GARBAGE REMOVAL SYSTEM

(DREAM CITY)

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ABSTRACT

In today's world, urbanization has led to a significant increase in the amount of municipal solid waste being produced. This waste has a negative impact on our daily lives, the environment, and our social and ecological health. Waste disposal has therefore become a major issue worldwide. To address this problem, this paper proposes an innovative waste disposal method that aligns with the development direction of the Dream CITY a software application that supports sustainable development strategies.

Cleanliness is a fundamental goal for everyone. The Dream CITY application aims to help society achieve this by allowing individuals to report contaminated garbage to the relevant authorities with accompanying pictures. The location of the contaminated waste is automatically pinned to avoid false information. This paper presents an initiative that can help turn the dream of a cleaner society into a reality.

Keywords: DREAM City, Smart City, Infrastructure development, urbanization, Initiative, DFV-Double Factor Verification, GPS-Global Positioning System, CPS-credit point system.

I.INTRODUCTION

One of the most pressing environmental issues is contaminated garbage. It can end up in landfills and cause a variety of diseases, posing a threat to the entire ecosystem. Therefore, it is crucial to collect and dispose of waste properly to protect both the environment and public health. To address this issue, we are developing a software application that enables users to upload pictures of contaminated garbage and notify the relevant authorities to take swift action and clean it up.. Our application will automatically retrieve the address of the location uploaded via GPS coordinates.

A. EFFECTS OF CONTAMINATED GARBAGE

a. Bacteria, insects, and vermin thrive from garbage

Overflowing Waste bins provide a perfect environment for bacteria, insects, and vermin to breed. The flies that are attracted to the garbage are the same ones that can fly around your lunch buffet and lay their eggs on your food, which can increase the risk of salmonella contamination. Salmonella can cause serious illnesses such as typhoid fever, food poisoning, enteric fever, and gastroenteritis. It is important to properly dispose of waste to prevent these health hazards.

b. Overflowing waste causes air pollution and respiratory diseases

Odors do not usually contain bacteria therefore, they can't usually make you sick. However, some gaseous compounds can have other effects on your health by causing shortness of breath, headaches, eye irritation, or, if large amounts are inhaled, severe health concerns. In regards to rubbish, here's how the odors could make you sick. Exposure to low concentrations can produce irritation of the nose and throat and lead to loss of appetite and headache. Higher concentrations can cause eye irritation, coughing, and loss of smell. If the amount of inhaled hydrogen sulphide is excessive, damage to the eyes can occur, along with the accumulation of fluid in the lungs. In severe cases, some people can lose consciousness, or potentially die.

Hydrogen sulphide can sometimes be found in garbage which puts humans and animals at high risk.

c. Garbage contaminates surface waters, which affects all ecosystems:

When garbage and liquid waste are dumped into water bodies, they alter the chemical composition of the water, which is known as water pollution. Surface waters can be particularly vulnerable to hazardous household waste items like batteries, computer equipment, and leftover paints. These items should be disposed of properly to avoid posing a danger to the environment.

d. Direct handling of overflowing waste exposes health risks:

Handling waste directly can lead to skin and blood infections through infected wounds, illnesses from animal bites caused by feeding on the waste, and intestinal infections transmitted by flies that feed on the waste. Picking up overflowing garbage is also hazardous due to sharp objects, needles, and potentially dangerous waste.

e. Inefficient waste control is bad for municipal well-being:

Overflowing garbage not only poses health and environmental hazards but also creates a public nuisance and an unpleasant sight. Clean and healthy surroundings are desired by everyone, whether residents or visitors. A city with poor sanitation and littered streets doesn't attract people, tourists, or investments.

B. RISK DUE TO CONTAMINATED GARBAGE

An estimated 12.6 million deaths each year are attributable to unhealthy environments

According to the report, young children and older adults are affected the most by environmental risks. Specifically, children under 5 and adults aged 50 to 75 years are most impacted. The report suggests that better environmental management could prevent the deaths of 1.7 million children under 5 and 4.9 million adults aged 50 to 75 each year. Lower respiratory infections and diarrheal diseases are the main health issues affecting children under 5, while older adults are mostly impacted by NCDs.

C. HEALER FOR THIS ISSUE :

- The primary reason for waste collection is to protect the environment and promote public health. To help achieve this, we are introducing a software application called DREAM CITY. This tool allows individuals to upload photos of contaminated garbage and alert the relevant authorities for immediate cleaning. Additionally, our software will be integrated with government websites to enhance the efficiency and effectiveness of the cleaning process.

II.PROCESS AND WORKING :

- The DREAM CITY unequivocally offers three interfaces - one for citizens, one for employees, and one for the municipal corporation. This is non-negotiable and must be understood by all parties involved.
- If a citizen comes across contaminated garbage, they can simply use their phone to take a photo of it and upload it to our application. They should also include the precise location of the contaminated garbage.

- For the precise detection of contaminated waste, GPS technology is utilized to promptly retrieve its precise location. In addition, citizens have the option to specify landmarks to further aid in the process.
- After raising a complaint, citizens can check the status of their cleaning process on their home page.
- Upon a complaint being raised by a citizen, it is mandatory for an employee to promptly arrive at the location and commence with the cleaning process.
- After completing the cleaning process, the employee must upload an image confirming completion at the specified location, implementing double-factor verification.
- In addition, the home page of the citizen now features a credit point system (CPS).

III.WHAT IS CREDIT POINT?

- The credit points are earned by citizens for uploading images to encourage involvement in keeping society clean.
- The points that have been earned can be viewed on the respective individual's homepage.
- The credit points awarded for keeping the society clean vary based on individual activity and involvement.

WHY CREDIT POINT?

- The credit point system strongly encourages citizens to upload pictures of contaminated garbage.

- Respective citizens can exchange earned credit points for exciting rewards and subsidies.

## IV.STEP-BY-STEP PROCEDURE OF DREAM CITY

The following images depict the proper method for citizens to upload photographs of contaminated garbage within DREAM CITY.
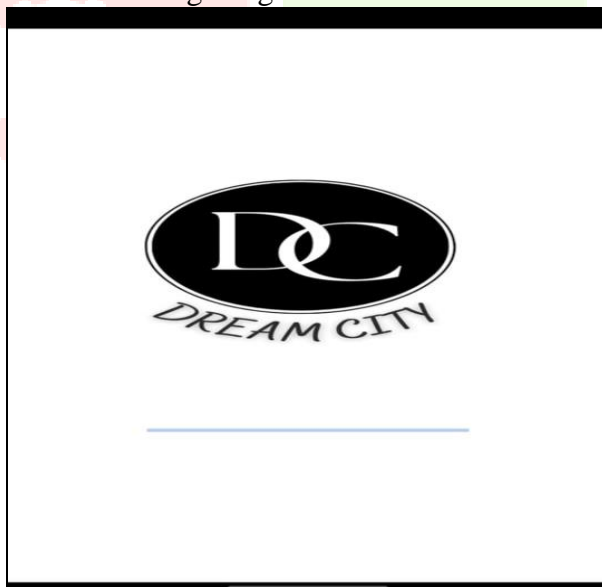

The launch screen for the Dream City application is accurately depicted in the image displayed above
Upon opening, the DREAM CITY logo will be displayed by the application.
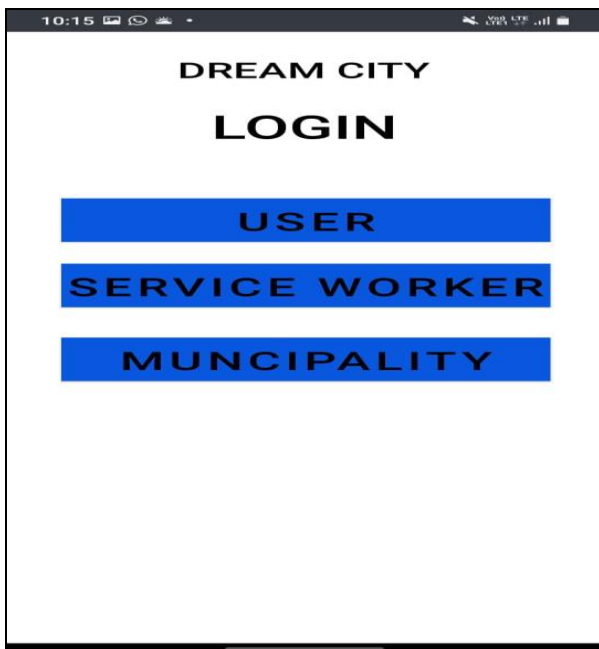
The login page unequivocally presents three options: USER LOGIN, SERVICE WORKER LOGIN, and MUNICIPALITY LOGIN. To create an account, the citizen must select the option for user login.
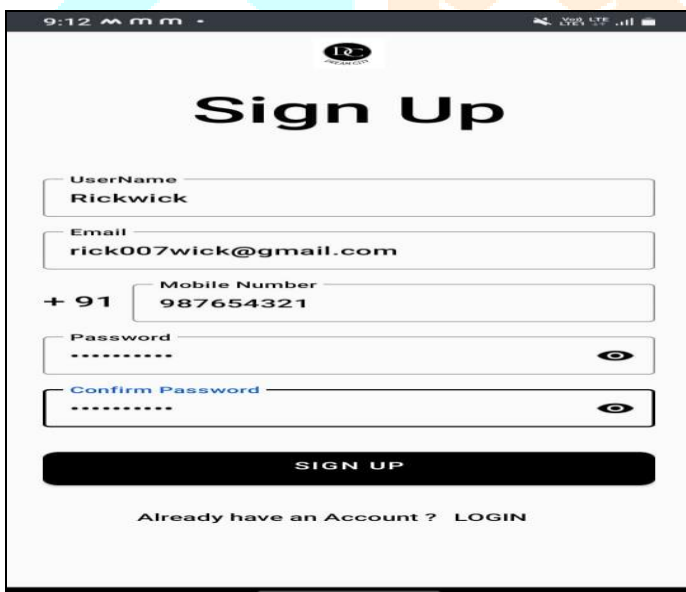

If the user is new to the application, they must create an account by providing their name, email, mobile number, and password.
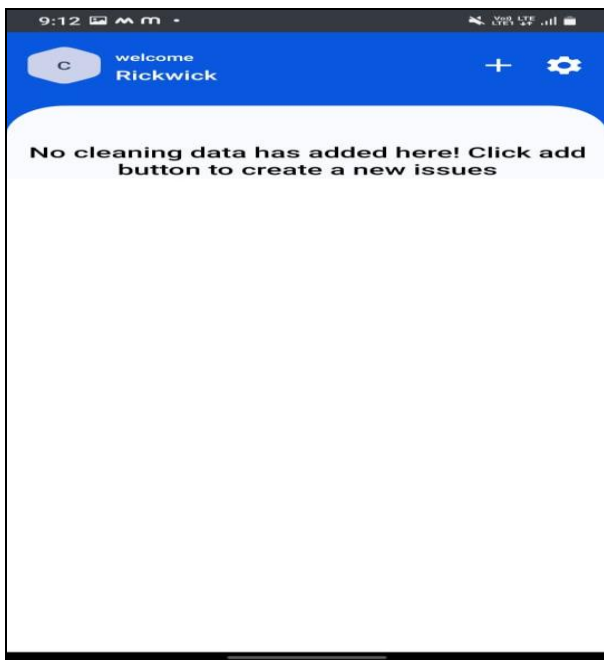
The user can raise a complaint using the "+" sign, which takes them to their live camera. The live camera takes a picture of the garbage, which is uploaded directly to Dream City.
The user processes and crops the image before uploading it as the final version.
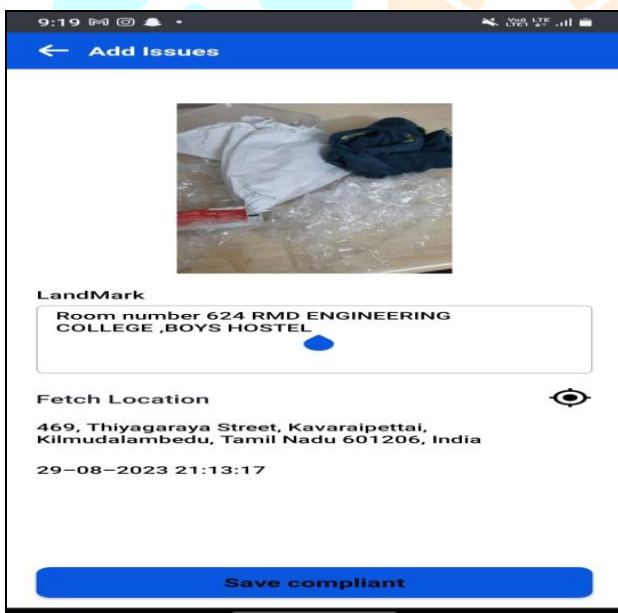
Upon uploading a picture, citizens must utilize GPS to retrieve the precise location and furnish supplementary landmarks.The complaint form automatically includes the date and time of submission.
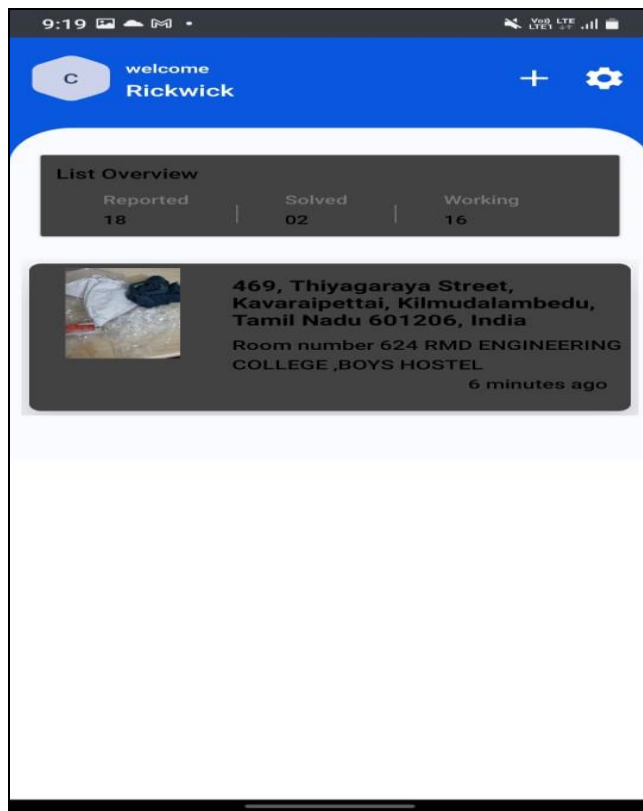
The citizen can view the status of their raised complaint in their account. To submit additional complaints, citizens may use the plus sign.

V.PROPOSED ARCHITECTURE

a) *Android Studio*

- Android Studio is the official integrated development environment (IDE) for Google's Android working machine. This means that it is the go-to tool for developers who want to build Android apps. With Android Studio, developers can write code, debug their apps, and test them on virtual devices or physical Android devices. It is a powerful tool that can help developers create high-quality apps that work seamlessly on Android devices.
- Linux-based systems were thoroughly tested and available as a subscription in 2020. It serves as an alternative to E-ADT as a crucial component.
- IDE for Android application development.
- Back in 2013, Google made a big announcement at their annual I/O conference: the introduction of Android Studio. Initially, it was only available as an early access preview with version 0.1 arriving in May of that same year. However, it quickly progressed and entered the beta stage with version 0.8 in June of 2014. Finally, in December 2014, the first stable build was released with version 1.0. It's worth noting that Kotlin is now Google's preferred language for Android app development, effective as of May 7th, 2019. That being said, Java and C++ are still supported.

b) *JavaScript*

- JavaScript frameworks are regarded as the best when it comes to developing and creating efficient mobile apps, especially Android apps. They are a collection of JavaScript code libraries that allow web developers to use pre-written code in their development
- JavaScript frameworks are widely used in mobile app development because they allow for the creation of cross-platform applications using a single codebase.
- JavaScript was originally used solely for front-end web development, but now it is widely used in a variety of projects. This includes back-end web development, mobile applications, and game development. Its primary purpose is to enhance the interactivity and aesthetics of web and mobile applications.

c) **Kotlin**

- Kotlin is a general-purpose language mainly used for Android app development. In addition to Android apps, Kotlin is also useful for server-side development. Java is traditionally used for back-end web app development.

- The project's code is openly developed on GitHub by a team employed at JetBrains, with contributions from Google and other individuals. Our decision to use Kotlin demonstrates our dedication to an open developer ecosystem as we progress and expand the Android platform. We're thrilled to witness the language's evolution.

d) **Google Maps**

- Google Maps is a popular web mapping service and consumer app provided by Google. It provides users with access to satellite images, aerial photographs, street maps, interactive 360° panoramic views of streets through Street View, real-time traffic conditions, and route planning for various modes of transportation, including walking, driving, cycling, air (in beta), and public transportation. As of 2020, over one billion people worldwide use Google Maps every month.

- The origins of Google Maps can be traced back to a C++ desktop program created by Lars and Jens Rasmussen at Where 2 Technologies. In 2004, Google acquired the company and transformed the program into a web application. Following the acquisition of a geospatial data visualization company and a real-time traffic analyzer, Google Maps was introduced in February 2005.
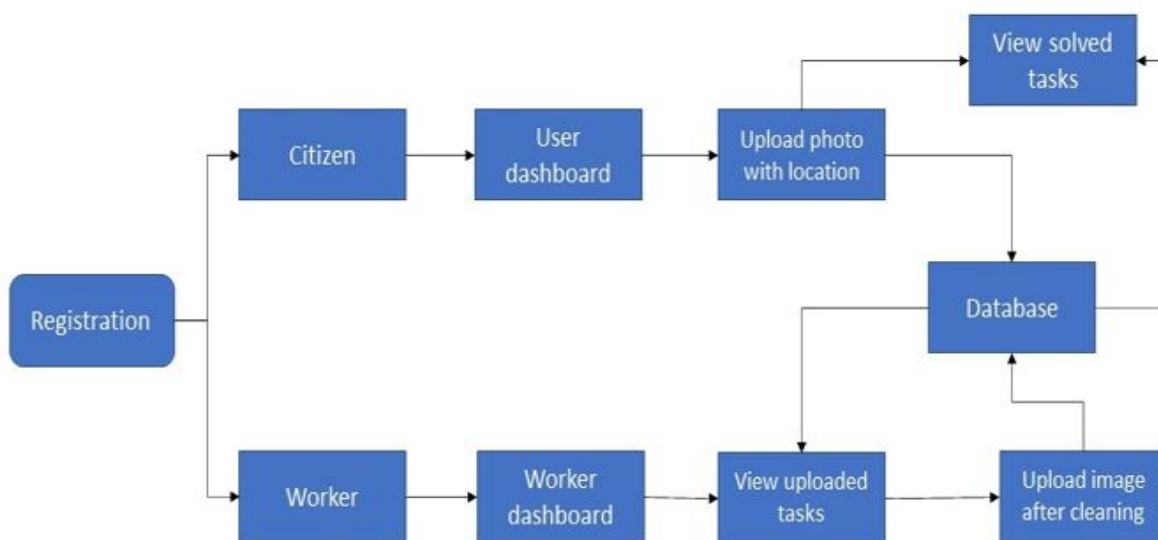

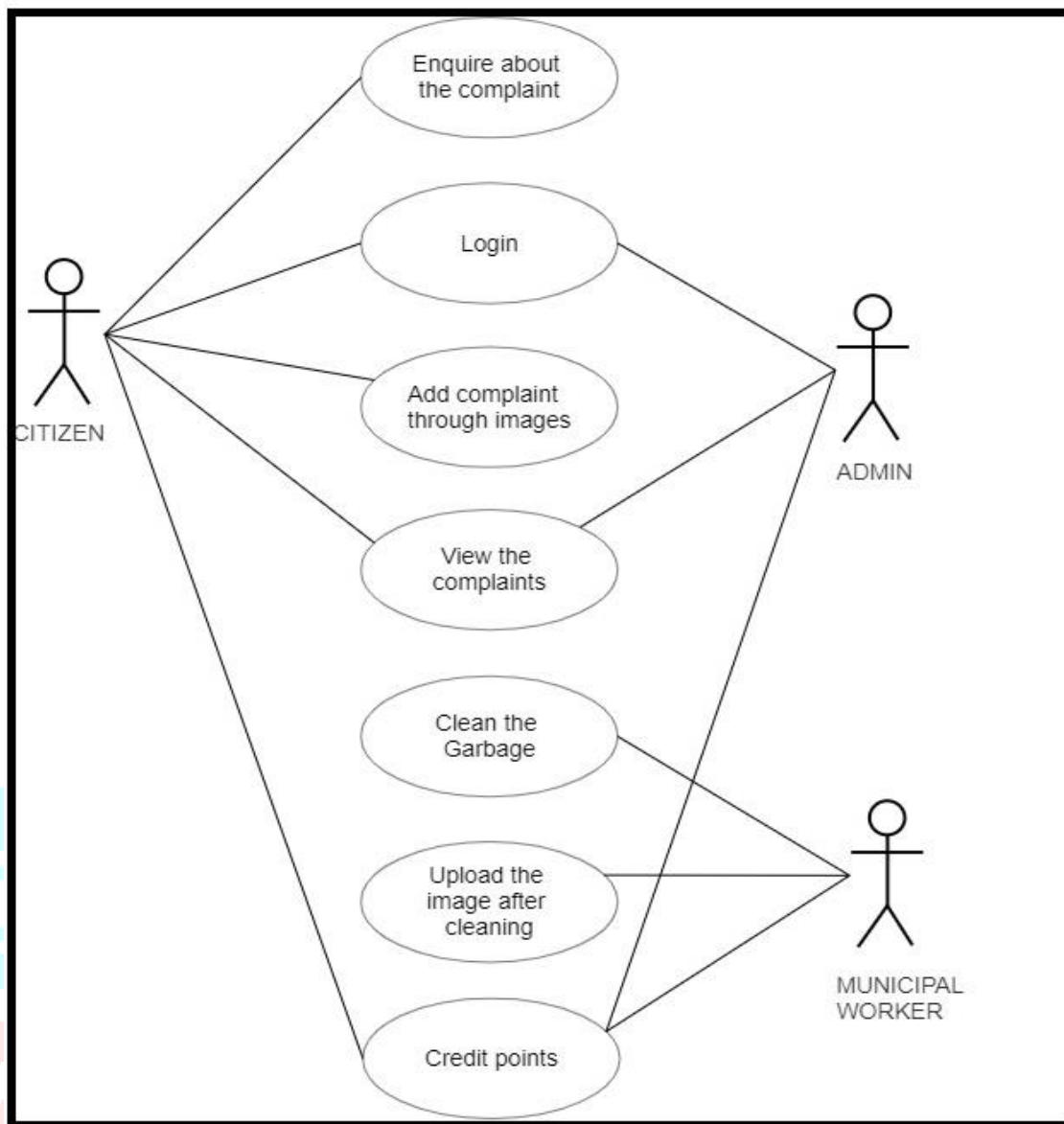Fig 1- Flowchart for the proposed system

Fig -2 : Use Case Diagram

CONCLUSION

Instrumental in facilitating communication between citizens and authorities, leading to a cleaner city. With the ability to quickly and efficiently report cleanliness-related issues, such as overflowing garbage bins. This app can effectively tackle problems and promote better hygiene. Ultimately, this will contribute to the well-being of citizens and prevent the spread of harmful diseases.

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