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Food Waste Management

Uddhav Gagare[1], Gaurav Katkar[2], Abhay Amate[3], Zuber Shaikh[4], Prof. K. S. Mulani[5]
Professor, Department of Information Technology[1]
Students, Department of Information Technology[2,3,4,5]
Sinhgad Institute of Technology, Lonavala, Maharashtra, India

Abstract: *An intelligent logistics system is an important branch of intelligent transportation systems. It is a great challenge to develop efficient technologies and methodologies to improve its performance in meeting customer requirements while this is highly related to people's life quality. Its high efficiency can reduce food waste, improve food quality and safety, and enhance the competitiveness of food companies. In this paper, we investigate a new integrated planning problem for intelligent food logistics systems. An important goal in our world today is to eliminate food waste by re utilizing available food sources within local communities: leftover food items in restaurants, stores and food distribution centers that may be approaching expiration; and any perishable items not used in entirety within their desired period. This is highly significant, particularly during crises such as the COVID-19 pandemic. This paper focuses on creating an interesting mobile application (app) that provides a ubiquitous platform wherein users can visualize available food resources in their local area and consequently gain access to food, thereby tackling two major issues, i.e. hunger and food waste.*

Keywords: Food delivery, Consumer, NGO, Android application

I. INTRODUCTION

An important goal in our world today is to eliminate food waste by reutilizing available food sources within local communities: leftover food items in restaurants, stores and food distribution centers that may be approaching expiration; and any perishable items not used in entirety within their desired period. This is highly significant, particularly during crises such as the COVID-19 pandemic. This paper focuses on creating an interesting mobile application (app) called SeVa that provides a ubiquitous platform wherein users can visualize available food resources in their local area and consequently gain access to food, thereby tackling two major issues, i.e. hunger and food waste. This app is pertinent to the UN SDGs (United Nations Sustainable Development Goals) and fits the general realm of AI for Smart Living in Smart Cities. In addition to entailing IoT (Internet of Things) and ubiquitous computing, this work makes positive impacts on both healthcare and environment by reducing hunger and food waste respectively. We describe our SeVa app development using principles from AI, and especially HCI (Human Computer Interaction), along with its evaluation encompassing user surveys. We also list some open issues with the scope for future work.

II. METHODOLOGY

The module is been divided into different modules :

1. Add details of product and get order from ngo
2. Place order -send request to restaurants
3. Delete food as per time/limit

2.1 Restaurants Module

1. Can upload food type and it's quantity.
2. Can manage (add or delete) products.
3. Quantity will be updated after the purchase/manage.

2.2 User

User will have three options after login

1. Food products : A user can purchase food products from the restaurants directly.

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2. Upload waste food : User can upload waste food type and its quantity.
3. Social service : A user will have an extra option to deliver the food in his free time as a social service.

2.3 NGO Function

1. NGO will receive the notification from the system on the email id

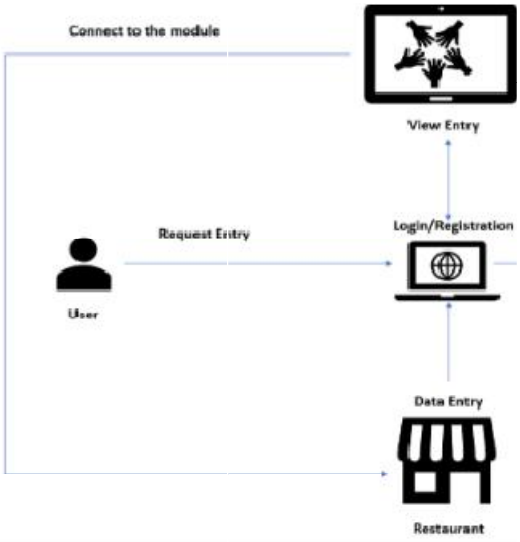

Figure 1: Block diagram showing the working principle of a Food Waste Management System

III. LITERATURE SURVEY

In [1] Food waste is a serious problem that occurs in various countries. In- donesia is a country that produces food waste, the second largest after Saudi Arabia. Currently, there are several communities who care about the issue of food waste and hunger in Indonesia. The Community collects excess food from eligible donor consumption to be distributed to people in need. They have the aim to reduce the problem of food waste and numbers starving in Indonesia. However, the process of channeling food to donors and the community is still practically a manual where the community contacts the donors one by one, so it is considered less effective. This research aims to create a system to connect the community with individuals or organizations that want to donate excess food.

In [2] Wasting food is a common problem in our society. Food waste management is crucial since it can improve our environmental and economic sustainability. We have identified the use of mobile technology to reduce food waste management and built an android mobile application that allows restaurants to donate and share their foods and leftovers with people in need. This app will enable users to register, login, view items, add items, add items to cart, remove an item from the cart, and log out. This app is using the firebase storage and real-time database. Any user in need can see all the food images donated by different users and add it to his or her cart.

Proposed [3] Nowadays, wasting food is common among the students in colleges, hostels, and workplaces. This results in a great demand for food products in the future, which may lead to food scarcity for future generations. As food waste management is tedious process. In this paper we have mainly focused on measuring the food waste and providing rewards for the users, where it shows the real-time food wastage of every individual on a screen and in a website .

In [4] Food waste, the kind of ethical issue, would lead to a significantly negative impact on social, economic, and ecological environment, and is an increasingly discussed topic in recent years. While a magnitude of food waste is generated by individual and household, consumers' attitudes and behaviors play a vital role in the food supply chain. However, systematic research on food waste through consumer perspectives, especially in the consumer/household level, is missing. This study tries to explore the cultural and psychological factors that influence consumers' ethical norms and behavioral intention toward food waste based on Hunt and Vitell's ethical decision-making model.

In [5] Restaurants and food delivery services have benefited from the development of a software system. The web interface allows users to create individual or group orders. The administrators can control the menus, restaurants, users, and orders. The Android application assisted in the distribution process

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IV. CONCLUSION

In this paper, we have proposed a network model, SSNet, for online action prediction in untrimmed skeleton sequences. A stack of convolutional layers are introduced tomodel the dynamics and dependencies in temporal dimension. A scale selections chemeis also proposed for SSNet, with which our network can choose the proper layer corresponding to the most proper window scale for action prediction at each time step. Besides, a hierarchy of dilated tree convolutions are designed to learn the multi-level structured representations for the skeleton data in order to improve the performance of our network. Our proposed method yields superior performance on all the evaluated benchmark datasets. In this paper, the SSNet is proposed for handling the online action prediction problem. This network could also be extended to address the problem of temporal action detection in streaming skeleton sequences, which requires to locate each action in the skeleton sequence and meanwhile predict the class of each action. We leave this extension as our future work.

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