



Disposal of Bio-Waste

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ABSTRACT

The management of solid waste presents a challenge for developing countries and the plant waste is increasing at a rapid rate. Now-a-days the people do not have much awareness towards the sustainability and technological advances for solid waste management. Here solid waste management has been implemented to reduce the unnecessary plant waste. Composting is the natural process of decomposition and recycling of organic material into a fertilizer. The plant waste is composed of organic matter which can be used to make fertilizer. It is an effective and eco-friendly way of disposing of plant waste in the home garden area. By converting these plant leaves from the garden into a non-chemical fertilizer. The fertilizer that can be used to grow vegetables or plants which are healthy. The web application that integrates the common people and social workers. The plant bio-waste is collected for a period of days and the bio-waste is measured and taken for the fertilizer process. The fertilizer is given to the farmer at a low cost or to the same person. Then the wood waste is given to the small hotels. In the last few years there has been considerable interest in the conversion of waste into the best. We have found a new approach to convert biodegradable waste into organic fertilizer. The effectiveness of the new approach has been demonstrated in the paper, we are proposing a solution at household and municipal level to recycle the organic green waste into two sections of the article section one consist limitations of existing systems and section two, we propose a new approach to reduce the time for conversation, instead of dumping into the grounds. The explanation is to engineer a model which converts organic green waste to fertilizer.

KEYWORDS: Waste Disposal, Recycle, Garden Waste, Waste Management, Fertilizer.

I. INTRODUCTION OVERVIEW OF DISPOSAL OF BIOWASTE

At the moment, many biodegradable wastes are being burned, dumped carelessly, or discharged into water bodies as risky disposal methods. Waste disposal is the process of removing, throwing away, recycling, or destroying undesired items, also referred to as waste, that are created by industrial, home, or agricultural processes. Less pollution and environmental risks are guaranteed when proper disposal techniques are used. The appropriate collection of waste and scientific treatments that may have a reduced impact on air, water, and soil contamination are actions that must be taken in order to manage waste properly.

Wastes come in many different forms, and the majority of the garbage produced today is non-biodegradable. This has been greatly aided by industrialization and globalization. Toxic smoke and odors can be released from dumps that contain hazardous materials in their garbage. As a result, proper waste disposal is essential. For instance, burning all trash may result in the importance of the current and injury to bodies. Also, it is not recommended to dump waste into rivers or fill ground depressions improperly managed. Wastes, such as plastics, batteries, sanitary products, and oil products, should be disposed of correctly. As a result, there can be danger and pollution in the environment.

The terms waste management and waste disposal are crucial since they both work together to keep the environment clean. A waste management system should therefore be included in the concept of waste disposal. The seven R's of waste management are refuse, reuse, reduce, recycle, rot, and rethink. It would be very helpful to live hygienically and healthily if you follow each of these procedures in the garbage disposal process. It's important for future generations as well as for us. Furthermore, it protects those who handle garbage improperly, such as those who work in landfills and other similar occupations, from the risks involved. It could result in skin rashes, blood infections, breathing difficulties, and growth issues. As a result, the responsibility for garbage disposal should start at home rather than being a job for the workforce. In both residential and business settings, waste segregation should be practiced. Toxic items should be separated from biodegradable garbage and non-biodegradable waste.

Learn about the many types of garbage disposal used during the cleanup procedure. The use of biological waste is a solution that recovers valuable fertilizer components. Nutrients recycling in accordance with the circular economy assumption is suggested. Bio-waste management can improve valuable materials recovery. There is a chance to replace chemical fertilizers with bio-based products. Everything used in the garden can be reusable, and even seeds can be saved from each vegetable or flower for the following year's garden. All plant material can be composted, creating healthy garden soil that also stores carbon, helps mitigate climate change, and allows for reuse and recycling of nutrients.

Seed diversity is crucial to the sustainability of food and agricultural systems. Industrialized agriculture is another: just three crops currently supply over 60% of the calories humanity obtains from food. The impacts of this impoverishment on small and Indigenous farmers, ecosystems, food security and human health are manifold, and understanding them demands that we unravel a range of intermeshed social and political factors. Disparities in wealth, gender and ethnicity, for instance, determine the way seeds are cultivated, conserved, collected and exchanged.

II. METHODOLOGY

Existing waste recycler, various composting processes, identifying drawbacks in the existing compost bins and processes. Carrying out an ethnographic research focusing on product study, market study and user study wherein interviews will be conducted with users to understand the drawbacks of the existing compost bin. To develop a fullscale working prototype using suitable materials of waste recycler for Kitchen waste. To carry out user validation of the waste recycler to identify the success rate of product and collect the suggestion of the users.

User identification

Currently proposed project model holds possible customers like hotels, mess, cafes, etc. However, our main intent is for customers at small scale mainly households. The objective is to meet the basic demands of customers.

Understanding user needs

Primarily, in the phase of new development of any product the first questions to look at are – who my customer is? What is his basic need for my product? Is my product rightly valuable to suffice his needs? Others ask if my product will be – is it worth the cost we market at? Any nearly competitive product in the market for this? Probability for my product to gain interest in the market personally and financially? Hence, any new features added, must be valuable for the market and its customers.

List of user needs

We carried out a market survey to define preferences for our proposed model. We came across 100 customer reviews and feedback, wherein customers jotted down their requirements. Thus, preferences were counted and defined for our proposed model. Below tabular representation is based on our survey.

Basic principles of Solid Waste Management

- 1) 4Rs: Refuse, Reduce, Reuse & Recycle
 - Refuse: Do not buy anything which we do not really need.
 - Reduce - Reduce the amount of garbage generated. Alter our lifestyle so that minimum garbage is generated.
 - Reuse - Reuse everything to its maximum after properly cleaning it. Make secondary use of different articles.
 - Recycle – Keep things which can be recycled to be given to rag pickers or waste pickers (Kabadiwallahs). Convert the recyclable garbage into manures or other useful products.
- 2) Segregation at source: Store organic or biodegradable and inorganic or non-biodegradable solid waste in different bins. Recycle of all the components with minimum labor and cost.
- 3) Different treatments for different types of solid wastes: One must apply the techniques which are suitable to the given type of garbage. For example the technique suitable for general market waste may not be suitable for slaughter house waste.
- 4) Treatment at the nearest possible point: The solid waste should be treated in a decentralized manner as possible. The garbage generated should be treated preferably at the site of generation.

III. MODELING AND ANALYSIS

The implementation of proposed work is carried in below mentioned steps:

- Admin Module
- User Module
- Farmer Module
- Employer Module
- Category Module

ADMIN MODULE

The Project Admin module allows project administrators to manage project members and services, as well as edit the project profile. After an account administrator creates a project, they can add one or more project administrators to handle the administrative responsibilities for the project. This module is used to login for administrators, here the admin has all rights to monitor and manage the entire project through this module. They can add and modify the product and edit the category list. Admin assign the work to workers. Here, Admin verifies the farmer details. This is the part of the module where biowaste is collected and loaded into the system. It could be a bin or container for collecting food scraps, yard trimmings, and other biodegradable materials. An admin module typically provides a web-based interface for an administrator or system operator to manage various aspects of a web application or website. Usually a back-end module is not visible to regular users.

The admin module can include features such as:

- User management: create, view, edit, delete user accounts, and assign roles and permissions. Content management: Create, edit, and delete website content such as pages, posts and images.
- Site configuration: Manage site settings such as site title, logo, favicon, and social media links.
- Analytics and reporting: View and analyze website traffic data, user behavior, and other key metrics.
- Security and maintenance: Manage backups, updates, and security settings to ensure the website is secure and running smoothly.
- Payment management: Manage payment gateways, process refunds, and view transaction history.
- Support: Provide customer support and respond to user inquiries and complaints.

USER MODULE

Here the user can view the product (seed, wood, regrowth trees) and processed fertilizer. The first step in creating a user module for biowaste to fertilizer conversion is to identify the types of biowaste materials that can be used. Some common examples include food waste, yard waste, and animal waste. If a user needs the product they can place the order. From this, users can develop their own garden. The user should regularly monitor the compost to ensure that it is properly decomposing. This may include checking the temperature, moisture level, and adding additional materials as needed. A user module typically provides a web-based interface for users to interact with a web application or website. It is usually a front-end module that is visible to regular users.

The user module can include features such as:

- Registration: Allow users to create an account on the website or application.
- Login and authentication: Allow users to securely login to their account using their email and password.
- Profile management: Allow users to manage their profile information, such as their name, email, password, and Address.
- Search and filtering: Allow users to search the product and filter the product based on various categories such as fertilizer, woods, regrowth trees or seeds.
- Notifications: Alert users about important events or actions related to their account or content, such as new messages or comments.
- Social media integration: Allow users to connect and share their content on social media platforms.

Overall, a user module provides an intuitive interface for users to interact with a web application or website, allowing them to create and manage their own content, connect with others, and customize their experience on the website or application.

FARMER MODULE

This module is used to login for the farmer side. Here the farmer helps to recycle the plant waste into fertilizer. There are several methods for composting biowaste, such as aerobic composting, anaerobic composting, and vermi composting. Depending on the user's needs, the appropriate method can be selected. The farmers provide fertilizers, original seeds, regrowth plants and woods in their portal. In this portal the user can buy the product or recycle the plant waste. Here the farmer can add the product via category. There are multiple farmer profiles, each farmer uploads their unique product on the page. Users will see all the farmers' products and customers order the product in a particular farmer. That farmer only received the order.

- Waste segregation: Farmers can segregate the waste generated from their home garden into different categories like biodegradable, non-biodegradable, hazardous waste, etc.
- Waste collection schedule: Farmers can schedule the waste collection time and frequency, based on the type and quantity of waste generated.
- Waste disposal: Farmers can dispose of the waste in an environmentally friendly manner, by following the regulations set by the local authorities.

- Waste recycling: Farmers can also consider recycling the waste generated from their home garden where possible.
- Online marketplace: Farmers can sell their agricultural products online through an integrated marketplace platform. This platform can provide features such as product listings and payment processing.
- Product listings: Farmers can create product listings that showcase their agricultural products, including detailed descriptions, photos, and pricing information.

EMPLOYER MODULE:

The first step in creating an employer module for biowaste to fertilizer conversion is to conduct a waste audit to determine the types and quantities of biowaste generated by the workplace. Depending on the size and location of the workplace, there may be several potential sites for composting, such as a rooftop garden or outdoor space. It's important to educate employees on the benefits of composting and how to properly separate the biowaste from other waste materials. This module is used to login for employers. Here, the employer can view their work which is assigned by the admin. The Address of the people is updated and the worker collects the garden waste. After the employer completed the work the details will be updated.

- Task tracking: The module can track the progress of assigned tasks, allowing the employee to monitor productivity and identify areas for improvement.
- Task completion and feedback: The module can enable employees to mark tasks as complete and provide feedback on their experience, allowing the administrator to identify potential issues and areas for improvement.
- Notification system: The module can provide an automated notification system that alerts employees of new tasks, reminders of upcoming deadlines, and notifications of completed tasks.
- Reporting and analytics: The module can provide reports and analytics to the administrator, such as task completion rates, employee performance, and productivity trends, enabling the administrator to make data-driven decisions.

CATEGORY MODULE:

In the category module, admin can add, manage and modify the category. On the user side, the categories are visible to the user. This module allows the administrator to create and manage categories for different products such as seeds, wood, fertilizers, and regrowth trees. Each category can have a specific set of attributes such as price, quantity, size, and type. The user chooses the given category to the particular service. A category module for bio waste to fertilizer management system refers to the categorization of biowaste based on their composition and characteristics, to efficiently convert them into fertilizer. Here are the common categories of biowaste in a bio waste to fertilizer management system.

- For seed selling, the module can include categories for different types of seeds such as fruit, vegetables, flowers, and herbs. Each category can have specific attributes such as seed variety, quantity, price, and planting instructions.
- For wood selling, the module can include categories for different types of wood such as hardwood, softwood, and firewood. Each category can have specific attributes such as wood type, quantity, price, and dimensions.
- For fertilizer, the module can include categories for different types of fertilizers such as organic, synthetic, and liquid. Each category can have specific attributes such as fertilizer type, quantity, price, and instructions for use.
- For regrowth trees, the module can include categories for different types of trees that can be planted for regrowth such as fruit trees, shade trees, and timber trees. Each category can have specific attributes such as tree type, quantity, price, and planting instructions.

The Category module for seed selling, wood selling, fertilizer, and regrowth trees can also provide a platform for customers to browse and purchase products online. The module can include a shopping cart system that allows customers to select and purchase products, and a payment gateway that enables secure online transactions. Overall, the Category module for seed selling, wood selling, fertilizer, and regrowth trees can help streamline the process of managing agricultural products, making it easier for administrators to manage inventory, track sales, and fulfill orders. By providing a centralized platform for managing sales, the module can also improve customer experience and increase sales revenue.

IV. CONCLUSION

The suggested model minimizes the impact on the planet caused by improperly used garbage. Up to 25% of waste is reduced by using this model. This model design maintained in the garden, is uncluttered, smell-free, repels insects and flies, and maintains the health of the houseplants. In order to boost their productivity volume, enterprises that produce organic fertilizers can greatly benefit from the proposed model. Our project's primary goal is to establish a model that will transform organic green waste into compost-ready material while also demonstrating the worth of organic green waste and helping the environment. Our methodology seeks to take into account how the world is always changing and seeking out new technologies.

V. REFERENCE

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