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Review Paper on –An Excess Food Redistribution System using IoT

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ABSTRACT- A trusted and active community aided and supported by the Internet of Things (IOT) is a key factor in food waste reduction and management. This system proposes an IOT based context aware framework which can capture real-time dynamic requirements of both vendors and consumers and perform real-time match-making based on captured data. We describe our proposed reference framework and the notion of smart food sharing contain- ers as enabling technology in our framework. A prototype system demonstrates the feasibility of a proposed approach using a smart container with embedded sensors. The concept and an initial prototype of a Smart Food Container was introduced. Although current focus is on the excess food these can be used to identify the best environment for non-excess food as well as for other resources for donation. Weight, GPS, Air pressure, Light and RFID readers will be added to the Smart Container in the next phase of the implementation. Ultimately these allows real-time, dynamic, intelligent and context-aware match-making between the vendors/food items and consumers..

Keywords: Internet of Things (IOT), Sensors, Food Waste Management (FWM), Context, Context-awareness, Surplus Food, Smart Container, Recommendation.

1. INTRODUCTION-

This system proposed novel approach towards efficient food waste reduction via an IOT enabled dynamic and real-time match-making system which addresses the strengths and shortcomings identified in system. A Smart Food Container/Smart Container containing different sensors is designed to capture real-time context of food donations made available by the vendors to facilitate sharing with consumers. Although the concepts are proposed for the Food Wastage Management (FWM) domain, our approach can be adopted, customized or extended to manage other resources as well. This system summarizes the strengths and weaknesses of existing ICT based food wastage management systems describes the overall conceptual architecture of the proposed framework. We take a deep look into the concept of a Smart Container, a prototype and some results lare presented as well. The proposed framework consists of four main components which are Virtual Marketplace, Data Management Engine, Recommendation Engine and Trust, Reputation and Fraud Detection and Prevention Engine. This system proposed an IOT based novel, real-time and dynamic framework to efficiently distribute excess food which would otherwise end up in waste lands. This framework addresses the weaknesses identified in the existing systems as well as maintains the strengths they have. The concept and an initial prototype of a Smart Food Container was introduced. Although current focus is on the excess food these can be used to identify the best environment for non-excess food as well as for other resources for donation. Weight, GPS, Air pressure, Light and RFID readers will be added to the Smart Container in the next phase of the implementation. Ultimately these allows real-time, dynamic, intelligent and context-aware match-making between the vendors/food items and consumers. In the future, drones (on land or flying) can also pick up such excess food from the Smart Food Containers and help deliver them to matched consumers.

1.1 Motivation

As the food insecurity are increasing people deal with undernourishment and unsecured. In order to help people for food and with the help IOT system to make easily availability of food.

1.2 Problem Definition

The purpose of this system is towards efficient food waste reduction via an IOT enabled dynamic and real-time match-making system which addresses the strengths and shortcomings identified in system. A Smart Food Container/Smart Container containing different sensors is designed to capture real-time context of food donations made available by the vendors to facilitate sharing with consumers. Although the concepts are proposed for the Food Wastage Management (FWM) domain, our approach can be adopted, customized or extended to manage other resources as well.

1.3 Objective

• Easily to use. • Reduce time. • Build a system to reduce food insecurity among citizens and redistributes an excess amount of food.

• This system will not only help citizens to reduce food waste but also provide raw materials for bio-industries

2. LITERATURE SURVEY-

This chapter contains the existing and established theory and research in this report range. This will give a context for work which is to be done. This will explain the depth of the system. Review of literature gives a clearness and better understanding of the exploration/venture. A literature survey represents a study of previously existing material on the topic of the report. This literature survey will logically explain this system.

1. Han Gao; Ben-guo Liu; Hai-juan Nan; Chun-gang Chen; Li-hua Li [1] Proposed that, Response surface methodology (RSM) was applied to predict optimum conditions for ultrasonic-assisted extraction of flavonoids from ginkgo leaves. A central composite design involving ultrasonic time, extracting temperature and extracting time was used, and second- order model for flavonoid purity was employed to generate the response surface. The opti- mized condition was as follows: ultrasonic time 21.66 min, extracting temperature 39.34degC and extracting time 2.01 h. The predicted flavonoid purity at condition was 40.75 mg/g. Experimental verification gave the value of 40.62 mg/g.

2. Lijuan Ping ; Sheng Fang ; Shuiming Xu ; Hongwu Lai ; Jianwei Mao [2] Proposed that, Natural phytol which is a flavor of natural food can be also used in the synthesis of medicine like vitamin K1, health products, functional foods and cosmetics, etc. In this study, prepa- ration of high-purity natural phytol from byproduct of silkworm excrement processing was carried out by using secondary molecular distillation process. Natural phytol of 98 percent purity and above was observed as a result of process conditions optimization.

3. M Manohar; K Chatrapathy; M S Sowmya proposed that, the main food in India is Rice. Be it the breakfast, lunch, dinner or some snacks, for everything the most preferred ingredient in Rice. In compared with north Indians, Rice is most used by South Indians. Today's youngsters from villages are migrating to cities in search of jobs after their educa- tion. Even farmers have stopped their cultivation and are

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Working towards different business. So, the yield of rice is reduced in India. One more reason for this is because of the poor monsoon. Government is finding it challenging to supply rice to all its consumers. It is ex- pected, because for Rice the consumers are more compared to its production. Government has decided to import the rice from the neighboring countries. This neighboring country knows the demand of rice in India and started supplying contaminated rice. Currently our Government has no technology to check the quality of the rice which they are getting im- ported, so the result is plastic rice arrived in India. Indirectly, India is in huge loss in terms of money and damages for its citizens health. So, there is a need of automated system to detect the quality of the rice that are imported. Another use of such automated system is that most of the people are not able to identify the type of the rice and the quality of the rice. This system helps even common man a facility in identifying the type and quality of rice.

4. Gun Il Ma; Hyeong Chan Lee; Jeong Hyun Yi; Hyunsik Ki; Daeseon Choi; Seung Hun Jin [4] Proposed that, Smart wallet is a mobile enabled application and payment service provider to make convenient payments to any designated merchant over the Internet. In this paper, we propose human verifiable authentication schemes geared to smart walletJianxia Guo; Changlu Wang; Zhijian Wu; Mianhua Chen; Yurong Wang; Fengjuan Li a PKI. The Human VerifiablePinus armandi franch is a special local plant in China and its seed oil is a nice resource of linoleic acid (LA) with a content of 63 of the total fatty acid. LA is an essential fatty acid and it exerts a variety of physiological functions. The absence of LA in the diet is responsible for the development of various abnormal disorders. Highly purified LA is required on pharmaceutical applications. This work reports recovery of highly purified LA from Pinus armandi franch seed oil by means of a process including Pinus armandi franch seed oil saponification and concentration of the fatty acids by urea inclusion fractionation method. Afterward, PUFA were methylated, and the urea-concentrate methylated was purified by using silver-silica gel column chromatography. Silversilica gel chromatography yields high purity LA in the procedure in Pinus armandi franch seed oil. The recovery for the combined procedure was 79, with a final purity 97.03. Therefore, highly pure PUFA linoleic acid could be obtained by silver-silica gel chromatography column.

3. EXISTING SYSTEM-

In this existing system sensor are used to know the condition of baby but that will restricted to particular area where if any problem parents have to be in that area and has to and check the condition of baby manually.

MATHEMATICAL MODEL-

System Description:

MATHEMATICAL MODEL:

S = (I,O,F) Where,

S: System.

I= {UL, AP, FT,} are set of Input

Where,

- UL – User Login.
- AP – Authentication Pass.
- T – Food Testing.

F = {F1,F2,F3,F4} are set of function

Where,

- F1 – Purity Calculation
- . • F2 – Sending notification.
- F3 – Getting ACK.
- F4 – Storing Data into datbase.

O = {o1, o2, o3} are set of Output

Where,

- o1: Food Purity.
- o2: Needed people.

Success Condition: Sensor embedding, proper database.

Failure Condition: No Database, No Internet Connection.

4. DATAFLOW DIAGRAM

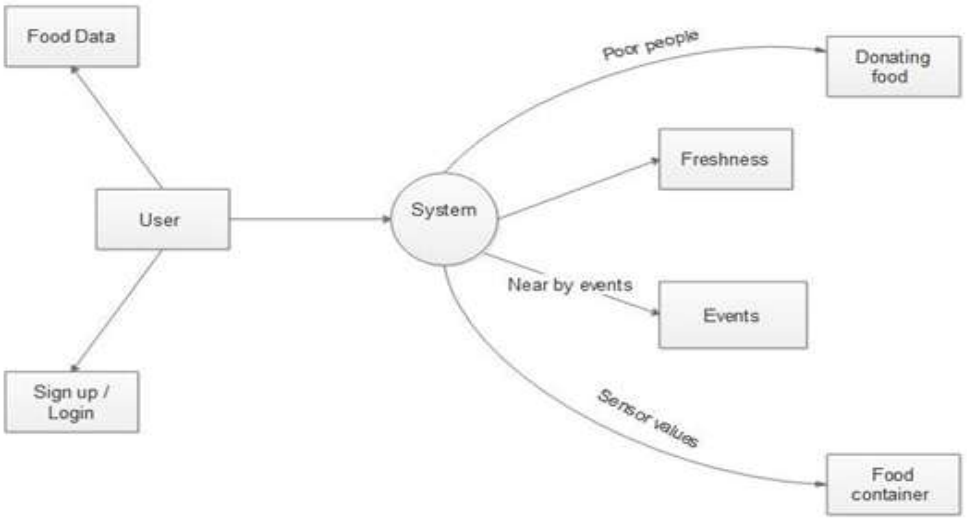

Fig: Data Flow Diagram

5. PROPOSED SYSTEM SYSTEM ARCHITECTURE

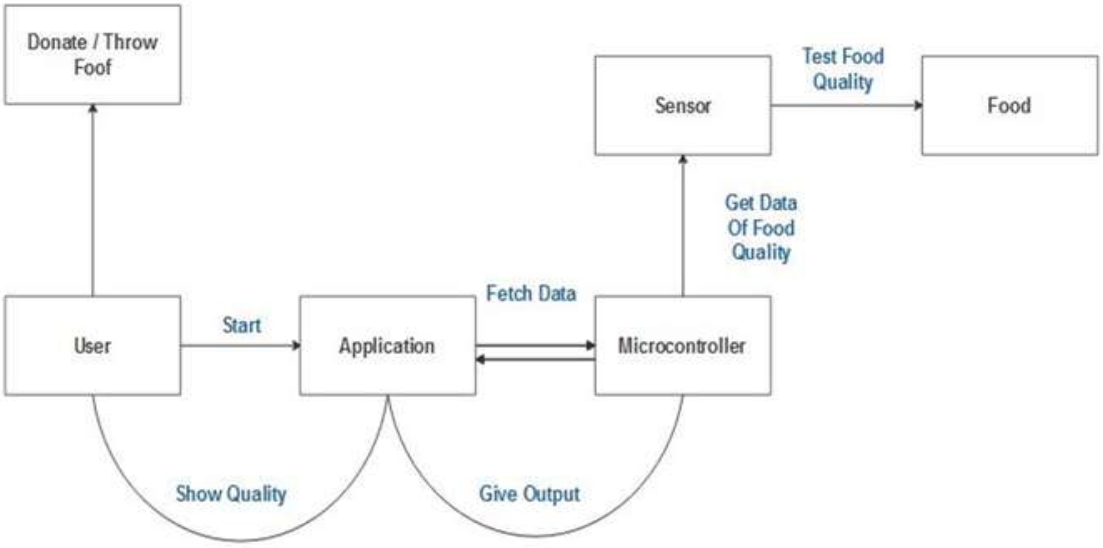

Fig: Architecture Diagram

6. WORKING –

In this architecture shows, our application is to build a system to help the citizens to reduce food wastage via IOT technology, Smart Food Container is a container equipped with state of the art sensors which can automatically capture and transmit the context data of the food donations dropped into it. Food donations dropped into the Smart Food Container will be detected and the information shared on our Virtual Marketplace framework so that consumers can be notified and consumers can understand the context of the food available for donation. The idea is to automate the sharing of excess food via such containers- users only need to drop their excess food into the container and the system does the rest. Our conceptual Smart Food Container contains a distance sensor and a light sensor to detect the opening of the box, a weight sensor to detect that a new item is dropped inside and to calculate the weight of the items inside, a RFID reader to read RFID tags, a temperature

sensor to capture the temperature inside, humidity and air pressure sensors, a GPS sensor to locate the Smart Container's location, a camera to capture and identify the food items inside and a WIFI enabled Raspberry Pi (or Arduino), which captures data from the sensors and transmit to the distribution center via internet.

7. CONCLUSION-

Hence we are making a smart system which allow to user to manage food and allow to avoid food wastage. Our proposed system is avoid the drawback of existing system and overcoming this drawback. Proper supply of food to needed people is been monitor.

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