

Second Servings - A Food Waste Reduction App

Jui Thombre, Abhishek Shukla

February 19, 2023

Abstract

Food waste has been a persistent problem globally, with around 1.3 billion tonnes of food being wasted every year. This not only affects the economy but also has an impact on the environment and society. Reducing food waste is essential to achieve sustainable development and alleviate hunger. This research paper explores the causes of food waste and proposes a solution to reduce it.

1 Introduction

Food waste is a significant problem globally, and it occurs at every stage of the food supply chain. According to the Food and Agriculture Organization (FAO), around one-third of all food produced in the world is lost or wasted, which amounts to 1.3 billion tonnes per year. This problem is not just limited to developed countries, but it is prevalent in developing nations as well. Food waste not only impacts the economy, but it also has adverse effects on the environment and society. It contributes to greenhouse gas emissions, consumes resources such as water, land, and energy, and results in the wastage of valuable resources that could be used to feed the hungry. Therefore, it is necessary to find solutions to reduce food waste and promote sustainable development.

2 Causes

The causes of food waste are numerous, and they occur at different stages of the food supply chain. At the production stage, factors such as poor harvesting practices, lack of infrastructure, and inadequate storage facilities result in food losses. During processing and packaging, food waste occurs due to quality control measures that reject perfectly good food, resulting in waste. In the retail sector, food waste is due to overproduction, expiry dates, and cosmetic standards that lead to the disposal of edible food. Finally, at the consumer level, food waste occurs due to poor planning, over-purchasing, and lack of knowledge on how to use leftovers.

3 Solution

To reduce food waste, a multi-faceted approach is necessary that involves all stakeholders in the food supply chain. Firstly, reducing food waste starts at the production stage, where farmers can adopt sustainable farming practices, improve storage facilities, and harvest crops at the right time to minimize losses. Secondly, processors and packagers can develop more efficient processes that reduce waste and re-purpose rejected food. Thirdly, retailers can implement policies that reduce overproduction, donate excess food to food banks and charities, and educate consumers on the importance of reducing food waste. Lastly, consumers can make conscious decisions to reduce waste by planning meals, using leftovers, and composting.

3.1 Our Approach

We built the app using a combination of technologies, including React for the frontend, Node.js for the backend, and MongoDB for the database. We also used Leaflet.js Maps to show the locations of the restaurants/food vendors on the frontend. The app is designed to be user-friendly, with a simple interface that makes it easy for users to find and purchase food from restaurants.

3.2 Challenges

One of the biggest challenges will be to find restaurants that are willing to participate in our app. We will have to reach out to several restaurants before finding ones that were interested in selling their excess food through our app. Another challenge was designing a user-friendly interface that would appeal to both restaurants and users. We had to go through several iterations before arriving at a design that worked for both parties.

4 Conclusion

Reducing food waste is a critical step towards achieving sustainable development and promoting food security. The causes of food waste are numerous and occur at every stage of the food supply chain. However, solutions exist that can be implemented by all stakeholders in the food industry. By adopting a multi-faceted approach that involves everyone, we can reduce food waste and make better use of the valuable resources that are currently being wasted.

References