Software Requirements Specification (SRS)

Project: EcoImpact

Version: 1.0

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# 1. Introduction

## 1.1 Purpose

To help companies measure, understand, and reduce their environmental impact.

## 1.2 Scope

- carbon footprint tracking

- sustainability analytics

- AI-driven insights

- environmental reporting

## 1.3 Intended Audience

- businesses

- corporations

# 2. System Overview

A SaaS tool that empowers companies to measure, visualize, and reduce their carbon footprint through AI-driven sustainability analytics.

# 3. Functional Requirements

## 3.1 User Authentication [0]

**Description:**

The application should allow users to securely register and log in.

**Priority:**

High

**Subtasks:**

- Implement user registration with email and password

- Implement password hashing and salting

- Implement secure login functionality

- Provide password reset functionality

- Implement email verification for new users

## 3.2 Company Profile Management [1]

**Description:**

Users should be able to create profiles with company information relevant to carbon footprint analysis.

**Priority:**

High

**Subtasks:**

- Allow users to input company name, industry, location, and size.

- Enable the storage of emission factors specific to each company's industry.

- Provide a mechanism for users to upload relevant documents like sustainability reports.

- Ensure data privacy and security for company profile information.

## 3.3 Data Integration and Collection [2]

**Description:**

The application should integrate with various data sources to collect company-specific emissions data.

**Priority:**

High

**Subtasks:**

- Develop APIs to connect with popular energy consumption platforms.

- Implement data parsing logic to extract relevant emissions data from various formats (CSV, JSON, XML).

- Establish secure data transfer protocols for sensitive company information.

- Create a centralized data warehouse to store and manage collected emissions data.

## 3.4 Carbon Footprint Calculation [3]

**Description:**

The application should process and analyze the collected data using AI algorithms to calculate the company's carbon footprint.

**Priority:**

High

**Subtasks:**

- Develop AI algorithms for carbon footprint estimation.

- Integrate with data sources (e.g., energy consumption, transportation, supply chain).

- Implement a data processing pipeline for cleaning, validation, and transformation.

- Define and calculate various carbon footprint metrics (e.g., Scope 1, 2, 3).

- Provide visualizations and reports of carbon footprint data.

## 3.5 Carbon Footprint Visualization [4]

**Description:**

The application should visualize the carbon footprint data in informative dashboards and reports.

**Priority:**

High

**Subtasks:**

- Develop interactive bar charts to display carbon emissions by category (e.g., energy, transportation, waste).

- Create line charts to track carbon emissions over time.

- Design pie charts to show the percentage contribution of different sources to the overall carbon footprint.

- Implement a dashboard with customizable widgets for displaying key metrics.

## 3.6 Emissions Source Identification [5]

**Description:**

The application should identify areas within the company's operations with the highest carbon emissions.

**Priority:**

High

**Subtasks:**

- Analyze energy consumption data from various sources (e.g., utility bills, building management systems).

- Identify and quantify emissions from company vehicles and transportation.

- Assess emissions associated with material sourcing and production processes.

- Estimate emissions from waste generation and disposal.

- Develop a visual dashboard to display emissions by source category.

## 3.7 Sustainability Recommendations [6]

**Description:**

The application should provide recommendations for reducing the company's carbon footprint based on AI-driven insights.

**Priority:**

High

**Subtasks:**

- Generate recommendations for energy efficiency improvements

- Suggest alternatives for sustainable transportation

- Provide insights on waste reduction and recycling practices

- Offer recommendations for sourcing sustainable materials

## 3.8 Sustainability Progress Tracking [7]

**Description:**

The application should allow users to track the progress of their sustainability initiatives.

**Priority:**

High

**Subtasks:**

- Display a dashboard with key sustainability metrics and progress indicators.

- Allow users to set sustainability goals and track their progress towards achieving them.

- Enable users to record and analyze data related to their sustainability efforts.

- Generate reports on sustainability performance over time.

## 3.9 Collaboration and Communication [8]

**Description:**

The application should facilitate collaboration among team members and stakeholders on sustainability efforts.

**Priority:**

High

**Subtasks:**

- Enable real-time chat for team discussions and updates on sustainability initiatives.

- Implement a shared task management system for assigning and tracking sustainability projects.

- Provide a forum for stakeholders to share best practices, insights, and challenges related to sustainability.

- Allow for the creation of collaborative reports and presentations on sustainability progress and insights.

## 3.10 Customizable Reporting [9]

**Description:**

The application should offer customizable reporting features to share sustainability data with stakeholders.

**Priority:**

High

**Subtasks:**

- Allow users to select specific data points to include in reports.

- Provide customizable report templates for different stakeholders (e.g., investors, employees, customers).

- Enable users to filter and sort data within reports.

- Implement a scheduling feature for automated report generation and delivery.

## 3.11 Data Security and Privacy [10]

**Description:**

The application should ensure the security and privacy of user data.

**Priority:**

High

**Subtasks:**

- Implement robust access control mechanisms with role-based permissions.

- Encrypt all sensitive user data using industry-standard encryption algorithms.

- Ensure data is securely stored and protected at rest using encryption and secure data centers.

- Implement secure communication protocols (e.g., HTTPS) to protect data in transit.

- Conduct regular security assessments and penetration testing to identify vulnerabilities.

- Develop and implement a comprehensive data retention policy.

- Provide users with clear and concise privacy policies outlining data usage and protection measures.

## 3.12 Cross-Platform Compatibility [11]

**Description:**

The application should be accessible on multiple devices and platforms.

**Priority:**

High

**Subtasks:**

- Develop responsive web interface compatible with major browsers (Chrome, Firefox, Safari, Edge)

- Create native mobile application versions for iOS and Android

- Ensure consistent user experience and functionality across all platforms

# 4. Non-Functional Requirements

**scalability**: The application should be highly scalable to accommodate a growing number of users and datasets.

**security**: The application should provide robust security measures to protect sensitive user data and comply with relevant regulations.

**usability**: The application should be user-friendly and intuitive, with clear visualizations and actionable insights.

**reliability**: The application should offer reliable performance and minimal downtime.

**integration**: The application should integrate seamlessly with existing business systems and data sources.

**platformCompatibility**: The application should be accessible on multiple devices and platforms.

**documentation**: The application should provide comprehensive documentation and support resources.