International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

Prototype for Cooked Food Quality Monitoring System using Application Based IOT Integrated System

Dr. Dhananjay Matkedar[1], Rahila Fatima[2], Saima Danish[2], Syeda Tuba Mahvesh[2], Farzana Khanam[2]

[1,2] Computer Science and Engineering, Guru Nanak Dev Engineering College, BIDAR,India

ABSTRACT

In the era of technology advancement, everything requires monitoring and controlling. This project proposes an IOT framework for facilitating food monitoring for quality of the food, so that it would not get contaminated due to surrounding conditions during storage. In present scenario, the work done is in terms of the sensed value that have been recorded and a detailed analysis has been performed but automated controlled alternatives are not present. The proposed solution analyzes temperature, moisture, light as these parameters affect nutritional values of food items such as cooked food which had left over in restaurants ,and makes the analysis results accessible to the user via a mobile application. An android application is used for storage of data values sensed in real time and also for analysis of results.This project has android application which is basically for restaurant, function hall and orphanage users to upload or request the good quality of food, which the food after being tested with the help of IOT and it can be proceed further according to the availability and needs of user requirements.

Key words: Food monitoring, IOT, Sensors (DHT11, ODOR), Android Application.

I. Introduction

The framework we propose is expected for food quality checking. It persistently screens the gas level, the stickiness level and the temperature of vacuum-stuffed food varieties. The paper is organized in 4 significant segments. The main area presents the cutting edge in IOT and Food Packaging Technology. The second segment of the article contains the portrayal of the test sensors stage which peruses and communicates the information to the focal regulator for examinations. The article proceeds with the depiction of the regulator utilized for gathering and putting away the information and the instruments accommodated breaking down information to separate helpful data in regards to the pressed item. The trial results, ends and future advancement viewpoints are talked about in the last two areas of the article.

Consistently, food, adding up to 1.3 billion tons is being squandered all throughout the planet. Likewise, as per an investigation by NRDC, the Food Trust demonstrates that up to half of the produce is tossed out while still palatable. Envision, regardless of whether a small amount of such food waste can be saved, it might profit almost 9 million individuals who bite the dust of craving and appetite related sicknesses consistently.

With IOT, and computer vision procedures in a food the board framework, the Smart Food Monitoring arrangement examines a few factors and gives significant measurements. The arrangement impacts various regions including android application, food administrations and dissemination channels and . What's more, with temperature control in coolers and refrigeration frameworks, organizations can forestall food wastage and consent to sanitation guidelines.

II. Literature Review

The internet of things (IOT) is an idea and, certainly, a model based with the understanding of the ubiquity of a huge number of items which, through remote or cabled associations and interesting tending to plans, can cooperate and work together with different articles, making new administrations and applications pointed toward arriving at a shared objective. In this light, the guarantee of a wise climate is amazingly enchanting, imagining an existence where reality and the fake computerized virtual segments of the world collaborate to establish a superior climate. Being another Internet upheaval's, IOT will likely permit things and objects to be associated whenever and anyplace with anybody, utilizing any organization, way and administration. Since gadgets can give data about themselves, objects are perceived and educated by settling on relevant choices.

They can get to data that has been utilized in an association with different things, or they can be portions of complex administrations. The creating speed of this innovation in Europe by illustrating, testing and carrying out items by 2020, shows that the execution of canny conditions will be extremely quick. Sooner rather than later, figuring, stockpiling and correspondence administrations will be exceptionally accessible and circulated. Individuals, insightful items, vehicles, stages and the encompassing space—for instance, wired sensors, machine-to-machine gadgets, and radio-recurrence recognizable proof (RFID) labels—will make a common decentralized pool of interconnected assets through a powerful organization of organizations. IOT in this setting is a conventional term, and everything items can assume a functioning part through the Internet association, forming a keen climate where the job of the Internet has changed.

III. System design

Frameworks configuration is the way toward characterizing the engineering, parts, modules, interfaces, and information for a framework to fulfill indicated necessities. Frameworks configuration could be viewed as the utilization of frameworks hypothesis to item advancement.

3.1 System Architecture

A framework design is the calculated model that characterizes the construction, conduct, and more perspectives on a framework. A design portrayal is a conventional depiction and portrayal of a framework, coordinated such that supports thinking about the constructions and practices of the framework. A framework engineering can comprise of framework parts and the sub-frameworks fostered that will cooperate to carry out the general framework.

A frameworks engineering utilizes components of both programming and equipment and is utilized to empower plan of a particularly composite framework. A decent design might be seen as an apportioning plan, or calculation, which segments the entirety of the framework's present and predictable necessities into a useful arrangement of neatly limited subsystems with nothing left finished. That is, it is a dividing plan which is select, comprehensive, and thorough. A significant motivation behind the dividing is to mastermind the components in the sub frameworks so that there is at least interdependencies required among them. Following is the design of the proposed framework.

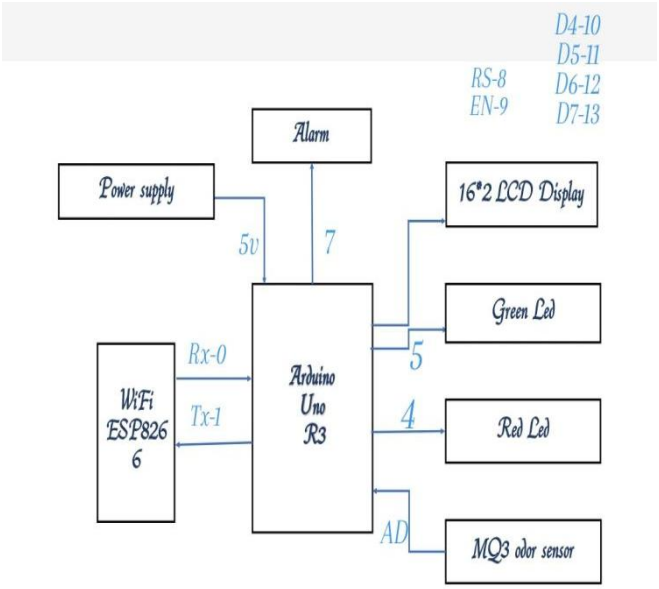

Fig. 4.1(a) : Architecture of the Proposed System.

3.2 Control Flow

The Control Flow of the venture decides the real progression of the task that is the means by which it is really accomplished. It shows the genuine way of how the framework configuration is accomplished. Coming up next is the stream chart of the proposed framework.

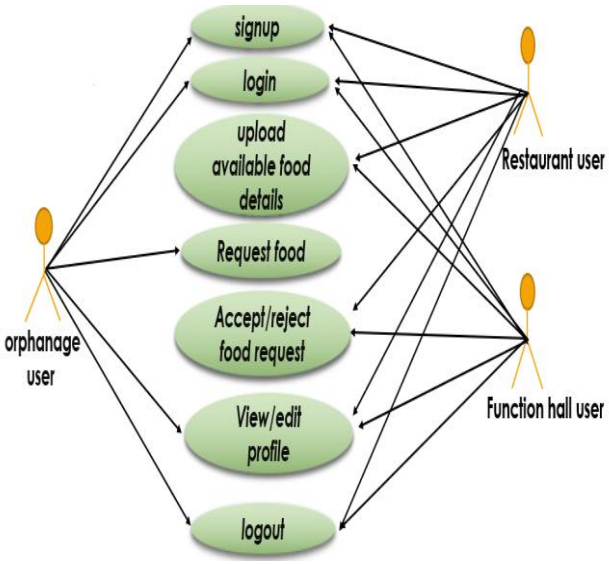

Fig 4.2: Control flow of AndroidApplication

IV. ADVANTAGES

1.Monitoring helps ensure quality and safety because it requires food to be handled in specific ways. Implementing monitoring processes should include those that can be tracked to identify potential issues and concerns over the safety and quality of food products.
2. Save the food for needy people.
3. Maintain hygiene and clean environment.
4. Save data into cloud for future analysis.
5. Reduce the commercial loss.
6.Increase commercial profit.
7.Food will not get waste.
8.Fresh food will serve to needy people.

VI. IMPLEMENTATION

Implementation is the cycle that transforms systems and plans into activities to achieve vital targets and objectives. It is an acknowledgment of a specialized determination or calculation as a program, programming part, or other PC framework through PC programming and organization. Numerous executions might exist for a given determination or standard. For instance, internet browsers contain executions of World Wide Web Consortium-suggested details, and programming advancement instruments contain executions of programming dialects.

6.1 About Tools

The devices which were utilized for execution of the undertaking are as per the following

- Arduino IDE
- Android Studio
- Microsoft Visual Code
- MongoDB

Arduino IDE: It is free source Arduino programming that assists with composing codes and program Arduino board. This product is viable with an

Arduino board.

Android studio: For application development, you will need Android Studio and the Android SDK. ... Android Studio is an IDE. That means "coordinated improvement climate," which is basically an interface where you can enter your code (principally Java or Kotlin) and access all the distinctive tools necessary for advancement.

MongoDB: As a backend developer, you can use MongoDB Realm to quickly foster cloud-based applications that can respond to changes in your MongoDB Atlas information, interface that information to different frameworks and administrations, and scale to fulfill need without the requirement for dealing with your own database and worker foundation.

Microsoft Visual Code

Visual Studio Code is a lightweight yet amazing source code editorial manager which runs on your work area and is accessible for Windows, macOS and Linux. It accompanies worked in help for JavaScript, TypeScript and Node.js and has a rich biological system of expansions for different dialects (like C++, C#, Java, Python, PHP, Go) and runtimes, (for example, .NET and Unity).

The programming language which we used are

- **Node.js**
- **C++**
- **JAVA**

Role of IOT

Internet of things is feasible in establishing a visibility and traceability system in handling perishable food. basic sensors such as temperature, humidity and light sensor and odor sensors are used to monitor different parameters that causes food spoilage and then the data is sent to the cloud.In addition to this, WiFi and LCD display also used in the system. The user is notified about the quality changes using IOT technology and can control the spoilage of food manually or automatically.

Role of Android Application

Android Application plays an important Role:

There are three users: restaurant, function hall and orphanage. The Food after being tested with the help of Arduino, the restaurant or function hall users can be able to upload the food details in the application home page.

The uploaded food can be request by nearest Orphanage users by sending a request to them. Then it’s up to restaurant or function hall user to accept/reject the request send by the orphanage and deliver to them. All the users can be able to view/edit the profile.

VII. CONCLUSION

Our Smart Food Monitoring Solution is designed to help businesses determine the freshness of produce as well as prevent food spoilage and wastage. Our solution monitors the quality of freshness using a combination of next-generation technologies that assure safety from inventory with an ideal environment. The integrated IOT-based online monitoring approach using smart logistics can address the critical needs of reducing food waste. there are several challenges to making the technology work reliably in the highly dense and dynamic environment of real-world logistics operations. Further advances are needed to derive actionable intelligence from the collected data in real-world conditions, such as the presence of faulty modules or patchy cellular communications. Real-world logistics operations also have other complexities that make flexible distribution challenging, such as delivery contracts, party-specific distribution policies, and specific data- privacy needs. We hope this article will spur further research and result in solutions to issues.

This also provides a user interface through an app where they can monitor and they can request the food from hotel/restaurant directly from the app and fresh food will get deliver to needy users.

REFERENCE

[1] M. Omid, M. Khojastehnazhand, A. Tabatabaeefar, “Estimating volume and mass of fruit by image processing technique”, Volume 100, Issue 2, September 2010

[2] J.W. Gardner, P.N. Bartlett, "A brief history of electronic noses," Sens. & Actuators B 18–19 (1994) 211–220

[3] US, "FOODsniffer", Myfoodsniffer.com, 2018. [Online]. Available: http://www.myfoodsniffer.com. [Accessed: 25-Jun- 2018].

[4] Ee Lim Tan, Wen Ni Ng, Ranyuan Shao, Brandon D. Pereles and Keat Ghee Ong,” A Wireless, Passive Sensor for Quantifying Packaged Food Quality”, Full Research Paper

[6] Review Paper: Materials and Techniques for In Vivo pH Monitoring - IEEE Journals & Magazine. (2017)