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Smart Garbage Monitoring System using QR

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***Abstract*- The problem is of the population, which is rising rapidly. In latest years urban migration has skyrocketed. This has resulted in the upward push of garbage waste everywhere. In order to minimize waste and preserve proper hygiene, we need a systematic method to tackle the problem using a QR-based system to tackle this problem. In villages and public garbage is stored which spoils the environment. People are becoming more engaged in cleaning up their environment in whatever way they can. The government has also begun a number of initiatives to improve cleanliness. We'll work to create a system that alerts businesses when it's time to empty the trash.**

Keywords—QR Code, Smart dustbin, Garbage.

I. INTRODUCTION

- As stated earlier that garbage waste management is becoming a primary concern. People always prioritize hygiene overall. Garbage hygiene is the primary component among them.
- There are lots of measures and initiatives taken by the government. NGOs, and agencies to populate this concern. One such baby step was taken by us throughout this course of action. We made an effort to use the newest technologies to combat waste. We put this into practice by scanning QR codes[4] with a
scanner and uploading the results along with a phone
- Filling the complaint through the app it would definitely save the time of end users. It would become an easy practice of rising the complaint

II. LITERATURE SURVEY

IoT assisted Waste Collection and Management system using QR codes .:-Prof.Aparna H, Department Electronics and Communication Engineering, SASTRA Deemed University, Thanjavur, INDIA

The proposed method makes use of Quick Response (QR) codes to track and monitor the waste collection procedure. The QR codes are designed to be scanned via an android application, which verifies, stores data and alerts the user. QR codes are used as they are safe and can be printed on any surface and can be scanned easily using smartphones.[5]

Smart Garbage Monitoring System Using IoT:- Mr. Anuj Razdan, ,Mr.Ihitram Raza Khan, Mr. Mehtab Alam Jamia Hamdard University. The unique indicator equipment is attached on the dustbin walls. It is made up of two parts: one is the receiver-transmitter and the other is the sensor. The sensor is used for indicating the level of garb age in the dustbin and is attached to the transmitter device that sends the “Dustbin is full, Please empty it” signal to the concerned authorities.[2]

Promoting a clean and hygienic environment using IoT:- Dr.L.Arockiam Lawrence ,St.Joseph’s **College** of Tiruchilppali. Dr .A. Arul Anitha,St.Joseph’s College of Tiruchilppali

Internet of Things (IoT) based smart devices are the core elements for any smart environment. The sensors and actuators make the life easier when they are connected to one another and to the Internet. The Smart city and ‘Swachh Bharath Abhiyan’projects introduced by the Government of India tried to promote clean and hygienic Environment. In this paper, a methodology for monitoring the dustbins in smart cities, household or organization is propose.

SYSTEM ANALYSIS

System Analysis is the process of studying a system to identify its objectives. The analysis is a detailed study of various operations and what the system should do.

A. Existing system

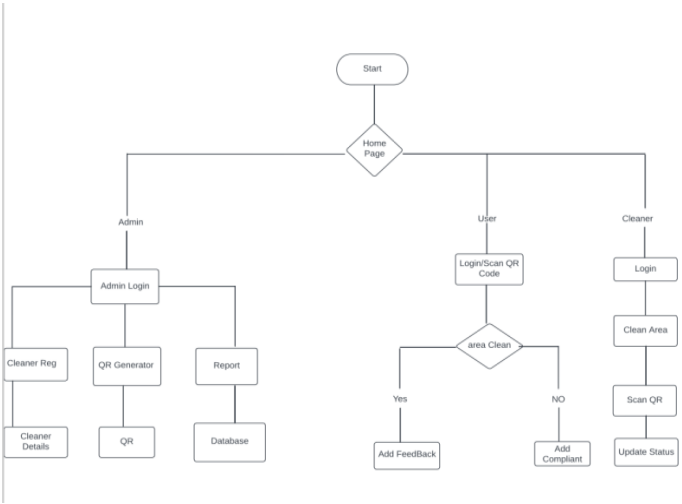
In the existing system garbage is collected by municipal people by weekly once or by 2 days once. By this it leads to the unhygienic condition and cause different diseases which spoils the environment . The smell will beheavy and produces air pollution and spread disease. The street dogs and animals eat the waste food and spreads over the area and creates dirty environment to avoid such situation we are planning to design IoT Based Garbage Management for Smart Cities.[1]

Disadvantages of existing system

- Cleaning of bins is not done properly.
- It causes the Unhygienic condition and spoil the environment.
- Bad smell spread s and may cause illness to human beings.

B. Proposed System

This paper proposes new garbage collection way. It dispose the waste we are using latest technology. Here, we create a QR code that can be read by an Android application to verify and store data. The system consists of three modules: user, cleaner, and admin. The user module features a QR code that users may scan to voice their complaints and provide feedback.The admin module primary function is to delegate the task to the cleaner an determine whether any complaints have been filed. The admin module has its own QR that has a unique ID.In the cleaner module the cleaner will sign in and record his attendance.The data will be analyzed and displayed on two different dashboards that can be accesses by workers and clients , by using data analytics the reports will be produced and the admin will keep an eye on the data via the admin dashboard. Garbage trucks will be given routes using various algorithms and Google Maps based on the
data that has been gathered, and they will travel through the garbage cans placed across the neighbourhood to collect the waste and put it in disposal sites.This approach primarily focuses on area cleaning



Advantages of Proposed system

- Improved cleanliness: In highly populated area, a rapid waste generation often lead to overflowing waste bins and unsightly streets. Our solution enables waste collection staff to read fill levels in real time and receive notification of waste overflows.
- Dynamic Routing :The solution optimizes waste collection routes And schedules based on real time and historical data, provides predictive analytics to enable decision making ahead of time and Offer consultation on waste bin allocations.
- Cost Reduction :Our smart waste logistics solution reduces waste collection frequency dramatically, which enables you to save on fuel, labor and fleet maintenance costs.

C. Problem statement

A novel approach for smart garbage monitoring system using QR base. Hence our problem statement is to design a system based on microcontroller using QR code[6] method for collecting garbage from particular area whose garbage bins are overflowing with prior concern.

D. Objectives

- To make garbage waste management more easily available to end users.
- It would reduce the time effort for both end users and front-line workers as well
- Within a single click, it will notify which area is in threat of unhygienic.

E. System Requirements

The project is about Smart Garbage Monitoring System using IoT.The details of the hardware and software requirements used are as follows: -

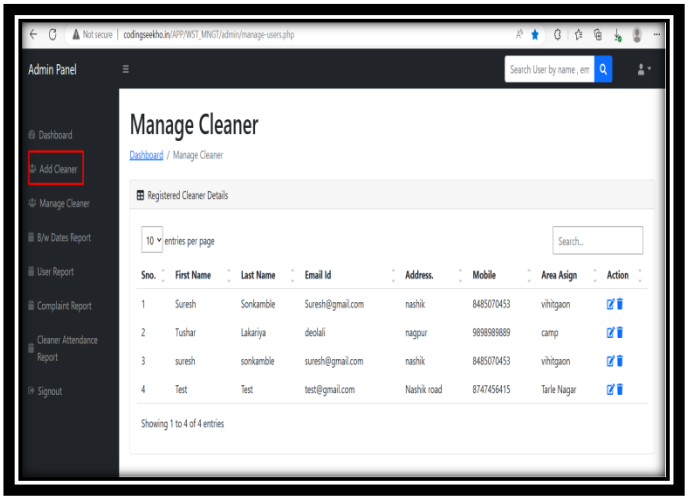
- For URL – Linux Shared Hosting
- Database – Xamp mysql
- Connectivity – PHP
- Code Front End – Java
- Code Back End – SQL queries
- Mediator – PHP scripting
- URL Portal Code – Bootstrap and HTML
- App code front end – JAVA
- Designing – using XML
- API Scripting – PHP and API response in JSON

I. IMPLEMENATION

Implementation is the stage of the project when the theoretical design is turned out into a working system. It isa very crucial stage in the project. Here it includes developing the application. Here we have to ensure that a successful new system is and in giving the user confidence that the new system will work and be effective. This stage involves planning, clear study, and analysis of the existing system and has to overcome the problem in the proposed system. We have implemented our work using different segments consisting of the admin module, cleaner module, and End User Module.

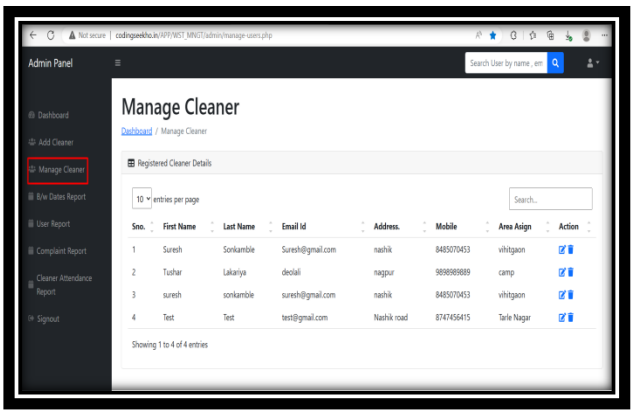
Admin Module:

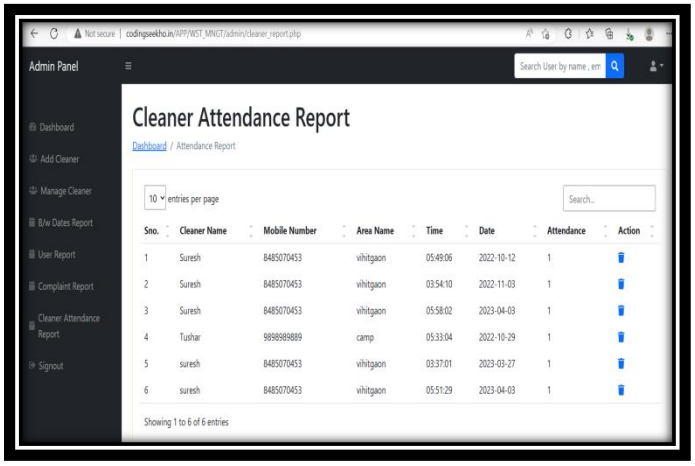
- All above access is restricted to admin users only.
- The rest of the users are prohibited from accessing this.
- Whenever a cleaner reports to the office an admin assigns him a particular area. Once the cleaner cleans that area he needs to scan the QR code which automatically detects his location through GPS.
- The GPS comes into the picture to scrutiny whether the cleaner was actually reported to that area or not. If he is reported then automatically his attendance would be captured through that.
- The Admin would generate any reports request by their higher authority. As it keeps the track of all the complaints raised, whether cleaners reacted that complaint.



Cleaner Module:

- The Cleaner Module works to capture the attendance of an assigned user.
- The Cleaner has an app installed on their mobile, through which they need to report to a particular area to perform their duties.
- Once their duties are performed cleaner needs to scan the same QR code attached to the dustbin. Post-scanning he/she needs to click and upload pictures of that area.
- Once he uploads the picture, the app will automatically capture his location with the help of the GPS location.
- It would automatically update the database and it will help officials to calculate their bonus pay, salary pay, or incentives.





End User Module:

- The End user module is purely dedicated to the common people.
- Through this module, a user can easily raise a complaint to government officials stating that the area is not cleaned for the past 3-4 days
- The End User needs to install an application on their smart phone.
- Then they will be prompted with two options namely: -
  - i. Scan QR Code
  - ii. View Complaint
- In Scan QR Code user simply needs to scan the code, enter the requested details and upload a photo of a garbage-prone area.Post that admin will receive an alert/complaint stating a user has registered a complaint.
- The end user can monitor the status of his complaint through the same app.
- The view complaint option indulges the role of monitoring the status of your complaint.
- Once the status is changed it will automatically reflect in your view complaint section. Post complaint has closed you will receive feedback stating that your area has been cleaned.
- The No of complaints raised by a particular user can be viewed in the view complaints section. For E.g. If a customer has raised 15 complaints and 7 are completed 4 are assigned and 4 are open. All these options are compiled into 1 table called view complaint.

II. CONCLUSION

The major objective is to maintain a smooth environment in the city and to improve the living environment. The system architecture is completely QR based. The amount of trash in the trash cans can be observed. for This information helps to determine the best collection routes for the workers. This study demonstrates a technical method for managing garbage. The municipal officials can be alerted when a particular dustbin is full so they can act immediately to remove the trash.It is designed to ensure the greenish in the environment and support for Swachh Bharat for cleanliness.

III. FUTUREWORK

In the future, we would be implementing the chatbot and ticketing system to make functionality smoother and faster as compared to this system. The purpose of implementing a chatbot is due to some other reasons the QR code gets misplaced or gets torn into bits n pieces, then the user can simply raise a concern through a chatbot. Or if the end-user is tech-savvy then may use the option of raising a ticket to the concerned authority.

VI. REFERENCE

1. IEEEpaper-BASED SMART GARBAGE MONITARING SYSTEM USING IOT 1 J.Arthi, 2W.Lydiapreethi, 3B. Gunasundari
2. IEEEpaper-Smart garbage system with hardware saving function based on the sensor network,Maharashtra,India.
3. IEEEpaper-smart environment system by_Parkash, Prabu V, DanduRajendra
4. publication/349576226_Design_of_Waste_Management_System_Using_QR_Code_for_Effective_Management_in_Wastebank
5. ieeexplore.ieee org document 9402521
6. IEEE paper-Arul Anitha, A. Stephen and Dr. L. Arockaim, “A Hybrid Method for Smart Garbage Monotoring System”, International Journal of Recent Technology and Engineering (IJRTE), ISSN: 2277-3878 (Online), Volume-8 Issue-3, 2020, PP 2995-2998.