Online Facility for Location of WaSH services

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Abstract - *Public sanitation, as a health hazard, is one of the most critical disparities faced by the nation in today's time. Also hygiene and cleanliness is another critical aspect. According to the research about 1/7th of world's population still defecated in the open, of which 60% lives in INDIA. Finding these requisites in a local area can be quite tricky as majority of people are oblivious of their location & also they are not made available on any navigation application and/or tool. According to a UN study on how to improve sanitation globally, more people have access to mobile phone than to a toilet. In this paper, an attempt is been made to provide a tool (WaSH services) that will aid in finding the basic sanitation services according to proximity of our location for effective and timely assistance and a way encouraging people to be a part of ―Swachh Bharat Abhiyan‖ for the people of Nagpur. WaSH services is comprised of three domains Drinking Water Index (DWI), Public Washroom Index (PWI) and Garbage disposal Index (GDI). Every index containing the information of the WaSH service, their location and route from your current location.*

Key Words: GDI, WaSH Services, DWI

1. INTRODUCTION

Over the years with globalization impacting our daily life, we are yet to accommodate sufficient water and sanitation services amongst the less-fortunate population of a nation. The need for better sanitation in the emerging world is strong. Forty percent of the world's populace—2.5 billion people—practice open excretion or are devoid of acceptable sanitation amenities, and the consequences can be distressing for human health as well as the atmosphere.

WaSH "Water, Sanitation and Hygiene" – are crucial for good health and well-being. It includes numerous consistent public health concerns that are of precise interest to worldwide development programs. Reasonable access to WaSH is a key civic health issue, especially in emerging countries. Information and communication technologies (ICTs) can discourse the information gaps in the WaSH sector by transmuting the way data is produced and employing it accordingly while making it reachable to overall public. WaSH is a web application with a heavy mobile compatibility.

Features of such an application are manifold. WaSH services will help in ascertaining prevailing infrastructure that precisely provides services free of cost. This not only emboldens people to consume such a resource, but also encourage people to clamor for services that are unvaryingly exceptional as the ones we pay for.

Moreover, it inspires people to adapt healthy hygiene practices, as simple actions can make a huge modification to people's well-being. WaSH works to endorse vital self and communal hygiene practices, that include apt usage of public washrooms/lavatories and dumpyards, whenever the need arises. Another rich feature is exposure to empowerment, integration, and sustainability where serving the society to self-organize and define their priorities when it comes to adapting personal hygienic habits, and empowering them to encourage habits as such to others in the community. It also encourages maintainability of services. Once cognizance of WaSH services reaches greater audience, communities become more resilient by auxiliary maintenance and sustenance of these services.

1.2 PROBLEM DEFINITION:

Ignorance to hygiene, as a health hazard, is one of the most critical discrepancies faced by the nation in today's time. So is sanitation and cleanliness. Finding these requisites in a local area can be quite tricky as majority of populace are oblivious of their location & also they are not made available on any navigation application and/or tool.

i. In regions where water and sanitation services are being extended, many projects have a high failure rate, but the extent is unknown due to lack of transparency by implementing organizations. This is due to lack of knowledge and awareness in a given area.

ii. Even where formal water supply and sanitation services exist, the service is often unreliable and of meager quality for the most susceptible residents.

iii. Water systems (and therefore sanitation) everywhere face long-term sustainability threats from over-extraction, climate change, urbanization, and pollution.

1.2 PROPOSED SYSTEM

WaSH, web application, contains the information of washrooms, garbage disposal/dump yards, and drinking water booths in different tabs which the user can access as required. Along with the complete information it will help you in finding the nearest one. It is a fast and simple garbage washrooms, disposal/dump yards, and drinking water booths finder. The database of tens of hundreds of public

toilets, dump yards, and drinking water booths is accessed via internet for fast and access. Search for a location on the map and it will show the user the nearest service. Tap on the map to get directions provided by Google Maps. Or if user is only concerned with the existence of service in an area, they can tap the directions button and it will give directions to the closest service. The dynamic nature of the database allows it to keep making updations such as adding or modifying existing data.

Furthermore, the user will have an access to upcoming news updates about WaSH sector and reforms that are constantly established in this sector on national and international scale.

2. LITERATURE REVIEW

After researching for apps that provide the similar or identical functions as our proposed system, we found the following:

"WeTap" WeTap app uses the world's major crowd-sourced record of drinking water sources, to map new ones, and to report any broken fountains so they can be fixed and put into service. This app is made for public water fountains to be preserved, eviscerated, made even more extensively obtainable and we need to be vocal in combating the fashion to eradicate overpriced bottled water. Instead of observing for a convenience store for a bottle of water, one can look for some free water. And if cities are seeing that their drinking fountains are being listed in a database, it might be an incentive to clean them up and make them function properly to avoid discomfiture.

"Toilet" Toilet app helps trace a toilet nearest to one's current locality as well as allows users to rate the quality and upkeep of public toilets in Delhi.

The app gives location and information on 1,000 toilets in Delhi, which is about 80% of the total toilets in the national capital. People can also add toilets through the app. This mobile app uses GPS to find nearby publicly accessible toilets.

"Trash" A map-based application that helps detect trash bins in the purlieu. Bins can be located within 1km, 2km or 5km radius from the user. All users can add the bins to the app's database. The goal of the app is to organize locations of all trash bins in one's neighborhood, inspiring societies to use them instead of throwing junk everywhere.

We found that the above apps lag behind in following scenarios, such as the app provides only the information of only one service, information is not updated; it does not provide the path from our nearest location, no suitable reviewing facility, and no the functioning or information is limited to a very small locality.

In this context, the strategic focus will be to design or identify, and rigorously test innovative micro- and medium-scale solutions to the problem of inadequate awareness to WaSH.
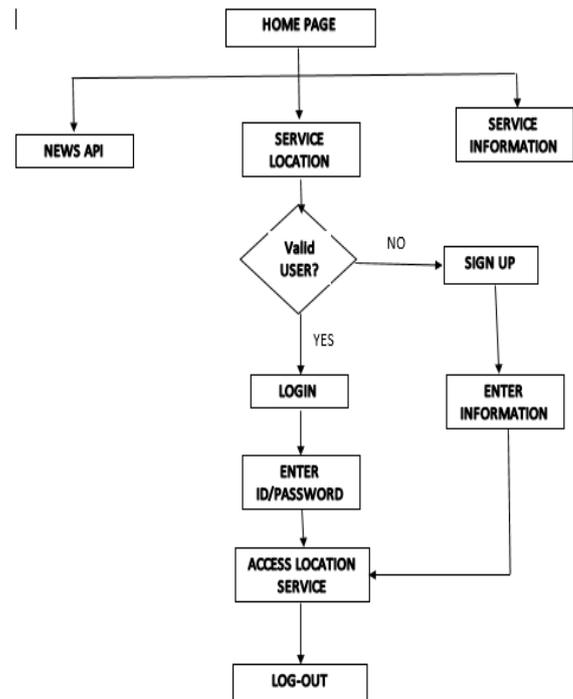
3. FLOW DIAGRAM

Fig. Flow Chart for WaSH

Above flowchart displays the flow control of WaSH application. On entering the url of WaSh service, the first page displayed is the Homepage, that includes the Login and sign-in module. After Login the services Include modules demonstrating the News API, service Location and service information. News API display the news related to WaSh sector. On entering the targeted area where the services are required, the service location module will be activated And the location of requested services will be displayed on the google map. Along with providing the location , our application will also make information of the services available simultaneously with the map. When the user appeal for any facility, the process initiate. It starts from the user's current location. it checks whether the requesting user is valid or not. if the user has not earlier signup it shows an invalid user, it request the user for signed up, it asks for the user name, ID and password, the user then search for the service in the search bar, by providing valid ID and Password, if it is valid it jumps for login ID and Password, by using the service the user can log out.

4. MODULES IN THE SYSTEM:

- Dataset Creation

- Search Location
- Add a location
- Rate/Review
- News API

4.1 DATASET CREATION:

Data base creation which stores the review and the location information for the rating and user view for that location. Generating the user interface module; this will allow connection with the database and login for module verification.

4.2 SEARCH LOCATION:

This module of WaSH Services helps locate a washroom, drinking water booth or garbage dumps nearest to one's current location as well as allows user to view all services in their vicinity.

This web application uses GPS to find nearby publicly accessible toilets. Once the nearest service is located and selected; the app will then provide the shortest route to exact location of the selected Service. The goal of the app is to collate locations of all WaSH services in one's locality, encouraging people to use them.

4.3 ADD A LOCATION:

Users can quickly add or modify information about public drinking washrooms, water booths and garbage disposals right from their smartphones, uploading the location with few details like type of service, landmark etc. On verification from the database administrator the location will be added to the application database.

4.4 RATE/REVIEW:

People can write a review on existing facilities available at the toilets. That is, people can express their thoughts, complaint or opinions for a better review of the service along whit the condition, the quality of service, and even adding a comment or a photo.

A rating module is added where the user will have to rate the service based upon the cleanliness, condition and quality of the service.

4.5 NEWS API:

This module is a simple HTTP rest-API for searching and retrieving live news articles and updates pertaining to WaSH Sector from all over the web. The portion of this module will be the left side of the main page of our application.

5. SCOPE FOR FUTURE ENHANCEMENT

This application can be further enhanced by adding a Data Mining module. It will notify the user whenever there will be an upcoming event. The users will be able to get updates on events happening all around the world by extracting data from social media and search engines. Most of the general public is unaware of these events.

A hardware module can be implemented that will notify the users whether the washrooms are occupied. The users can then accordingly choose the services.

A donation module can be added for the people that are willing to donate for the development or improvement of the services by adding a payment gateway.

As of now this application only targets a part of Nagpur city, in future it can be extended to a larger geographical area with the increasing database.

With the increasing popularity of the "Swachcha Bharata Abhiyana", a complaint module can be added where the complaints of general public can reported to the government.

6. CONCLUSION:

From the various research factors and challenges the conclusion is:

The ease of access that the user gets makes the tool more user-friendly. Aids in progressing our nation to a better future while reducing access barriers to basic civic services. Encourages people to be a part of "Swachcha Bharata Abhiyana."

Provide updated information in the Google maps for more efficient access to information. Analysis of the water and sanitary information can help to identify regions and communities with greater needs and thereby help to design more pro- interventions.

Further enhancements can be added to these system, because the features of this application is very attractive and it is useful than the present one. The speed of the transactions is achieved.

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