

# FOOD MANAGEMENT APPLICATION USING IBM BLUEMIX SERVICES

Naveen Kumar K R<sup>1</sup>, Dr. Nirmala C R<sup>2</sup>

*<sup>1</sup>Assistant Professor, <sup>2</sup>Prof. & Head  
Department of Computer Science and Engineering  
Bapuji Institute of Engineering and Technology, Davangere-577004  
[nvn.dvg@gmail.com](mailto:nvn.dvg@gmail.com), [crn@bietdvg.edu](mailto:crn@bietdvg.edu)*

## ABSTRACT

India is a country where the economic status has reached such a high level that tons of available edible food is thrown away as waste in every stage of the marketing. Food is one of the prime essentials for everyone. On one hand, in places like Somalia and Nigeria, people are dying of hunger. On the other hand, people are wasting food in hotels, parties, etc. To deal with this problem, we propose an innovative idea to share food, reduce wastage and in turn help the society. Our food management application proposes an alternative to discarding surplus wholesome food by linking food service donors with surplus food to local hunger relief agencies. We plan do this by creating and maintaining an efficient communication and reporting network that links available sources of food to those in need through these existing charitable organizations. Rather than using traditional methods to reduce food wastage, here we propose to use the Internet facility to share food. People who wish to share food, instead of wasting it, can post their information on the website so that the needy organizations can reach them. This site creates a bridge between the donors and the needy by establishing an easy communication link between them by using IBM Bluemix services such as twilio sevice, etc.

## 1. INTRODUCTION

India is a country where the economic status has reached such a high level that tons of available edible food is thrown away as waste in every stage of the marketing. The food waste is approximated to 25% of the amount of edible food. Food is an important form of energy and resource. The prevention of food waste can be done by contributing to save resources as well as to reduce environmental impact during all stages of marketing system. Nobody intends to waste food in the beginning, some situation in marketing behavior and individual lead to the food waste. INDIANS waste as much food as the whole of United Kingdom consumes – a statistic that may not so much indicative of our love of surfeit, as it is of our population. Still, food wastage is an alarming issue in India.

Our street and garbage bins, landfills have sufficient proof to prove it. Weddings, canteens, hotels, social and family functions, households spew out so much food. According to the United Nations Development Program, up to 40% of the food produced in India is wasted. About 21 million tons of wheat is wasted in India and 50% of all food across the world meets the same fate and never reaches the needy. In fact, according to the agriculture ministry, Rs. 50,000 crores worth of food produced is wasted every year in the country. Food wastage is a huge problem because 25% of fresh water used to produce food is ultimately wasted, even as millions of people still don't have access to drinking water. When you calculate the figures in cubic kilometers, this is a bit more than an average river. Even though the world produces enough food to feed twice the world's present population, food wastage is ironically behind billions of people who are malnourished. The number of hungry people in India has increased by 65 million more than the population of France. According to a survey by Bhook (an organization working towards reducing hunger) in 2013, 20 crore Indians sleep hungry on any given night. About 7 million children died in 2012 because of hunger/malnutrition. Acres of land are deforested to grow food. Approximately 45% of India's land is degraded primarily due to deforestation, unsustainable agricultural practices, and excessive groundwater extraction to meet the food demand. 300 million barrels of oil are used to produce food that is ultimately wasted.

### **1.1 Existing system**

Colossal amount of nourishment is squandered regularly in inns and eateries. The waste at marriage lobbies, a gathering lobby and so forth is additionally massive. In a nation like India and other Third World nations where an enormous society is denied of fundamental comforts and don't get feast for one time, such wastage is horrendous. It is an incongruity that there are many HRAs working towards helping the individuals fitting in with under-advantaged society and need to in any event give them absolute minimum prerequisites, for example, sustenance and sanctuary. Be that as it may, HRA confronting issues of lessening the sustenance wastage as they couldn't capable associate the all groups corridor squandering nourishment, and couldn't ready to unite the all shelters and destitute individuals who need nourishment. There is an existing system similar to ours – “Food Donation Connection (FDC)”. Food Donation Connection manages food donation programs for food service companies interested in donating food. The donating process is based on donors receiving economic benefit through tax savings in addition to involvement with community and corporate goodwill. Donors are linked to those in need through existing non-profit hunger relief organizations. Food Donation Connection administers these programs through the use of an efficient communication and reporting network. Food Donation Connection does not compete with non-profits for the limited funding that is currently available from government and private sources. Instead, their funding comes from a small portion of our donor partner's incremental tax savings that is earned from properly saving and donating their surplus food. In

exchange for this funding, we coordinate all aspects of our donor partner's food donation programs.

### **1.2 Problem Statement**

Edible food is thrown away as waste in every stage of the marketing. The food waste is approximated to 25 % of the amount of edible food. There are people who struggle even for a single meal per day and there is no proper means for distributing the food being wasted to the needy. In this context, we are developing a web/mobile application to access the information regarding surplus food and provide it to the needy by establishing a communication link through internet.

### **1.3 Proposed System**

The food management application proposes the most favored strategy for redirection as sustaining hungry individuals, or as it were, sustenance recuperation through gifts. HRA taking a shot at gift administration for humankind reason perceived that the redirection of nourishment waste through gifts, most outstandingly at the retail level, couldn't just lessening the measure of sustenance winding up in landfills additionally expand the sum going toward diminishing craving and enhancing sustenance security. Our food management application Connects these HRA and Donor with a specific end goal to give the sustenance to the poor individuals. Contributors utilizing this application have contact with HRA of adjacent and giving about all data of sustenance waste like Quantity of nourishment, Type of nourishment, Cut off (Time in which Food ought to be taken by HRA to convey to penniless people). This warning is gotten by HRA after that having Feedback with giver, HRA Track the area and acknowledge demand and gather the sustenance and give it to the destitute individuals. This gift input is given to the benefactor which helps them to improve general society picture. The application unites these two, in such a path, to the point that these HRAs can persuade the "sustenance to be squandered" without bother, and the inns/eateries/party-lobbies discover these nourishment seekers with no additional exertion then it will serve a more prominent cause and will be an enormous administration to mankind.

### **1.4 Objectives**

- To prevent wastage of food by making it available to the needy.
- To reduce the gap between donor and receiver by allowing both of them to sign up and login to the same website.
- To accept donor information about the surplus food and store it in the IBM cloud and make it available to the receiver.
- To notify HRAs through the notification cards about the surplus food available.
- To send complete details of the surplus food to the receiver through twilio

messaging service.

- To create, edit and view synthetic tests that mimic end-user behavior at web application using availability monitoring service.

## 2. LITERATURE SURVEY

Jenny Gustavsson et al. explained the economically avoidable food losses have a direct and negative impact on the income of both farmers and consumers. Given that many smallholders live on the margins of food insecurity, a reduction in food losses could have an immediate and significant impact on their livelihoods. For poor consumers (food insecure or at-risk households), the priority is clearly to have access to food products that are nutritious, safe and affordable. It is important to note that food insecurity is often more a question of access (purchasing power and prices of food) than a supply problem. Improving the efficiency of the food supply chain could help to bring down the cost of food to the consumer and thus increase access. Given the magnitude of food losses, making profitable investments in reducing losses could be one way of reducing the cost of food. But that would, of course, require that financial gains from reduced losses are not outweighed by their costs.

Aiello Giuseppe et al the paper aims at overcoming this lack by proposing a mathematical model showing the economic advantage arising from food recovery for the operators of the supply chain and in particular for the retailers who can have additional benefits from tax reliefs. Potential benefits achievable from other parties such as nonprofit organizations or livestock market are also taken into account. The model determines the optimal conditions which maximize the profit in case of the recovery and redistribution of the surplus practiced through alternative delivery channels such as the livestock and taking into account the free supply to non-profit organizations. The focus is on food loss management at the retailing stage because most of the food managed at this stage can always be considered “ready to eat” for the human consumption and thus more simply distributable to nonprofit organizations.

Morvarid Bagherzadeh et al. describes the report suggests that the causes of food waste and loss in low-income countries are mainly connected to insufficient farmers training, to the lack of technology and infrastructural limitations such as harvesting techniques, storage and cooling facilities, transportation, and packaging and marketing systems. In medium and high income countries, by contrast, lack of coordination between different actors in the supply chain, as well as consumer behavior, are the main causes of food waste. Nonetheless, both in low-income countries and in medium and high income countries food is wasted throughout the supply chain from initial agricultural production to the final consumer. The method was subsequently expanded to estimate the environmental impact of food waste, while disaggregating further the countries into seven groupings and the FAO published in 2013 a report “Food wastage footprint: Impacts on natural resources” that analyses the

impacts of global wastage from an environmental perspective. Key findings of the report include that the direct economic cost of food wastage of agricultural products (excluding fish and seafood) is about USD 650 billion, equivalent to the GDP of Switzerland.

### 3. SYSTEM DESIGN

#### 3.1 ARCHITECTURE DIAGRAM

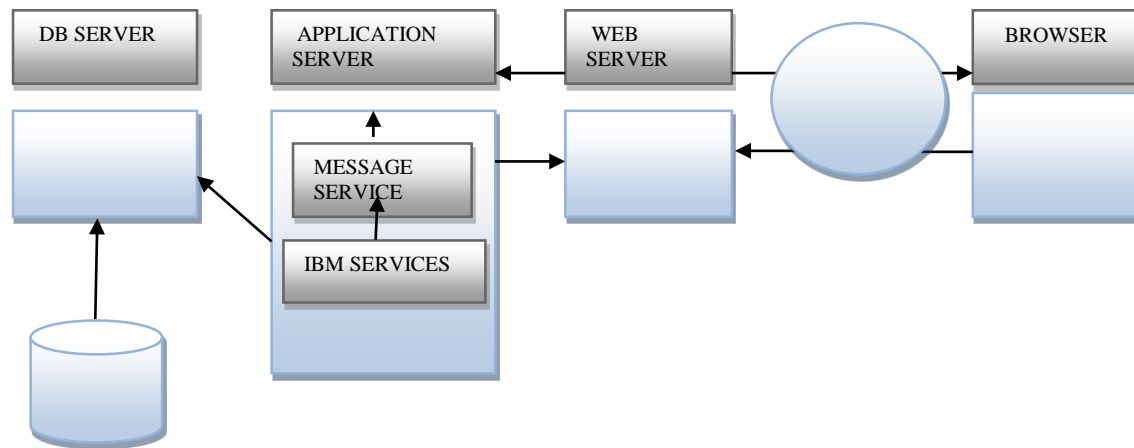


Fig 3.1: Architectural diagram of the application

#### 3.2 Bluemix services:

- **twilio**
  - Cloud based service
  - Enables powerful communication between devices, applications, services, and systems
  - Bridges the gap between conventional communications.
- **clearDB**
  - Third party service.
  - Cloud, hybrid, and on-premise database-as-a-service for MySQL powered applications.
  - Offers 5Mb of space and higher with increased price rate.
- **Availability-monitoring**
  - Allows us to create, edit, and view synthetic tests that mimic end-user behavior at your web apps.
  - Displays availability and response time information for monitored URLs and APIs grouped by Bluemix region.
  - Monitoring features, such as the automatically configured availability test, are available out of the box for applications regardless of where they are running.

## 4. RESULTS AND SNAPSHOTS

The snapshots of the application are shown below:

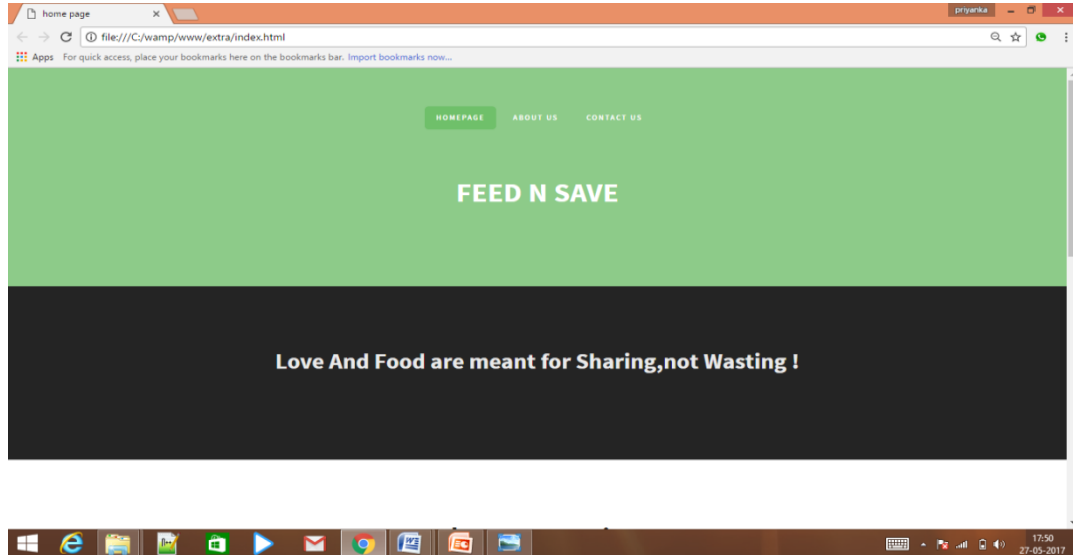


Fig 4.1: Home page of the application.

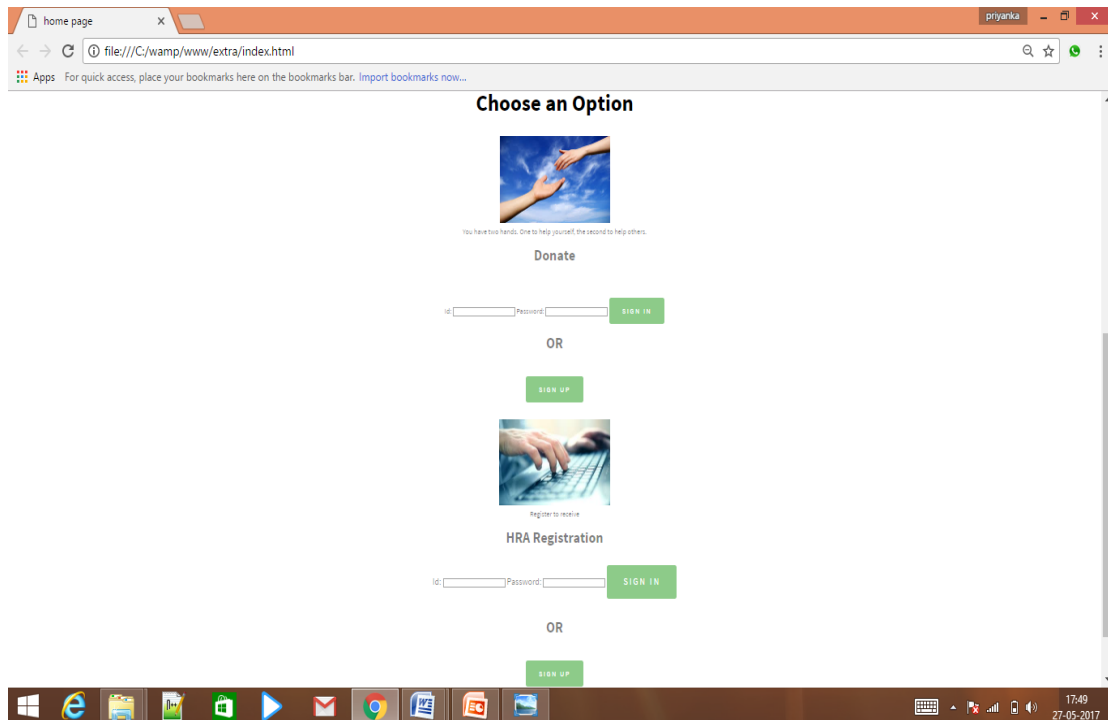


Fig 4.2: Registration and sign in for the users

The screenshot shows a web browser window with the title 'registration'. The address bar contains 'file:///C:/wamp/www/extra/register.html'. The main content area is titled 'DONATION FORM' with the subtitle 'FILL IN THE FORM'. It features five text input fields: 'enter name', 'enter email', 'enter password', 'confirm password', and 'enter mobile no'. Below these fields are two green buttons: 'SUBMIT' and 'RESET'. The browser's taskbar at the bottom shows various application icons and the system clock indicating 17:43 on 27-05-2017.

Fig 4.3: Sign up form for donors

The screenshot shows a web browser window with the title 'donate'. The address bar contains 'file:///C:/wamp/www/extra/donate.html'. The main content area is titled 'Food Information' with the subtitle 'FILL IN THE FORM'. It features several input fields: 'Food Description', 'Approximate Quantity', 'pickup Date', 'pickup Time', 'food name and pic' (with a 'Choose File' button and 'No file chosen' text), 'shelfLife of Food(max 8 days)', and a series of address fields: 'Address: Door no', 'Address: Street', 'Address: Area', 'Address: City', and 'Address: Pincode'. A green 'DONATE' button is located at the bottom of the form. The browser's taskbar at the bottom shows various application icons and the system clock indicating 17:45 on 27-05-2017.

Fig 4.4: Form for uploading food information.

The image shows a web browser window displaying a sign-up form for HRAs. The form is titled "HRA Sign Up" and has the instruction "FILL IN THE FORM" below it. The form contains five input fields: "HRA Name", "Enter Email", "Enter Password", "Confirm Password", and "Enter HRA Mobile No". A green "SIGN UP" button is positioned at the bottom center of the form. The browser's address bar shows the file path "file:///C:/wamp/www/extra/HRA%20sign%20up.html". The Windows taskbar is visible at the bottom of the screen, showing various application icons and the system clock indicating 17:46 on 27-05-2017.

Fig 4.5: Sign up form for HRAs

## 5. CONCLUSION AND FUTURE SCOPE

The food management application is utilized in order to help the society by feeding the hungry with the surplus food that is available. The application acts as a linking bridge between the needy and the donors. The donors who need to donate can sign in on the application and upload the food information and thereby making the information available to the HRAs. The HRAs can access this information by logging on to the website and checking out the food notification cards displayed. They can select any of the donation through the cards by clicking on accept button and a message will be sent to the registered HRAs number through the twilio service. Thus in a way, the Food management application brings the donors and the receivers closer making their distance one click away.

### **Future Scope:**

Donating something not only helps the needy but also brings about a certain satisfaction to the donor. In this Internet era, the food management application helps connect the people who want to donate with the people in need of donation. Once the application is implemented globally, it will reduce the wastage of food by a huge share and in turn increase availability of food to the people in need. Future development includes more number of HRA registrations all throughout the world and also providing more features for users through bluemix application. It is planned to be extended if funding is available, by acting as middlemen to donors and HRAs by providing pickup, packing and refrigeration services.

## **REFERENCES**

- [1] Prof. N. M.Yawale, Prof. N. V. Pardakhe and Prof. N. A.Deshmukh, 2017, “A Review Paper on Online Restaurant Management System”, IAETSD JOURNAL FOR ADVANCED RESEARCH IN APPLIED SCIENCES, ISSN NO: 2394-8442.
- [2] Takeshi Shimmura, Takeshi Takenaka and Motoyuki Akamatsu, 2017, “Real-Time Process Management System in a Restaurant by Sharing Food Order Information”, 2009 International Conference of Soft Computing and Pattern Recognition, ISBN 978-4-431-56072-2.
- [3] Mayurkumar Patel, 2015, “Online Food Order System for Restaurants”, Technical Library. Paper 219. <http://scholarworks.gvsu.edu/cistechlib/219>.
- [4] Morvarid Bagherzadeh, 2014, Food Waste Along the Food Chain, OECD Publishing.
- [5] Gyan Prakash and P. T. Sivasankar, 2012, “Food Distribution and Management System Using Biometric Technique (Fdms)”, © ICST Institute for Computer Science, Social Informatics and Telecommunications Engineering 2012
- [6] J. Gustavsson, Ulf Sonesson, Christel Cederberg and A. Mcybeck, 2011, “Global food losses and food waste: extent, causes and prevention. Food and Agriculture Organization of the United Nations”
- [7] Zhelyu Vladimirov, 2011, “Implementation of food safety management system in Bulgaria”, British Food Journal, Vol. 113 Issue: 1, pp.50-65.
- [8] Sofia Teixeira and Paulo Sampaio, 2010, “AN ANALYSIS OF FOOD SAFETY MANAGEMENT SYSTEMS CERTIFICATION: THE PORTUGUESE CASE”,
- [9] F. Schneider, 2008, “WASTING FOOD – AN INSISTENT BEHAVIOUR”

