Food Collection and Donation App
(Using Machine Learning)

Tejas Vinod Jahagirdar, Srushti Deshmukh, Harshal Dilip Darak, Kishan Kumar, Prof. Sanjeevani. M. Joshi
Dept. of Information Technology
Sinhgad College of Engineering Vadgaon BK, Pune, Maharashtra, India

Abstract:- Food waste is reportedly a serious problem all around the world. According to a poll, people waste more than 58 percent of the food they produce each day for eating. But, without access to healthy food, more than 60% of people in third-world nations die from malnutrition. The goal of this project is to effectively manage food waste. The folks waste a lot of food every day. Hence, we must use the internet to address the issue of food waste. If someone has leftover food, they can put it in the application along with their address and food quantity information, and the administrator will keep track of the food donor information.

Keywords:- Geofencing, database, malnutrition, food management.

I. INTRODUCTION

Wasting food is a common problem in our society. Food waste operation is pivotal since it can ameliorate our environmental and profitable sustainability. We've linked the use of mobile technology to reduce food waste operation. A erected an android mobile operation that allows caffs to contribute and partake their foods and leavings with people in need. This app will enable druggies to register, login, view particulars, add particulars, add particulars to wain, remove an item from the wain, and log out. This app is using the firebase storehouse and real-time database. Any stoner in need can see all the food images bestowed by different druggies and add it to his or her wain. It's a well-known fact that Food Wastage is as one could conceivably imagine. It seems to be the silliest problem in our day-to-day life, but anyhow of how it seems, it's a major problem. We indeed have seen some groups devoted to reducing this destruction, but on a small scale and only on ground rather than on internet. The debit of working only on ground is that it can reach only a limited quantum of people. In this period of dominance of Internet, where lots of people have access to the Internet, it's nothing but egregious that Food Wastage can fluently and better be covered and handed to those who need it using the internet. Having all the group members of our platoon learn Application Development, it sounded presumptive and apt that we work on commodity related to web operation. We're creating a android operation that can cover the food destruction from different caffs in select locales and give a platform for the indigent to get information on how and where to collect it. The food can be for your pussycats, tykes, or any other faves. It can also be collected by anyone who wants to(or knows) someone who might need it and also deliver it to them through our platform. We plan on creating different sections for foods with different energy compositions. Indeed though there are limitations like some people not having access to the Internet, we constantly hope that this design will make a difference on some scale. And that's what matters the most, making a difference.

II. BACKGROUND

Food waste is one of the largest waste aqueducts in Singapore, with a high generation rate and a low recycling rate. In 2021, food waste made up one-fifth of the total quantum of waste generated in Singapore, but only 18 of it was reclaimed. Making it easier to insulate food waste for treatment and tracking the quantum of segregated food waste are crucial way to reducing the quantum of food waste generated and promoting its treatment. Under the Resource Sustainability Act(RSA), large food waste creators including large hospices and promenades, and large artificial developments casing food manufacturers or food caterers will be needed to insulate their food waste for treatment from2023/2024.

III. LITERATURE SURVEY

"Assessing the environmental impacts of halving food loss and waste along the food supply chain"

Reducing food loss and waste(FLW) is extensively honored as an important switch for lowering the environmental impacts of food systems. The United Nations Sustainable Development Agenda includes a thing to reduce FLW by 50 by 2030. Given differences in resource inputs along the food force chain(FSC), the environmental benefits of FLW reduction will var3y by stage of the FSC. Then, we identify the points along the force chain where a 50 FLW reduction could yield the largest implicit environmental benefits, assuming that diminishments in consumption propagate back up the force chain to reduce product. We use an environmentally extended input- affair(EEIO) model combined with data on rates of FLW to calculate the scale of the total environmental impacts of theU.S. food system performing from lost or wasted food. We estimate the maximum implicit environmental benefit performing from 50 FLW reduction at all possible combinations of six force chain stages(agrarian product, food processing, distribution/ retail, eatery foodservice, institutional foodservice, and homes).

"**.** Quantifying the prevention potential of avoidable food waste in households using a self-reporting approach"

The prevention of avoidable food waste at consumer level is an issue of adding significance, yet persists with no apparent result. lately the Sustainable Development Goals of the United Nations(SDG) set a new challenge to overcome in sustainable consumption, videlicet the target12.3 to halve food waste by 2030 at retail and consumer position. This paper aims to show that it's indeed possible for homes to achieve this target using an approach that builds on positive goods of interventions and kitchen journals. We present an intervention system that isn't only salutary to gather data regarding avoidable food waste in homes, but also contributes to reduce it. In this environment, we compared the short- term impacts of two different types of tone- reporting and coaching styles to reduce avoidable food waste in homes. thus we enforced in two separate panels of homes in the same area once an offline- system and once a web- grounded online- system. The study issues are grounded on experimental data collected in these two sets of ménage panels demonstrating a clear enhancement in the party's gesture regarding food purchase and waste product.

IV. PROPOSED SYSTEM

The hardware and software that make up the proposed system Two logins are required for the "Food waste reduction app," one for the user and one for the business. The user has the ability to sign up, log in, log out, view items with an image, title, and description, add items to their cart, and empty their cart. With firebase email and password authentication, this app enables users to access their accounts. Via the login page, both the restaurant and customers who require meals must register. Certain user data, including age, name, and gender, is saved to the real-time database during registration under the special user id created by Firebase. Hence, the database stores the information from each user profile and when a user login we can get access to that user profile using its unique user id.
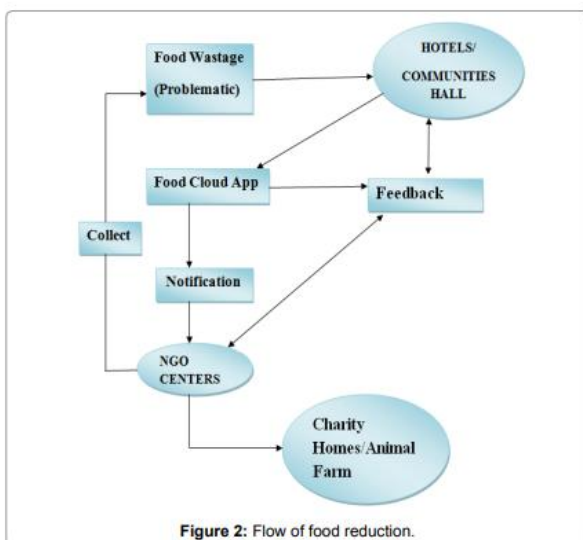

Figure 2: Flow of food reduction.

Fig. 1: System Architecture

V. ALGORITHMS

A. Geofencing Algorithm

Location-based services: When a user is close to a service station and their automobile is due for maintenance, send them a message to remind them of the appointment or offer a perk to come in. Asset tracking: Monitoring the entry and exit of a certain geofence by an asset that is equipped with a GPS device. Track a child or animal: A device can notify parents when a child or animal leaves the house or another safe location and enters an unknown area. There are currently wearable solutions for children and animals called Angel Sense and Tracker. These goods are compatible with the geofencing function.

Applications for geofencing algorithms include location-based advertising, asset tracking, and security monitoring. They must be precisely calibrated to guarantee that events are only triggered when planned, and they depend on accurate and dependable GPS or RFID technology to work effectively. To detect whether a mobile device or other object is inside or outside of a predetermined geofence, geofencing methods are utilised. Depending on the particular application and needs, different geofencing techniques may be employed.

B. High Level Model Design Analysis Models: SDLC Model to be applied

➤ *Working modules*

The waterfall model is a sequential design process, used in software development processes, in which progress is seen as flowing steadily downwards (like a waterfall) through the phases of conception, initiation, analysis, design, construction, testing, production/Implementation and maintenance. Waterfall approach was first SDLC Model to be used widely in Software Engineering to ensure success of the project. In the waterfall approach, the whole process of software development is divided into separate phases. In Waterfall model, typically, the outcome of one phase acts as the input for the next phase sequentially. Following is a diagrammatic representation of different phases of waterfall model. Requirement Gathering and analysis: All possible requirements of the system to be developed are captured in this phase and documented in a requirement specification doc. System Design: The requirement specifications from first phase are studied in this phase and system design is prepared. System Design helps in specifying hardware and system requirements and also helps in defining overall system architecture.
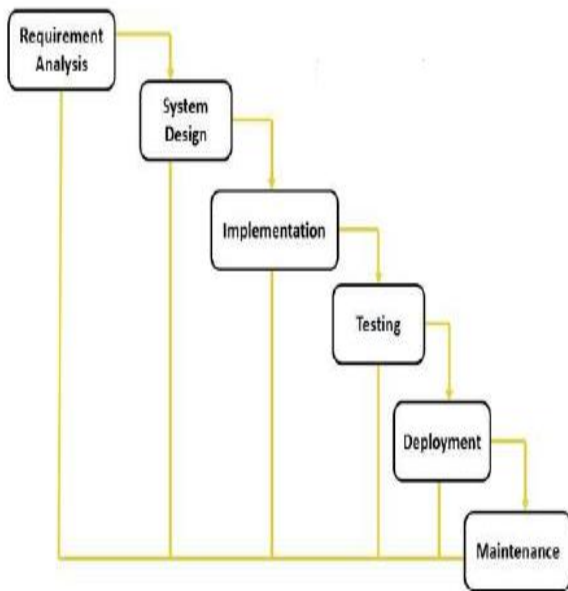
Fig. 3: Waterfall Model

- **Implementation:** With inputs from system design, the system is first developed in small programs called units, which are integrated in the next phase. Each unit is developed and tested for its functionality which is referred to as Unit Testing.

- **Integration and Testing:** All the units developed in the implementation phase are integrated into a system after testing of each unit. Post integration the entire system is tested for any faults and failures.

- **Deployment of system:** Once the functional and non-functional testing is done, the product is deployed in the customer environment or released into the market. There are some issues which come up in the client environment. To fix those issues patches are released. Also, to enhance the product some better versions are released. Maintenance is done to deliver these changes in the customer environment. All these phases are cascaded to each other in which progress is seen as flowing steadily downwards (like a waterfall) through the phases.

VI.   CONCLUSION

Our research focused on the problem of food waste, which has several detrimental societal and economic implications. But, with the aid of contemporary technologies and political controls, food waste can be eliminated or at the very least minimised. Food waste management technology is useful for mobile applications. The programme makes an effort to encourage healthier food administration. Our proposed solution should enable the UAE community to share food and reduce food waste through the usage of mobile technologies. This study is a first step in creating a more effective strategy to reduce regular food waste.

REFERENCES

[1.] FAO, The Food and Agriculture Organization, 2019, On line at: http://www.fao.org/platform-food-loss-waste/flw-data/en/.

[2.] G.T. Tucho, T. Okoth, "Evaluation of neglected bio-wastes potential with food-energy sanitation nexus", Journal of Cleaner Production, 242, 2020, 118547, https://doi.org/10.1016/j.jclepro.2019.118547

[3.] A. Sorokowska M. Marczak, M. Misiak, M.M. Stefaczyk, P.Sorokowski, "Children older than five years do not approve of wasting food: An experimental study on attitudes towards food wasting behavior in children and adults", Journal of Environmental Psychology, 71, 2020, pp. 101467.

[4.] A. Bernstad, J.La Cour Jansen, A. Aspegren, "Door-stepping as a strategy for improved food waste recycling behaviour – evaluation of a full-scale experiment", Resources, Conservation & Recycling, 73, 2013, pp. 94–103.

[5.] D. Leverenz, S. Moussawel, C. Maurer, G. Hafner, F. Schneider, T. Schmidt, M. Kranert, "Quantifying the prevention potential of avoidable food waste in households using a self-reporting approach", Resources, Conservation & Recycling, 150, 2019, pp. 104417.

[6.] F. Razza, F.D. Innocenti, "Bioplastics from renewable resources: the benefits of biodegradability", Asia-Pacific Journal of Chemical Engineering, 7, 2012, pp. 301-309.