Smart Bin

*Mobile App to Show Fill Levels of all Bins in any Area*

PROJECT REQUIREMENTS DOCUMENT

v.0.1

Revision History

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| --- | --- | --- | --- | --- |
| Serial No. | Revision | Date | Author | Feature |
| 1. | 0.1 | 1.09.2015 | Pooja Rao/Ananya Jana | Initial Draft |
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# 1. Introduction

The intent of this project is to create an app to show the fill levels of garbage bins in any area.

# Purpose of this document

To have a clear understanding of the objectives of this project by developers.

# Scope of the Project

The initial version of the product should have at least the base features – showing the fill levels of garbage bins in any area, showing the optimal path in google map to collect the garbage bags from high fill level garbage bins, showing different kinds of data analysis on the fill level, humidity data e.g. fill patterns of bins in a locality in a given time range, comparison of the fill patterns of multiple garbage bins etc. The app should also have provision for emailing these analysis reports.

# Definitions, Acronyms and Abbreviations

N/A

# References

N/A

# 1.5 Overview of the Remainder of the Document

In the rest of this document will cover the detailed description of the various functionalities of the app, assumptions and the constraints (if there is any), user roles and responsibilities etc.

# 

# 2. General Description

# 2.1 Product Perspective

# 2.2 Product Functions

1. Click on App , Digital cleaner screen should come up.
2. App to have 3 tabs .
3. To show fill level
4. Optimized path for collecting bins
5. Analytics
6. By Default To show fill level tab will be clicked
7. User should be able to see all the locations from the database. Location should be picked up on the basis on pin code . Say location 1 ( pin 560066) and different bin mapped to this pin number. App GUI will show the location , For ex. Table has 3 entries for pin 560066( whitefield). App should show

Whitefield Bin1

Whitefield Bin2

Whitefield Bin 3

1. Each row should show percentage filled information from database
2. Color of the row will be

0% to 50% = Green

51% to 70 % = Amber

71% to 100% = Red

1. Tab on location selected will take to another screen Bin Details

Change in temp and humidity

1. Bin details more
2. Bin details , Week or custom
3. Optimal path
4. Analytics

Show Fill level – 4 screens

1. Fill levels >> More
2. Bin Details Week
3. Bin Details Custom 1
4. Bin details custom 2

Optimal path – 1 screen

Analytics – 5 screens

Functional Requirements

Non-functional Requirements

Interface Requirements

# 2.3 User Characteristics/Roles and Responsibilities

This app will be used mainly by NGOs or BBMP for quick detection of almost full garbage bins and collection and garbage from them. They can also use the analysis data for various purposes e.g. if the fill trend of a bin shows some kind of anomaly from the perspective of say temperature or humidity, then BBMP may need to educate the residents in that area on that. Again, there might be different teams assigned by BBMP/NGO for cleanup of different areas, so how quickly the almost full garbage bins are coming to empty state may show the efficiency of a particular team.

# 2.4 General Constraints

The mobile app can only show the fill levels of the garbage bins which are fitted with the sensors. It will not show for other garbage bins.

# 2.5 Assumptions & Dependencies

The garbage bin lids will be fitted with sensors which can detect the fill level, temperature, humidity. In this project the application will work with simulation data.

# 2.6 Security

If a user chooses, he can lock the access to the app using password.

This app will be a client-server based model. The app will have read-only access to the server.

# 2.7 Auditing

Stress testing should be done on the app, by launching multiple instances of the app from different mobiles.

# 2.8 Administration/Customization of Application

The app should be scalable and extensible e.g. a user can choose to schedule automatic emails to export the analytics data for regular reviews. Or, can a user save the optimal route in some way, so that even if the net connectivity is down, he may see the optimal route.

# 2.9 Reporting

# 2.10 Performance

In a day multiple instances of the app may try to access data from centralized server simultaneously, that should not degrade the performance. If having one server causes delayed response, then there should be provision for adding more servers in the back-end for load balancing.

# 2.11 Usability

The app should be simple enough for any non-technical person to use. The app should work on different platform e.g. android, iphone, windows, linux.

# 2.12 Concurrency

The app will access the server data in read-only fashion. So, multiple apps can simultaneously access the server data.