Food Donation and Waste Management Application

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Abstract: Food is one of the basic necessities of human, and there are many people in this world who do not have enough food for their basic requirements. We often see many food waste from parties, luxury weddings which mostly goes waste. Most consider to donate the surplus food to the poor or required institution but these do not go as planned as there is no available mechanism to implement these functions. So in this project we come up with a solution to tackle both surplus as well as thrown away food. It is done through a charitable app for donating surplus food along with a IoT based smart bin that measures the level of thrown away food in the bin and send it to the app used by bioplant users.

I. INTRODUCTION

In the present world, about a billion tons of foods are getting wasted on a daily basis while the graph of property is still skyrocketing [10]. Food is one of the most basic needs of our life and the reason why we are working hard should not be wasted. So as to manage the food that is being wasted we come up with this project [9]. In our project, we tend to tackle the issue of the food being wasted due to surplus amount as well as the one that is thrown away after use. So as to solve the issue of food being wasted due to surplus amount we come up with an app that can be used to donate food to people who are in need of the food and the receiver could utilize our app in order to get the info about the available food [8]. On the other hand, the food that is being thrown away are collected in the smart bin which is equipped with an IoT device that measures the capacity of the bin and notifies bio plants whether it's filled or not through our same app [2].

II. LITERATURE SURVEY

SL NO	AUTHOR & YEAR	ARTICLE TITLE	AIM OF THE ARTICLE	LIMITATIONS
1	S. Thakker R.Narayanamoorthi 2015	Smart and wireless waste management	To avoid unhygienic conditions for people and ugliness to that place this paper proposes a solution for this problem "Smart Garbage Bin", which will alarm and inform the authorized person when the garbage bin is about to fill.	High initial cost due to expensive smart dustbins compare to other methods. System requires more number of waste bins for separate waste collection as per population in the city.
2	Sankar A Vimal kumar K Vinoj varma S Dr.N.Sathish Kuma 2016	Smart garbage alert system	A new model for the municipal dustbins which intimates the canter of municipality for immediate cleaning of dustbin with proper verification.	The training has to be provided to the people involved in the smart waste management system.
3	Abdulla Al-Muyeed Habibur Rahman 2010	Solid and hazardous waste management	The book has been developed for student studying environmental engineering focused on solid and hazardous waste treatment and management and their teachers at technical institutions in Bangladesh.	Only discuss about the waste food.

4	Twinkle Sinha K.Mugesh Kumar P.Saisharan 2015	Smart Dustbin	In this paper gives a model for a 'smart dustbin' which is directlythat the dustbin is filled to a certain level by the garbage and cleaning or emptying them isa matter of immediate concern.	It gives a way to solve waste as a whole and not food in particular.
5	Ulrich Glawe C.Visvanathan M.Alamgir 2006	Domestic solid waste management in south Asian countries	Waste management in these LDACs including legal,social and financial issues.	Does not give a solutionfor solving the surplus food issue.
6	Kian-ghee Tiew Kohei Watanabe Noor Ezlin Ahmad Basri Shahrom Md. Zain Hassan Basri 2010	Towards a clean environment:A proposal on sustainable and integrated solid waste management system for university kegbangsaan Malaysia	In the authors have proposed that the collection of solid waste is currently a door to door collection system which is available. In this approach waste collector knocks on each door or rings doorbell and waits for waste to be brought out by resident.	One of the disadvantageof this system is residentsmay not be available tohand the waste over. Not suitable for apartmentbuildings because of theamount of walking required.
7	Md. Liakot Ali, Mahbubul Alam, Md. Abu Nayeem Redwanur Rahaman, 2012	RFID based E-monitoring System for Municipal Solid Waste Management	In paper the authors have proposed the city's greener, safer,and more efficient cleaningsystem, Internet of Things (IoT) can play an important role. Improvement in safety and quality of life can be achieved by connecting devices, vehicles and infrastructure all around in a city.Best technological solutions can be achieved in smart cities by making different stakeholders to work together.	It reduces man power requirements which results into increase in unemployments for unskilled people.
8	Sankar Vt2020	Review in Food Wastage Reduction Through Donation Application	There are restaurants that wastetons of excess food every day. This paper helps to reduce the food wastage through donation application.	There are no solution to tackle the problem of used and thrown away food
9	H. Raut S. Rajput D. Nalavade	Smartphone based food supply chain for Aurangabad city using GIS location based and google web services	It describes the client-server GIS and mobile application to make a hunger free city	It focus on subsidiaryfoods only.
10	Sachin Muttagi , Gurukiran Badiger ,Avinash , Dr. S. R Biradar	Share your food	Food waste is seen as an issue and is donated through a mobileapplication.	Only the NGO is responsible.

III. PROBLEM STATEMENT

This paper aims at solving the problem of improper food waste management. The people are unaware of the value offood getting wasted or sometimes don'tknow how to manage the food that is in surplus amount even after their needis met [9]. For easiness, they just throw it away to avoid the useless work of searching for the people who actually need it or storing it for future use. Also currently people don't have any idea about those organizations who are volunteering for charity work collectingfood and donating it to the poor. As well as when these organizations get demand from people who are in need of food they are not able to find those people who are ready to donate food [8]. On the other side the bio plants are facing difficulty in finding their raw material, that is the waste food items even when there are a million tons of food getting wasted on a daily basis [1].

III. PROPOSED SYTEMS

In our app we help three kinds of users,they are donors, receivers, and bio plants [2][8]. Each of the users can login to their respective accounts and will be getting the pages accordingly. Those who are ready to donate the surplus amount of food can give the details about the food they have, like the type of food, it's amount, the location etc. on the page provided for them. While the receivers could get these detailsprovided by the donors on their own interface. Whereas, the bio plant users have a different interface for seeing the locations of their smart bin's and viewing the status of the bin capacity onthe respective pages of each bin [4]. They can collect the waste when the bin gets filled.

➤ *Ultrasonic Sensor :*

The ultrasonic sensor is an electronic device, which is used here to measure the distance of waste by emitting ultrasonic sound waves.

➤ *ESP8266 :*
ESP8266 is a low cost WiFi module it stores data in the server using internet.

➤ *Jump Wires :*
Jump wires (also called jumper wires) used to connect ultrasonic sensor and ESP8266.

➤ *Flutter :*
It is an open-source UI software development kit developed by Google. It is used to develop food donation andwaste management application.

IV. CONCLUSION

Through this paper, we intend to solve the issue of food being getting wasted inlarge amounts even if there are people who are in actual need of these. We came up with a bridge to connect the ones who have food in surplus amounts and the ones who need the food to fill their stomach. Also, we help the biogasplant to get their raw material and help them in producing useful products out of it.

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