Survey: M-Sanitation

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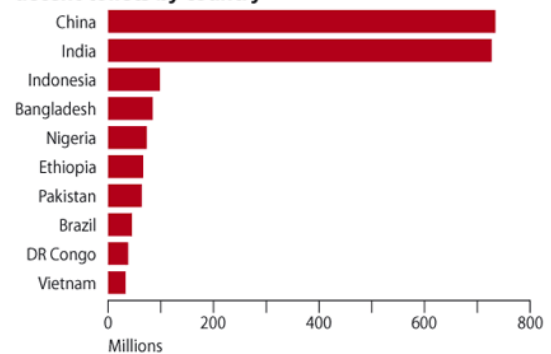Professor, Computer Department, Vidyalankar Institute of Technology, Mumbai, India

Abstract: **Nowadays Sanitation is considered to be one of the most important factor for the clean India initiative. The main reason to take this concern as a research topic is because it is observed that according to recent statistics, out of the total country population approximately 40 percent of them are practicing the habit of defecating in public and this in return affects the surroundings thereby leading to health issues. Our topic M-sanitation incorporates all such facilities and taking them into consideration will also help to keep our country clean and safe. There are many areas in the city as well as in the rural villages where defecating in public is observed quite frequently and evidently. The main reason behind this is that proper public toilets have not been constructed in such areas and if there are, they are far and difficult to be located. Our application will make such people aware of these facilities. This project will be developed as a mobile application and it will assist all the users to locate public toilets in any area with the help of maps based on the availability, waiting time and ratings of the toilets. This service would be available for mobile toilets as well as stationed ones which means users will also be able to access and locate while travelling in case of any emergency. Initially the first time a user registers, he/she will receive 100 credits for the usage of the service, but later users will have to pay a minimal amount for using the service. This revenue collected will help for the maintenance of the toilets and the payment feature will also avoid free usage. The application will also provide a barcode to each user in order to access the toilets which serves as an advantage as it does not involve any kind of manual intervention for the entire process. Our application will be maintaining a feedback section where the users would be requested to rate the service and it can be used for any improvements if required. As an addition to the feedback option, users will also have the right to demand e-toilets to be constructed in particular areas wherever needed and these ad-hoc requests will be sent to our government for further actions. This can be considered as an advancement to the project thereby creating self-awareness amongst people.**

Keywords: **Sanitation, Mobile Toilets, Stationed Toilets.**

I. INTRODUCTION

Sanitation is an important aspect that needs to be addressed on a very large scale as it affects the public health conditions. One of the major factor that comes into consideration with this is public defecation. It has been observed quite frequently that open defecation leads to many health related problems. Moreover these cases are recorded from the rural areas of our country where people are not aware of the consequences of lack of sanitation and hygiene. The main reason that leads to open defecation is the lack of access to toilets and scarcity of water. And even if toilets are made available to people, these facilities are either far to be accessed on a daily basis or they are not maintained properly for usage. An addition to this there is also a need to promote the use of toilets. Considering these needs, we have come up with a survey which if implemented will help reduce the percentage of open defecation gradually. Thus a system application that would assist the users to locate toilets in nearby areas as per their convenience will help them to keep their surroundings clean and better to live.

Largest numbers of those without decent toilets by country[4]

A number of factors like, water provision, toilet construction, maintenance and financial aid come into picture while addressing this concern. Basically our system aims to lessen the human intervention for the entire process which would in turn become cost effective.

Our system to sanitize and digitize the country would be treated as an android application initially and then further it will be developed on IOS platform as well.

The Cost of India's Missing Toilets
(By disease in 2006)

Malaria $0.09 billion, 0.2%
Measles $1.45 billion, 4%
Trachoma $0.29 billion, 1%
ALRI' $4.60 billion, 12%

Other diseases $6.20 billion, 16%
Diarrhoea $25.50 billion, 66%
Intestinal worms $0.31 billion, 1%

II. BACKGROUND

The three proposed schemes Mobile toilets, Stationed toilets and Rental toilets have an equal importance with respect to this initiative.

1. Mobile Toilets

Mobile toilets are the one which can be moved very easily from one place to another. These may be used in rent a toilet for services as well as for providing additional functionality to users thus locating nearest mobile toilets available to them for usage. One of the main reason for using mobile toilets is that it does not require any external sewage or any disposable functionality, rather it is completely self-compliant for this.

2. Stationed Toilets

Stationed toilets are the ones which are constructed in every area for the users to easily locate the same. The toilets that are registered with us by hotel owners will also be categorized under stationed toilets. With such hotel and restaurant toilets being considered, the maintenance cost will be minimized and there is no need of separately constructing public toilets for usage.

3. Rental Toilets

Rental toilets is a concept where the users can rent a particular toilet according to their convenience for different events such as weddings, parties, etc. This will help keep the surroundings clean and also avoid open defecation. For rental service, the user will have to pay some amount to the owner of the toilets depending duration for which the service is required.

III. IMPLEMENTATION

The system will be having two main sides: the user side and the vendor side.

User Side:-

Whenever a new user registers on the mobile application, he/she will just need to enter UIDAI number to which he will be verified through an OTP on the registered number of UIDAI, login needs to be done only once and not every time the user want to access. Initially as a start, each user will receive 100 credits to use the app and later on every user will be asked to pay a minimal amount of charge for the usage of the service. At the time of the login process, the users will have to enter a few basic details which would help the application to keep a track of the preferences. Once the login process is completed, Users will be redirected to the map page with all the toilets displayed on it. If the user wants to search for mobile toilets along with stationed toilets, he will be required to check the mobile toilet checkbox on top of the map. Users will be prompted with all the toilet locations with distance, pricing, availability, average waiting time & user ratings mentioned on it. The user needs to select the toilets based on his/her convenience and pay accordingly if required. Upon selection, user will be assigned a barcode for the particular selection. If user selects free toilet usage then he/she will be prompted with an AD on the top of barcode page for the revenue purpose which can then be used for the maintenance of the toilets. This barcode can be used to unlock the door of toilets. Once the usage is completed user will be prompted to rate toilets accordingly. There will also be a feedback section available wherein the users can suggest any improvements if required.

Vendor side:-

Our application will also provide the owners of hotels, houses and mobile toilets to get registered with us. This allows them to make their toilet listed on our system database. The vendor is allowed to declare the toilets free or they can levy some cost depending on their service criteria. Once registered with us, the vendors will be verified based on their criteria mentioned and they will be given a system lock for their door. These door can be opened only through 2 keys, one through 4 digit code and second through a barcode generated on user's phone. This will help to include more number of toilets for usage in case of emergencies.

Rent a Toilet:-

User can select a tab on the top 'Rent' where he will be provided with the information of mobile toilets or portable toilets to rent and their cost to which a payment can be made and the person will be delivered the facility. The user can rent a toilet facility for a specific period of time which can be used in various locations like wedding ceremony, rural parts with no toilet facility, events etc.

Flowchart:-

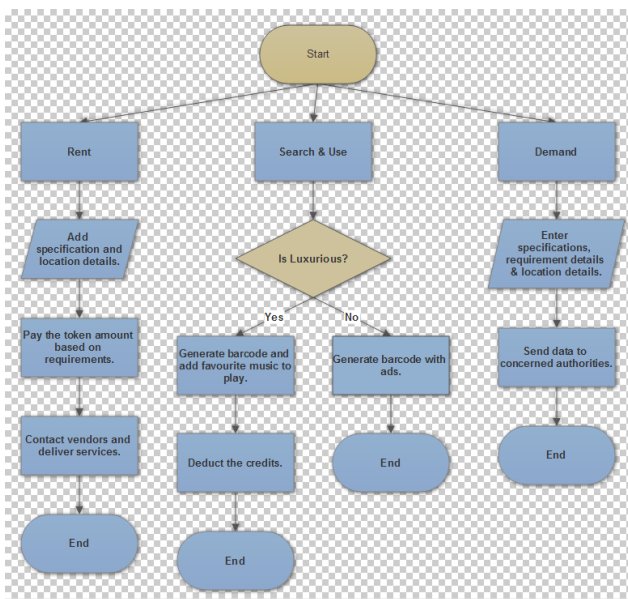The implementation process involves 3 steps mainly:

Search and Use: In this option, the user will get the options for different toilets as per their convenience. They will also get the option to select luxurious toilets if required. According to the option selected, different options to play some music or ads will also be available.

The users will also receive a barcode and after usage credits/money will be deducted from the account based on the option selected.

Rent: For this option, the users will have to provide his/her location details and also the specifications as to for which events the toilets are required. Then the users will be requested to pay some token amount based on the usage and after contacting the vendor the service will be provided.

Demand: In this option, the users will get an extra benefit to demand the construction of public toilets is their preferred areas. For this they will have to provide all the requirement details like location, specifications, etc.

IV. ADVANCEMENTS

In addition to the feedback section where the ratings and suggestions will be accepted, there will also be an option 'Demand' where the users will be able to demand the construction of toilets in a particular area and these requests will be taken care by the government by considering all the facilities in that area. This feature will spread the awareness and lessen the amount of public defecation.

V. CONCLUSION

The proposed system has a strategy that will assist the government to keep the surroundings clean and healthy to live.

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