**E-Waste Facility locater**

Project report

**DigidetOX**



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**CERTIFICATE**

We hereby declare that the work presented in this report entitled "**E-Waste Facility Locator** " has been successfully completed by **Lavanya Zute, Vedika Yadav ,Tejal Pawar, Mrunmayee Wani** inpartial fulfillment of the requirements for the award of the Project in the subject "Project based learning" during the year 2023-24 and the report is submitted in the **Department of Information Technology, K.K. Wagh Institute of Engineering Education and Research**, is an authentic record of our own work carried out under the supervision of **Prof. Shilpa Mene**.

**Date:07/05/2024**

**Place: Nashik**

**Prof. Shilpa Mene**

**Guide**

**Acknowledgement**

This Project has been a great learning experience in valuable source of knowledge and information , which was only possible through the guidance and help of some eminent people, to whom we would like to, render deepest appreciation and regards. This initiative has provided us, the students, with a unique opportunity to explore our creativity and technical prowess through hands-on project development. By encouraging us to delve into the realms of innovation, your support has empowered us to envision and execute projects that transcend conventional boundaries .

The introduction of PBL has not only enriched our academic journey but has also equipped us with invaluable skills such as problem-solving, critical thinking, and teamwork. This experiential learning approach has enabled us to bridge the gap between theoretical knowledge and real-world application, fostering a deeper understanding of the subjects we study.

Furthermore, we express our sincere appreciation to our project guide, Shilpa Mene mam, whose unwavering support and guidance have been instrumental in our project-making journey. Shilpa Mene mam has not only shared their expertise but has also encouraged us to explore every facet of our project, nurturing our curiosity and igniting our passion for learning. In conclusion, we acknowledge and appreciate the collaborative efforts of K. K. Wagh Institute of Engineering and Research, our esteemed project guide , all of which have played a pivotal role in making our project endeavor a truly enriching and transformative experience.

With profound gratitude,

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**STATEMENT OF THE PROBLEM**

**Title**: E-Waste Facility Locator

Website that tells you the location of the nearest e-waste collection and recycling facility. Offers educational pop-ups on the harmful components of your e-waste and their effects on the environment and human health if not disposed correctly. There could be an option to input the model of your old device and earn credit points relative to the amount of precious metals recovered from the device if disposed correctly.



**NEED AND RELEVANCE OF THE STUDY**

The discarded electronic waste is the fastest growing stream of waste in industrialized countries. The electronics are changing the lives of people everywhere; starting from the way we do business, bring up children, keeping touch with others or personal entertainments. No wonder, the electronics industry is the fastest growing manufacturing industry. The Consumers are drawn to the latest cellular phones, laptops, air conditioners and consumer electronics. Hence the obsolescence of these products leads to a unique mindset where consumers preferred to replace the products rather repair and reuse.

A rapid obsolescence is also due to the rapid evolving technology but on the other hand it is clear that the throw away principle yields monetary benefits to corporate. In this 21st century revolution, this throw away principle is sure to damage the quality of our lives and the generations to come. Hence the problem of electronic waste, or e waste, requires global action.

**ABSTRACT**

Embark on a journey of environmental stewardship with DigiDetOX ! Our website is your gateway to unlocking the power of recycling and joining the eco-revolution. As guardians of green, we are committed to preserving nature's treasures for generations to come  
Welcome to the forefront of sustainable waste management with DigidetOX! In an era defined by digital dependency, the responsible disposal of electronic waste (e-waste) is paramount**.**

**Introducing our innovative solution: the DigiDetOX E-Waste Facility Locator** website Navigating the complexities of e-waste disposal has never been simpler. DigiDetOX empowers individuals and businesses alike to locate nearby e-waste recycling centers, drop-off points, and collection events with ease. Through seamless integration of geographic information systems (GIS) and crowdsourced data, users gain access to comprehensive information including facility operating hours, accepted items, and contact details. Yet, DigiDetOX is more than just a directory.

**This project aims to address this challenge by providing a user-friendly and eco-friendly solution: a platform for convenient e-waste collection and responsible decomposition.**

Engaging articles, captivating videos, and interactive tools await, guiding users through the importance of proper e-waste disposal and the environmental and health risks associated with improper handling .By bringing together government agencies, recycling companies, and environmental organizations, DigiDetOX catalyzes a collective effort towards sustainable waste management practices.

In summary, DigiDetOX stands as a beacon of progress in the global initiative to tackle electronic waste. With its user-centric design, educational resources, and collaborative ethos, it not only facilitates responsible disposal but also champions a more sustainable future for generations to come. Join us in reshaping the landscape of e-waste management with DigiDetOX.

**INTRODUCTION**

The relentless march of technological progress has brought immense benefits to our lives. From smartphones that connect us globally to powerful computers that drive innovation, electronic devices have become an indispensable part of our daily routines. However, this progress comes with a hidden cost: a rapidly growing mountain of electronic waste, or e-waste.

The exponential growth of the IT and communication sectors has fueled a surge in electronic device usage and frequent upgrades. Consumers readily embrace new models, discarding old electronics at an alarming rate. This rapid obsolescence leads to a growing stream of e-waste entering our solid waste management systems. While some e-waste may be recycled using traditional methods, a significant portion ends up in landfills.

Improper e-waste disposal poses a significant threat to our environment and health. Electronic devices contain a complex mix of materials. Valuable resources like gold, copper, and rare earth elements exist alongside hazardous substances such as mercury, lead, and arsenic. When e-waste is not disposed of responsibly, these toxins can leach into the soil and water, contaminating our environment and posing health risks to humans and wildlife.

The growing e-waste problem demands immediate attention. Responsible e-waste management is no longer an option, it's a necessity. This report explores the challenges associated with e-waste and presents a user-friendly and eco-friendly solution developed by **DigiDetOX a comprehensive e-waste management platform**.

**By promoting responsible e-waste management practices, our platform empowers individuals and businesses to contribute to a more sustainable future.** This report will delve deeper into the functionalities of our platform, the benefits of sustainable e-waste decomposition, and the positive environmental and economic impact it can achieve.

**OBJECTIVE**

The primary objective of this project is to develop and implement a user-friendly platform that promotes responsible e-waste management practices. This platform aims to address the growing challenge of e-waste by:

* **Facilitating Convenient E-waste Disposal:** Providing individuals and businesses with convenient options for e-waste collection, including pick-up services and designated drop-off locations.
* **Enhancing Awareness and Education:** Educating users about responsible e-waste disposal methods, the environmental impact of e-waste, and the importance of proper recycling and decomposition techniques.
* **Ensuring Transparency and Accountability:** Offering a transparent tracking system that allows users to monitor the progress of their e-waste collection and decomposition process.
* **Promoting Sustainable E-waste Decomposition:** Implementing safe and responsible processing techniques that prioritize the recovery of valuable materials for reuse in new products, while minimizing environmental impact through responsible disposal of remaining materials.

**By achieving these objectives, this project aims to create a more sustainable solution for e-waste management, empowering individuals and businesses to contribute to a greener future.**

**METHODOLOGY**

**Project Methodology: Building a User-Friendly E-waste Management Platform**

This project adopted a user-centered approach to develop and implement a comprehensive e-waste management platform. Here's a breakdown of the key methodological phases:

**1. Platform Development:**

* **Feature Prioritization:** Based on user research findings, we prioritized platform features that addressed the identified needs and offered the greatest value to users. This might involve creating user personas and journey maps to identify key functionalities and user workflows.
* **Platform Design and Development:** We designed and developed the e-waste management platform, incorporating user-friendly features like:
  + **Easy-to-use interface:** Enabling users to schedule pick-ups, locate drop-off points, or find educational resources effortlessly.
  + **Secure user accounts:** Providing a secure platform where users can track the progress of their e-waste and manage their accounts.
  + **Educational content library:** Offering informative content on responsible e-waste disposal practices and the environmental impact of e-waste.

**2. E-waste Processing and Sustainability:**

* **Researching Sustainable Practices:** We researched and adopted state-of-the-art e-waste processing techniques that prioritize:
  + **Material Recovery:** Extracting valuable materials like gold, copper, and rare earth elements for reuse in new products.
  + **Safe and Responsible Disposal:** Employing environmentally responsible methods to handle and dispose of any remaining materials, minimizing environmental impact.

 **Future User Feedback Integration:** While we haven't implemented user feedback mechanisms in the initial launch, we recognize the importance of continuous improvement. Future platform updates will integrate feedback mechanisms to gather valuable user input and identify areas for enhancement.

 **Data Analysis Integration (Future Consideration):** Data analysis of platform usage will be a valuable tool in understanding user behavior and optimizing platform functionalities. We are actively exploring integrating data analytics capabilities for future development phases.

**IMPLEMENTATION**

The e-waste facility locator website translates our conceptual design into a user-friendly and functional platform to help users find responsible e-waste disposal options. Here's a breakdown of the key technologies used:

**Front-End Development:**

**Creating an Interactive User Experience:** We prioritized a user-friendly and visually appealing website using:

**HTML5 and CSS3:** These fundamental building blocks ensure a clean and responsive design that adapts seamlessly to various devices (desktops, tablets, smartphones).

**JavaScript and Bootstrap:** JavaScript was likely used for interactive functionalities like search filters, user location detection, or dynamic content updates. Bootstrap, a popular CSS framework, simplifies the development process by providing pre-built components for navigation bars, buttons, and other interactive elements.

**Back-End Development:**

**Server-Side Logic and Database Management**: PHP handles functionalities like:

Processing user requests (location searches, filtering options)

Communication with the MySQL database to retrieve e-waste facility data

Potential user account management (optional)

**MySQL Database:** This relational database management system likely stores information about e-waste facilities, including:

Location data (addresses, geocoordinates)

Facility details (types of e-waste accepted, operating hours, contact information)

**Additional Technologies:**

**Mapbox Integration:** This powerful mapping platform allows users to visualize e-waste facility locations on an interactive map. Mapbox offers functionalities like search, directions, and custom map styles.

**CONCLUSION**

The e-waste facility locator website stands as a testament to the power of technology in promoting responsible e-waste management. By leveraging the combined strengths of HTML5, CSS3, JavaScript, PHP, and MySQL, we've constructed a user-friendly platform that empowers individuals to make informed decisions about their e-waste disposal.

The integration of Mapbox further elevates the user experience, allowing for intuitive visualization of facility locations. This fosters a more sustainable future by simplifying the process of finding responsible e-waste disposal options. The website not only benefits users but also potentially encourages responsible practices from e-waste processing facilities themselves, as increased visibility can incentivize adherence to environmental regulations.

Looking forward, the e-waste facility locator website presents a valuable foundation for further development. Future iterations could incorporate functionalities like user reviews and ratings of facilities, or the ability for facilities to maintain updated information on their e-waste acceptance policies. Ultimately, this website serves as a crucial step towards a more sustainable future, ensuring proper e-waste disposal and minimizing environmental impact.

**REFERENCES**

1. <https://www.w3schools.com/php/>
2. <https://dev.mysql.com/doc/refman/8.3/en/>
3. <https://mpcb.gov.in/waste-management/electronic-waste>

**Database Connectivity**

<?php

$hostname = "localhost";

$dbUser = "root";

$dbPassword = "";

$dbName = "e-waste";

$conn = mysqli\_connect($hostname,$dbUser,$dbPassword,$dbName);

if(!$conn){

die("something went wrong;");

}

?>

**PHP backend**

<?php

require\_once("config.php");

// Function to generate a unique user ID (you can adjust this as needed)

function generateUserId() {

return uniqid(); // Generates a unique ID based on the current time

}

// Function to calculate total credits based on selected e-waste items

function calculateTotalCredits($selectedEtypes) {

// Define credit values for each e-waste type

$creditValues = [

"Mobile" => 5,

"Laptop" => 10,

"Keyboard" => 3,

"Monitor" => 8,

"Iphone" => 7,

"Mouse" => 4,

"Refrigerator" => 15,

"Compressor" => 20

];

$totalCredits = 0;

// Calculate total credits based on selected e-waste items

foreach ($selectedEtypes as $selectedEtype) {

// Check if the selected e-waste item exists in the credit values array

if (isset($creditValues[$selectedEtype])) {

$totalCredits += $creditValues[$selectedEtype];

}

}

return $totalCredits;

}

if (isset($\_POST['form\_submit'])) {

// Get form data

//$userId = trim($\_POST['userId']); // Ensure the key matches the one in the form

$name = trim($\_POST['name']);

$phone = trim($\_POST['phone']);

$location = trim($\_POST['location']);

$etype = isset($\_POST['etype']) ? implode(",", $\_POST['etype']) : "";

$condition1 = isset($\_POST['condition1']) ? trim($\_POST['condition1']) : "";

$quantity = isset($\_POST['quantity']) ? trim($\_POST['quantity']) : "";

$service = trim($\_POST['service']);

$start\_date = trim($\_POST['start\_date']);

$end\_date = trim($\_POST['end\_date']);

// Calculate total credits based on selected e-waste items

$totalCredits = calculateTotalCredits($\_POST['etype']);

// session\_start();

if (isset($\_SESSION["userId"])) {

$userId = $\_SESSION["userId"];

echo "userId is set: " . $userId;

} else {

echo "userId is not set in the session.";

}

// Include your database connection file

require\_once "database.php";

// Check if userId is set in the session again (for safety)

if (isset($\_SESSION["userId"])) {

// Get userId from the session

$userId = $\_SESSION["userId"];}

// Insert or update user data

$sql\_user = "INSERT INTO users (userId, name, phone, location, etype, condition1, quantity, service, start\_date, end\_date, total\_credits)

VALUES (:userId, :name, :phone, :location, :etype, :condition1, :quantity, :service, :start\_date, :end\_date, :total\_credits)

ON DUPLICATE KEY UPDATE userId = :userId, name = :name, location = :location, etype = :etype, condition1 = :condition1, quantity = :quantity,

service = :service, start\_date = :start\_date, end\_date = :end\_date, total\_credits = total\_credits + :total\_credits";

try {

$stmt\_user = $db->prepare($sql\_user);

$stmt\_user->bindParam(':userId', $userId, PDO::PARAM\_STR);

$stmt\_user->bindParam(':name', $name, PDO::PARAM\_STR);

$stmt\_user->bindParam(':phone', $phone, PDO::PARAM\_STR);

$stmt\_user->bindParam(':location', $location, PDO::PARAM\_STR);

$stmt\_user->bindParam(':etype', $etype, PDO::PARAM\_STR);

$stmt\_user->bindParam(':condition1', $condition1, PDO::PARAM\_STR);

$stmt\_user->bindParam(':quantity', $quantity, PDO::PARAM\_STR);

$stmt\_user->bindParam(':service', $service, PDO::PARAM\_STR);

$stmt\_user->bindParam(':start\_date', $start\_date, PDO::PARAM\_STR);

$stmt\_user->bindParam(':end\_date', $end\_date, PDO::PARAM\_STR);

$stmt\_user->bindParam(':total\_credits', $totalCredits, PDO::PARAM\_INT);

// Execute the prepared statement for user data

$stmt\_user->execute();

// Insert or update leaderboard data

$sql\_leaderboard = "INSERT INTO leaderboards (user\_id, username, total\_credits)

VALUES (:user\_id, :username, :total\_credits)

ON DUPLICATE KEY UPDATE username = :username, total\_credits = total\_credits + :total\_credits";

$stmt\_leaderboard = $db->prepare($sql\_leaderboard);

$stmt\_leaderboard->bindParam(':user\_id', $userId, PDO::PARAM\_STR); // Use $userId here

$stmt\_leaderboard->bindParam(':username', $name, PDO::PARAM\_STR);

$stmt\_leaderboard->bindParam(':total\_credits', $totalCredits, PDO::PARAM\_INT);

// Execute the prepared statement for leaderboard data

$stmt\_leaderboard->execute();

// Redirect to success page

header("location: scheduleConfirm.php");

exit; // Stop further execution

} catch (PDOException $e) {

echo "Error: " . $e->getMessage();

}

}

?>

**Frontend - to fetch user's current location**

<!DOCTYPE html>

<html>

<head>

<title>Location Form</title>

<style>

body {

font-family: Arial, sans-serif;

margin: 0;

padding: 0;

}

#map {

width: 100%;

height: 400px;

margin-bottom: 20px;

}

.form-container {

max-width: 600px;

margin: 0 auto;

padding: 20px;

border: 1px solid #ccc;

border-radius: 5px;

background-color: #f9f9f9;

}

label {

display: block;

margin-bottom: 5px;

}

input[type="text"] {

width: 100%;

padding: 8px;

margin-bottom: 15px;

border: 1px solid #ccc;

border-radius: 4px;

box-sizing: border-box;

}

button {

padding: 10px 20px;

background-color: #4CAF50;

color: white;

border: none;

border-radius: 4px;

cursor: pointer;

float: right;

}

button:hover {

background-color: #45a049;

}

</style>

<script src='https://api.mapbox.com/mapbox-gl-js/v2.6.1/mapbox-gl.js'></script>

<link href='https://api.mapbox.com/mapbox-gl-js/v2.6.1/mapbox-gl.css' rel='stylesheet' />

</head>

<body>

<div id='map'></div>

<div class="form-container">

<form id="locationForm" action="store\_location.php" method="POST">

<input type="hidden" id="lngInput" name="lng" />

<input type="hidden" id="latInput" name="lat" />

<label for="userId">User ID:</label>

<input type="text" id="userId" name="userId" required><br>

<button type="submit">Save Location</button>

</form>

</div>

<script>

mapboxgl.accessToken = 'pk.eyJ1IjoidmVkaWtheSIsImEiOiJjbHU3Y2x1YmYwNGFuMmxudzdmOHo3YWwxIn0.dDD4vvXB83fTUhXZ94z38g';

var map = new mapboxgl.Map({

container: 'map',

style: 'mapbox://styles/mapbox/streets-v11',

center: [79.96,20.56], // Default center (San Francisco coordinates)

zoom: 15,

});

map.addControl(new mapboxgl.NavigationControl());

map.addControl(new mapboxgl.GeolocateControl({

positionOption:{

enableHighAccuracy:true

},

trackuserLocation:true

}))

navigator.geolocation.getCurrentPosition(successCallback, errorCallback);

function successCallback(position) {

var lng = position.coords.longitude;

var lat = position.coords.latitude;

document.getElementById('lngInput').value = lng;

document.getElementById('latInput').value = lat;

// Update map center to user's location

map.setCenter([lng, lat]);

// You can also add a marker at this location on the map

}

function errorCallback(error) {

console.error('Error getting user location:', error);

}

</script>

</body>

</html>

















