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IOT-AIDED CHARITY: AN EXCESS FOOD REDISTRIBUTION FRAME WORK

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Abstract

A trusted and dynamic network helped and bolstered by the Internet of Things (IOT) is a key factor in nourishment squander decrease and the executives. This framework proposes an IOT based setting mindful system which can catch constant powerful prerequisites of the two merchants and buyers and perform ongoing match-production dependent on caught information. We portray our proposed reference system and the idea of keen nourishment sharing contain-are as empoweringinnovation in our structure. A model framework shows the practicality of a proposed approach utilizing ashrewd compartment with inserted sensors. The idea and an underlying model of a Smart Food Container was presented. Albeit current spotlight is on the overabundancenourishment these can be utilized to distinguish the best condition for non-abundance nourishment just as for different assets for gift. Weight, DHT11 will be added to the Smart Container in the following period of the usage. Eventually these permits ongoing, dynamic, savvy and setting mindful matchproduction between the merchants/nourishment things and shoppers.

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 otherresources as well.

This system summarizes the strengths and weaknesses of existing ICT based food wastage management systems describe 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 are 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 systemsas 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, DHT11will be added to the Smart Container in the next phase

of the implementation. Ultimately this 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.

Literature survey

A literature survey involves reviewing existing literature, research papers, articles, and other relevant sources related to a specific topic or area of study. It helps to gather information, understand the current state of knowledge, identify gaps in research, and establish a foundation for further investigation or studies. World is becoming very fastand automatic because of these invention day by day. In spite of increasing food technology, we often see food getting wasted due to spoilage before consumption. Hence there is need of developing better methodologies to monitor the food quality parameters in real time. Wastage of food in the current scenario, merely due to spoilage is not affordable

- Conventional food containers can neither monitor nor alert regarding the food quality in it, leading to large amount of wastage. So, we have decided to construct a better alternative for monitoring food spoilage, quality, and wastage.
- Main Motive of our Project is reduced food wastage due to spoilage when stored in containers. In the major markets of the cities and towns in India, Vegetables and fruits gets wasted due to the temperature and humidity changes.
- India is a major producer of milk and milk products, during export it is necessary to monitor the products.
- Smart containers are the efficient way to track the food content being consumed in every household.
- Due to advent of mobile phones and tablets which are available in every household, they can be easily coupled with the smart containers to track the food content and hence regulate the food budgeting and dietary habits.
- The idea of the Intelligent Container is developed to detect hidden shelf life losses.
- The sensor network inside the container measures all necessary parameters., the proposed system will be made stronger in sensing status of different types of food items and helps to send message at different phases of the spoilage cycle.

Block Diagram Overview

ESP32-WROOM-32 is a powerful, generic Wi-Fi+BT+BLE MCU module that targets a wide variety of applications, ranging from low-power sensor networks to the most demanding tasks, such as voice encoding, music streaming and MP3 decoding. At the core of this module is the ESP32-D0WDQ6 chip*. The chip embedded is designed to be scalable and adaptive. There are two CPU cores that can be individually controlled, and the CPU clock frequency is adjustable from 80 MHz to 240 MHz. The user may also power off the CPU and make use of the low-power co- processor to constantly monitor the peripherals for changes or crossing of thresholds. ESP32 integrates a rich set of peripherals, ranging from capacitive touch sensors, Hallsensors, SD card interface, Ethernet, high-speed SPI, UART, I2S and I2C.

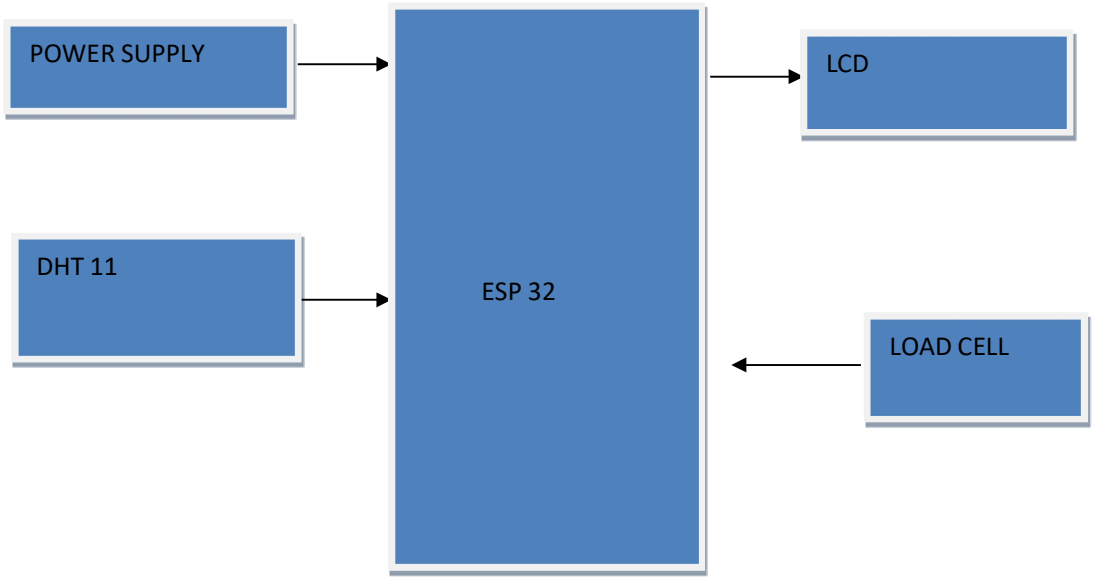
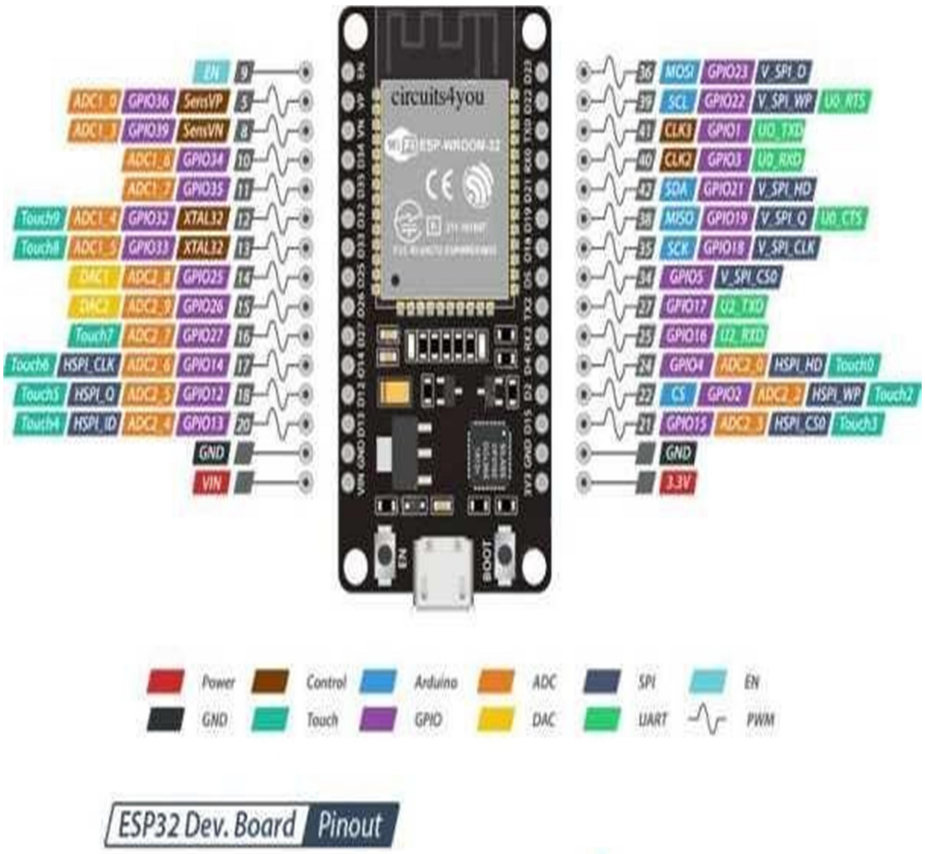


Fig 1: Block Diagram



ESP32 WROOM32 DevKit Pinout

Fig 2 EP32 DEV. Board

Fig3 ESP32-D0WDQ6 chip

The integration of Bluetooth, Bluetooth LE and Wi-Fi ensures that a wide range of applications can be targeted, and that the module is future proof: using Wi-Fi allows a large physical range and direct connection to the internet through a Wi-Fi router, while using Bluetooth allows the user to conveniently connect to the phone or broadcast low energy beacons for its detection. The sleep current of the ESP32 chip is less than 5 μA, making it suitable for battery powered and wearable electronics applications.

ESP32 supports a data rate of up to 150 Mbps, and 20.5 dBm output powerat the antenna to ensure the widest physical range. As such the chip does offer industry-leading specifications and the best performance for electronic integration, range, power consumption, and connectivity. The operating system chosen for ESP32 is freeRTOS with LwIP; TLS 1.2 with hardware acceleration is built in as well. Secure (encrypted) over the air (OTA) upgrade is also supported, so that developers can continually upgrade their products even after their release.

Result

Implementing an IoT (Internet of Things) aided framework for excess food redistribution in charity involves utilizing sensors to monitor food quantities, coordinating with local charities or food banks, and creating a system that efficientlymatches surplus food with areas of need. The result could significantly reduce food waste while ensuring timely and effective redistribution to those in need, creating a more sustainable and impactful approach to charity.

Fig 4 Container with no food

An IoT-aided excess food redistribution framework has the potential to make a significant positive impact by reducing food waste and addressing hunger, but its success depends on effective implementation, collaboration among stakeholders, and addressing potential challenges

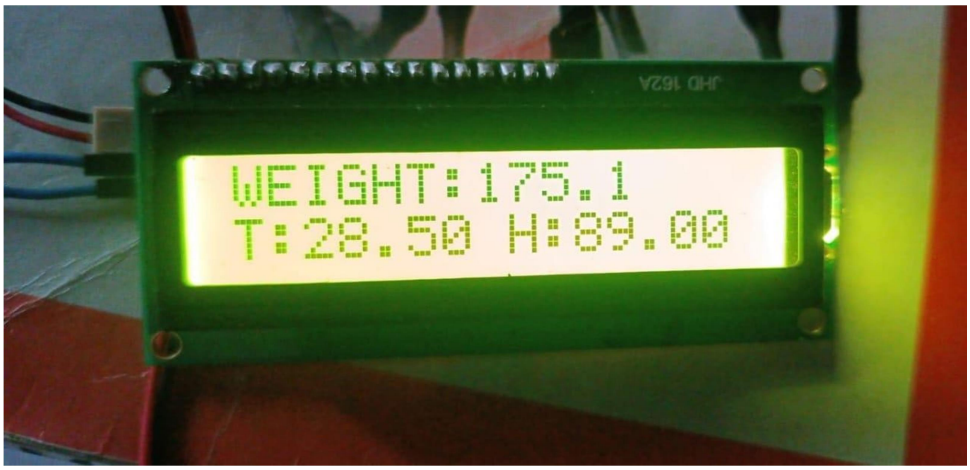


Fig 5 Container with Food

The container is equipped with IoT sensors that can detect and identify the type of food and its quantity. These sensors may use various technologies such as weight sensors, RFID (Radio-Frequency Identification), or image recognition to determine the contents accurately.

Conclusion and Future Scope

Conclusion

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

Future Scope

The future scope of solar-based e-uniforms for soldiers who work in extreme high or low temperature is vast and exciting. Here are some potential areas for future development and application of this technology:

Expansion to other industries:

Solar-based e-uniforms technology could be expanded to other industries where workers are exposed to extreme temperatures and environmental conditions, such as firefighters, construction workers, and miners.

Advancements in Materials Science:

Advancements in materials science could lead to the development of even more lightweight and durable materials that could be used in the construction of solar-based e-uniforms.

Energy Storage and Management:

The development of better energy storage and management systems could enhance the efficiency and reliability of solar-based e-uniforms. The integration of energy storage and management systems could provide soldiers with a reliable source of energy even when the sun is not shining.

References

[1] http://www.foodbank.org.au/wpcontent/uploads/2016/05/Foodbank-Hunger-Report2016.pdf.

[2] I. FAO, WFP, "The State of Food Insecurity in the World Meeting the 2015 international hunger targets: taking stock of uneven progress," Food and Agriculture Organization of the United Nations, Rome2015, Available: http://www.fao.org/3/a- i4646e.pdf, Accessed on: 24/04/2017.

[3] Fao, "Global Initiative on Food Loss and Waste Reduction," Food and AgricultureOrganization of the United Nations (FAO)2015 2015, Available: http://www.fao.org/3/a-i4068e.pdf, Accessed on: 2016/08/09/.

[4] J. Gustavsson, C. Cederberg, U. Sonesson, R. V. Otterdijk, and A. Meybeck, "Global food losses and food waste – Extent, causes and prevention," FAO, Rome2011 2011, Available: http://www.fao.org/docrep/014/mb060e/mb060e00.pdf, Accessed on: 2016/08/09/.

[5] S. Victoria, "Sustainability Victoria Annual Report 2014- 15," Sustainability Victoria2015,Available:www.sustainability.vic.gov.au//media/resources/documents/w ho-we-are/business-planand-annual-report/sustainability-victoria-annual-report2014- 15.pdf?la=en.

[6] S. Bird, "Unpalatable truth about food banks the Left finds so hard to swallow: Political football and

undeserving claimants distract from the many who are in genuine need," in Daily Mail, ed, 2014.

[7] S. M. Simon Murphy, "No ID, no checks... and vouchers for sob stories: The truthbehind those shock food bank claims," in Daily Mail, ed, 2014.

[8] m. hore, "Geelong charity Hunger for Knowledge asked welfare groups to pay forfood," in Geelong Advertiser, ed, 2014. [9] C. Walsh, "Restaurateur banned from Foodbank dealings," in Herald Sun, ed. Northern Territory, Australia, 2016.