal of garbage occupancy in the dustbin. This exposition proposes an e-monitoring system that put for this an embedded system and web based software assimilated with IoT technology.

Using the anticipated system, monitoring of the waste collection status could be monitored effectively. This design designates a technique in which the

garbage level could be checked at regular intervals which would prevent the undesirable overflow of the bin.

**Existing system:**

Waste Management involves planning, financing, construction and operation of facilities for the collection, transportation, recycling and final disposition of the waste. Every five years the waste generated is rising by 1 million ton. In case it is not disposed within a stipulated time, it tends to create serious health hazards and reflects negatively on the infrastructure.

The existing garbage disposal system, where it is collected from the streets, houses and other establishments once a day, is not able to effectively manage the waste generated, resulting in spill over on streets.

Some of the metropolitan city municipal council deployed concrete dustbins at every street corner to collect the garbage, engaged its labourers and vehicles to clear the trash. The municipal efforts did not pay any dividend and hence it had to eliminate the bins since residents would litter garbage around the bin once the bins were full. Consequently, concrete dustbins were replaced by the door-to-door garbage collection system, which was also ineffective in its implementation.

**Proposed System:**

This paper proposes a smart alert system for garbage clearance by giving an alert signal to the municipal web server for instant cleaning of dustbin with proper verification based on level of garbage filling. This process is aided by the ultrasonic sensor which is interfaced with Arduino UNO to check the level of

garbage filled in the dustbin and sends the alert to the municipal web server once if garbage is filled.

An Android application is developed and linked to a web server to intimate the alerts from the microcontroller to the urban office and to perform the remote monitoring of the cleaning process, done by the workers, thereby reducing the manual process of monitoring and verification. The notifications are sent to the Android application using Wi-Fi module.

## Module Description

1.Admin

- Manage garbage information
- Manage driver information
- Send garbage level status
- View information of bin
- Approve user

2.Driver

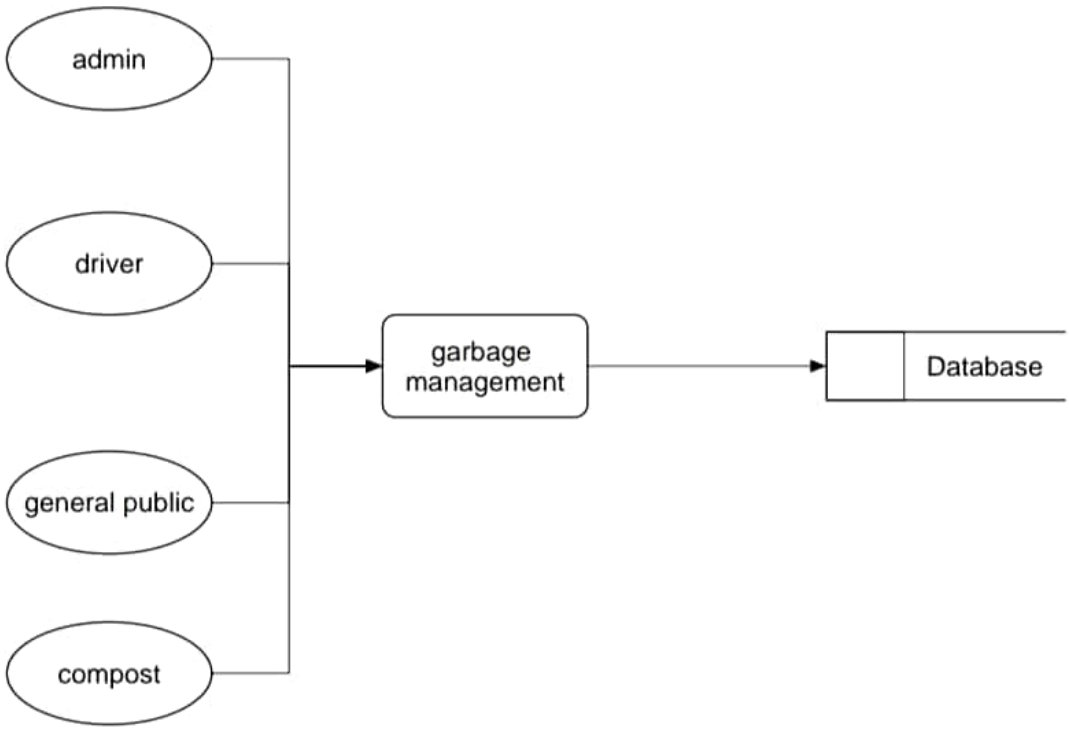
- View garbage bin information
- View filled bin location
- Send cleared bin status

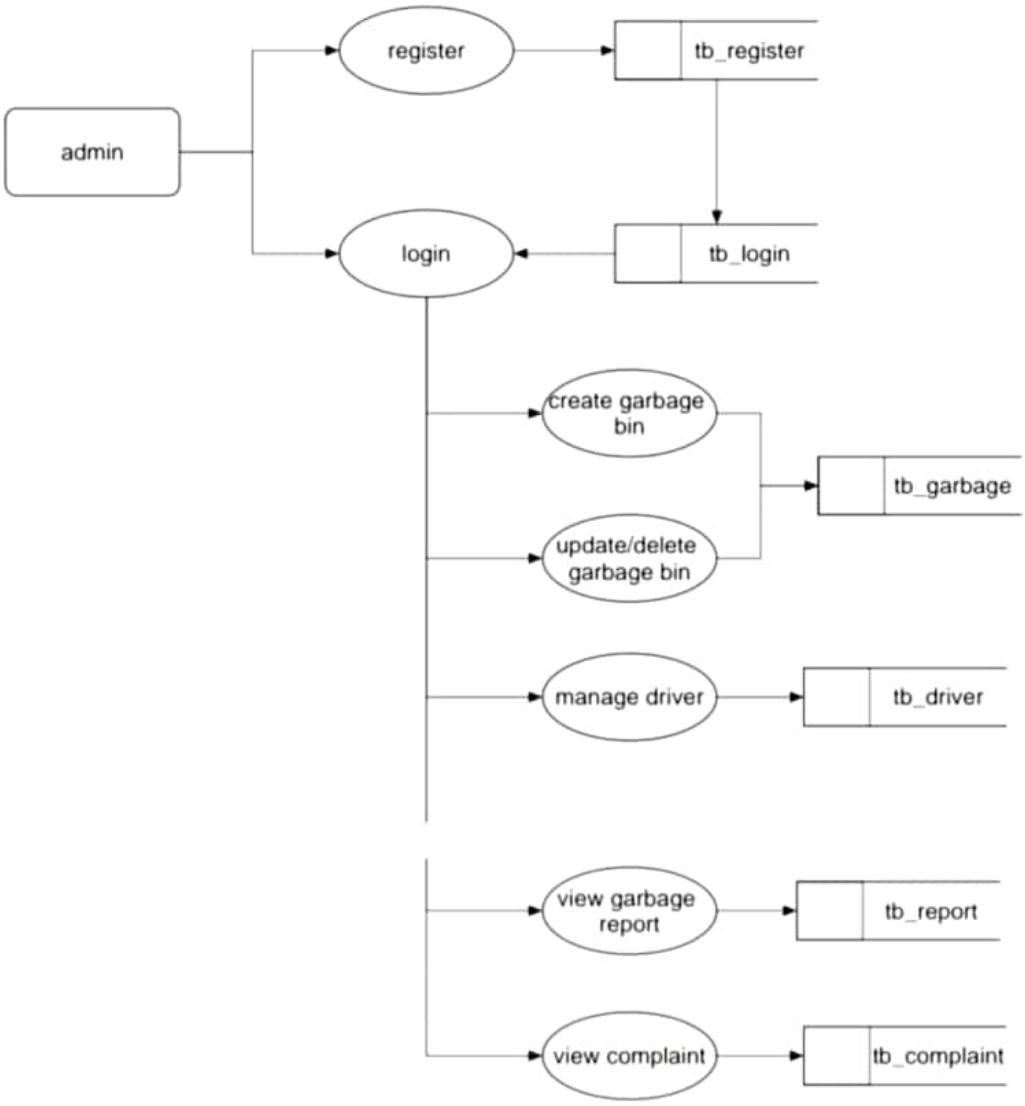
3.compost

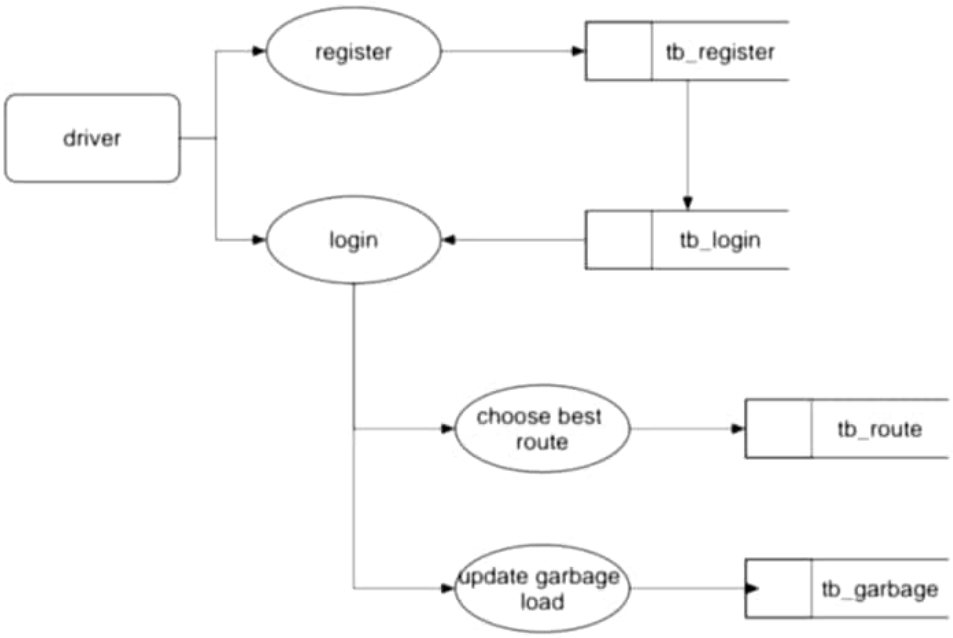
1.register
2.login
3.cart
4.buy

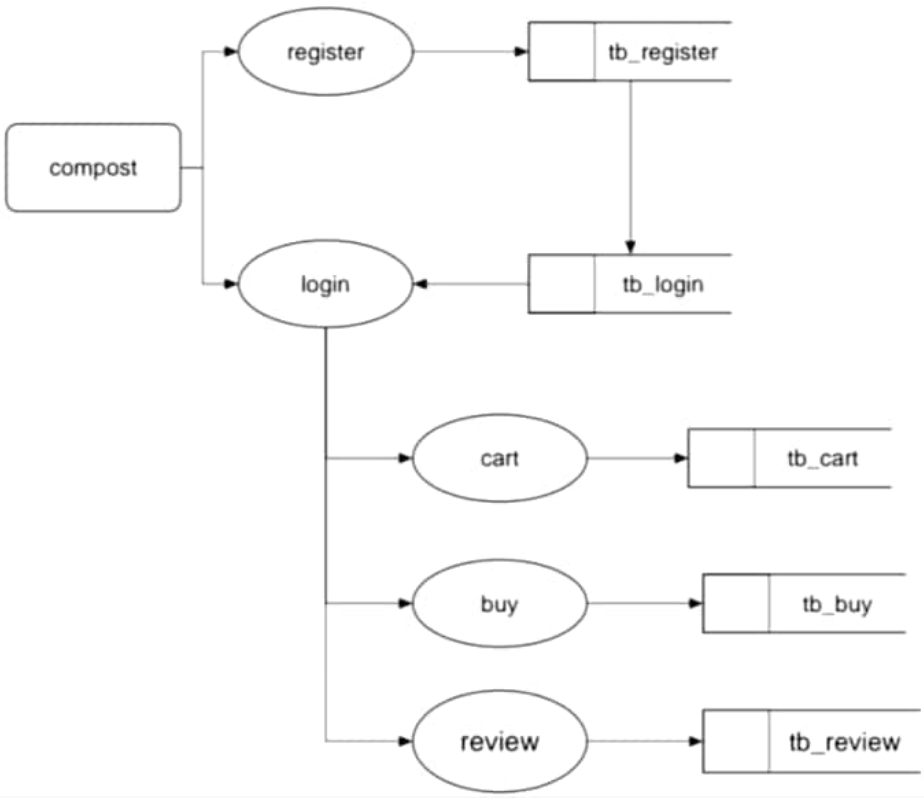
4.general public

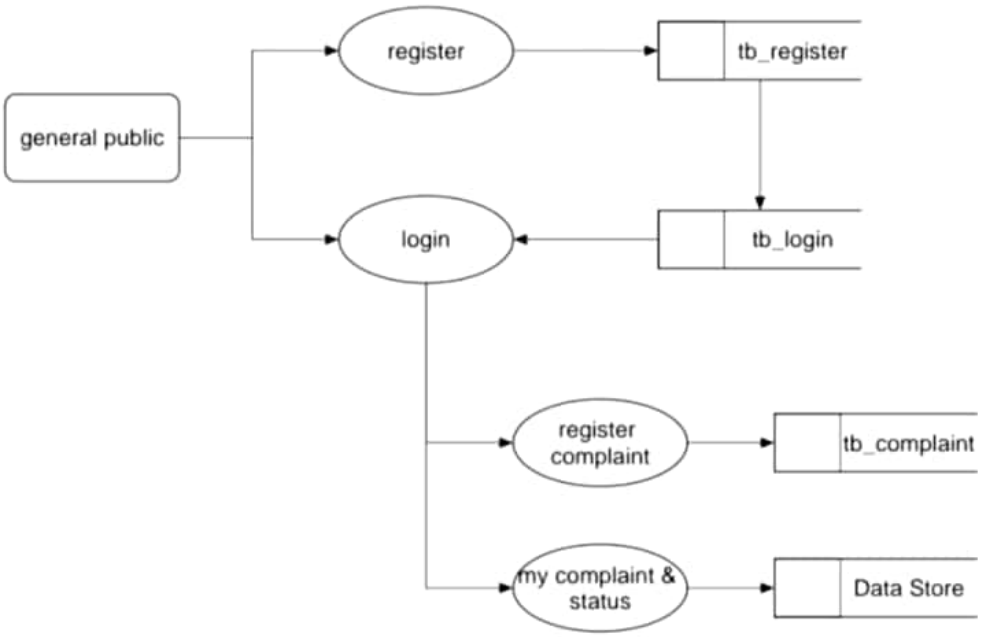
1.register
2.login
3.register complaint
4.my complaints & status











**Login_tb**

| Column name | Data type | constraints | Description |
|---|---|---|---|
| Login_id | Int | Primary key | Unique identifier to table entry |
| Username | Varchar(50) | Not nulll | Name of the user |
| Password | Varchar(8) | Not nulll | Password of the user |
| role | | Not nulll | Type of the user |

**User Details_tb**

| Column name | Data type | constraints | description |
|---|---|---|---|
| user_id | int | Primary key | Unique identifier to table entry |
| login_id | int | Foreign key | Id in login_tb |
| name | varchar(50) | Not nulll | Name of the user |
| age | int | Not nulll | Age of the user |
| Mail_id | varchar(50) | Not null | Email_id of the user |
| Location | | Not nulll | Location of the user |
| address | varchar(100) | Not nulll | Address of the user |
| Phone_no | Varchar(10) | Not nulll | Contact number of the user |
| role | | Not null | Type of the user |

**Admin details_tb**

| Column name | Data type | consraints | Description |
|---|---|---|---|
| Admin_id | Int | Primary key | Unique identifier to table entry |
| Login_id | Int | Foreign key | Id in login_tb |
| Name | Varchar(50) | Not null | Name of the admin |
| Mail_id | Varchar(50) | Not null | Email_id of the admin |
| Address | Varchar(50) | Not null | Address of the admin |
| Telephone_no | Varchar(15) | Not null | Contact no of the admin |
| Site_link | Varchar(50) | Not null | Website link of the admin |
| category | Varchar(50) | Not null | Type of category |

**Driver details_tb**

| Column name | Data type | consraints | description |
|---|---|---|---|
| Driver_id | Int | Primary key | Unique identifier to table entry |
| Login_id | Int | Foreign key | Id in login_tb |
| Name | Varchar(50) | Not null | Name of the institute |
| Mail_id | Varchar(50) | Not null | Email_id of the institute |
| Address | Varchar(100) | Not null | Address of the institute |
| Location | | Not null | Location of the institute |
| Telephone_no | Varchar(15) | Not null | Contact no of institute |
| Register_no | Varchar(15) | Not null | Registered no of the institute |
| photo | Text | Not null | Photo of the institute |
| Vehicle no | Varchar(15) | Not null | Vehicle id no |

**Compost details_tb**

| Column name | Data type | consraints | Description |
|---|---|---|---|
| logi_id | Int | Primary key | Unique identifier to table entry |
| name | Varchar(50) | Not null | Name of the user |
| Mail_id | varchar(50) | Not null | Email_id of the user |
| Location | | Not nulll | Location of the user |
| address | varchar(100) | Not nulll | Address of the user |
| Phone_no | Varchar(10) | Not nulll | Contact number of the user |
| | | | |