# Foodie - Smart Restaurant Experience Documentation

## Project Overview

The Foodie project is an interactive and smart restaurant experience designed to enhance user engagement with a modern, digital restaurant menu. It includes features like food nutrient scanning, recipe generation, an AI assistant, and a responsive cart system.

## Features

### 1. Menu Display

A visually appealing menu display showcasing food items with images, prices, and an 'Add to Cart' button. Each item has an animation effect when hovered over to enhance user experience.

### 2. Cart System

A cart system that allows users to add selected items with custom quantities, view their total cost, and proceed to checkout. Includes a modal popup for easy access.

### 3. Nutrient Scanner

A machine learning-powered nutrient scanner using the ml5.js library. Users can scan food items through their camera to identify them and receive estimated nutrition facts.

### 4. Recipe Generator

Integrates the Spoonacular API to allow users to generate recipes based on input food names. The generator returns ingredients, instructions, and nutrition facts for each recipe.

### 5. AI Assistant

An interactive AI assistant that responds to user queries about the menu, nutrition tips, and dining suggestions. Uses voice synthesis to verbally respond to user inquiries, enhancing accessibility.

## Technologies Used

1. HTML & CSS for structure and styling  
2. JavaScript and anime.js for animations  
3. ml5.js for image classification and nutrient scanning  
4. Spoonacular API for recipe generation  
5. SweetAlert2 for modals and user interactions  
6. FontAwesome icons for UI elements  
7. Responsive design techniques for optimal experience across devices

## UI Design and Layout

The layout consists of:  
- A fixed navigation bar with links to the Home, Menu, Scan, and Recipes sections.  
- A main landing section with a background image, call-to-action button, and animated food icons.  
- A grid-based menu display for easy access to food items.  
- Pop-up modals for cart management, nutrient scanning, and recipe display.  
- A bottom-right positioned AI assistant icon for user inquiries.

## Conclusion

The Foodie project demonstrates a blend of engaging UI/UX design and interactive features. It provides users with a seamless and modern dining experience, powered by machine learning and API integration.