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IOT Based Kitchen Wardrobe Stock Tracking System

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ABSTRACT: In modern world, everything is being automated, where people normally prefer smart devices for their daily usage instead of recording all the details manually. The home automation system based on Internet of Things is designed and employed in kitchen wardrobe. The grocery products in a kitchen need to be monitored manually and decisions have to be taken by the user. Keeping track of the kitchen inventory leads to more informed planning and decision-making. Keeping up and keeping track of regular common nourishment stock is getting to be one of the major issues in different families, eateries and nourishment chains. Recharging the holders at the correct minute additionally knowing the expiry of nourishments may be a major concern. Working individuals and busy eateries discover it troublesome to keep track since it requires human intercession at the proper time. Through this, it is simple to keep an eye on potential issues related to squander and pilferage. In this extend we propose an IOT (Web of Things) based nourishment stock following framework, which guarantees genuine time checking of the kitchen stock. The collected data can be analyzed in genuine time to get it the every day or week after week utilization additionally anticipate usage/consumption designs. There's too arrangement to check the genuine time status, history of utilization throughan application. Thus a Smart Kitchen Wardrobe to manage the grocery products in the kitchen wardrobe using Internet of Things is proposed.

KEYWORDS: Internet Of Things, tracking system, monitoring

I. INTRODUCTION

The Kitchen stock administration gets to be more profitable for more educated arranging, decision- making and extravagance of people. Each day the present day individuals anticipate modern gadget and modern innovation to disentangle their day to day life. The trailblazers and takes after are continuously attempting to discover unused things to satisfy the individuals but the method is still interminable. Presently a days, kitchen robotization became modern and exact to screen the areas. Within the 2000s, Web network got to be the sort for numerous applications and today is anticipated as portion of numerous endeavor, mechanical and customer items to supply to get data. However, these gadgets are still essentially things on the interaction and checking through apps and interfacing. With the headways in Web innovations, and remote sensor organize (WSN), a modern drift within the period of ubiquity is being realized. Gigantic increment in clients of web and alteration on the web working advances empower organizing of ordinary objects. This framework finds a wide application in regions where physical presence is not conceivable all the time. The system offers a complete low cost, powerful and user-friendly way of real-time monitoring and remote control of kitchen wardrobe system.

II. LITERATURE REVIEW

2.1 Iot Based Smart Inventory Management System For Kitchen[1]

This paper is about sending the grocery details to the user without opening the refrigerator. It operates by using digital camera and monitor the grocery items and sent the information to the user through IoT.

2.2 A SMART KITCHEN AUTOMATION AND EGG TRAY MANAGEMENT SYSTEM USING IoT [2]

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This paper is about sending the Number of egg present in the tray details to the user. It operates by using sensor under the egg tray and sent the information to the user through IoT.

2.3 SMART KITCHEN WARDROBE BASED[3]

Monitoring the position of the each product in the container Keep tracking and detecting of the levels of grocery products in each containers daily. Notify the user that the particular product level is low, when its level goes below its threshold and those products had to be bought and stored in the respective containers again.

2.4 SMART HOME MONITORING AND CONTROLLING SYSTEM USING ANDROID PHONE[4]

In this project, it describes a zig-bee module and android based home monitoring system for security, safety and healthcare for human. This system is flexible and can be implemented in many research areas. This paper introduces a smart home system which could surprise household appliances remotely and realize real-time monitoring of home security status through mobile phone. The personal computer is used to monitor the various parameters in the proposed system. Android Phone is main advantage compared to personal computer for using any place.

2.5 SMART KITCHEN CABINET FOR SMART HOME[5]

This paper describes a conceptual design of a smart kitchen cabinet. This system incorporates grocery item identification, inventory management of grocery items and automatic generation of shopping list. The smart kitchen cabinet consist of two different sections each leveraging two sensing mechanisms: weight sensing section consist of fixed size container having RFID ta0g defining container size with product description RFID tag reader, and ultrasonic level sensor for measuring the level of contents in the container. RFID tag reader, and weight sensor meaning all the content son that shelf.The embedded sensor measure the weight or the level of the items which in updated to the database whenever grocery items are placed or taken out for cooking. When the item search the predefined threshold level, the system generates the automated shopping list.

2.6 IoT BASED GROCERY MONITORING SYSTEM [6]

This paper provides an insight into the development of an IoT based prototype to monitor the grocery levels at homes and supermarkets. A compatible and affordable wireless sensor network is implemented. Serving as an asset for research in the food industry, this implementation can be used to observe the food consumption patterns. Using this prototype as a base, real-time applications can be developed to manage our current inventory efficiently with its implications in food and e-commerce industry.

2.7 HOME AUTOMATION [7]

Although smart devices have been available in the past, their use has been restricted because they lack intercommunication. One suggested solution is to connect all smart devices using hard wiring; however, the resulting portability problem then creates a demand for a wireless network capable of accommodating the devices. Organizations have therefore developed 294 Al-Sumaiti et al.: Smart Home Activities: A Literature Review 295 management, additional services, and gateways for smart devices. Smart home network technology has been deployed in different systems, such as powerline and radio frequency systems. These developments enable the deployment of a network in smart devices but only with a high associated cost that has itself become a new challenge.

2.8 Asmart Kitchen Infrastructure[8]

In the future our homes will be more and more equipped with sensing and interaction devices that will make new multimedia experiences possible. These experiences will not necessarily be bound to the TV, tabletop, smart phone, tablet or desktop computer but will be embedded in our everyday surroundings. In order to enable new forms of interaction, we equipped an ordinary kitchen with a large variety of sensors according to best practices. An innovation in comparison to related work is our Information Acquisition System that allows monitoring and controlling kitchen appliances remotely. This paper presents our sensing infrastructure and novel interactions in the kitchen that are enabled by the Information Acquisition System.electromagnet and theplunger, which is located inside the coil, is attracted towards the centre of the coil by the magnetic flux setup within the coils body, which in turn compresses a small spring attached to one end of the plunger. The force and speed of the plungers movement is determined by the strength of the magnetic flux generated within the coil.

When the supply current is turned “OFF” (de-energised) the electromagnetic field generated previously by the coil collapses and the energy

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stored in the compressed spring forces the plunger back out to its original rest position. This back and forth movement of the plunger is known as the solenoids "Stroke", in other words the maximum distance the plunger can travel in either an "IN" or an "OUT" direction, for example, 0 to 30 mm

III. METHADOLOGY

The working is about collecting information of the stocks from the kitchen wardrobe and sending the data to the user mobile app via cloud and to give an alert notification when stocks is insufficient. It consists of both hardware part software part.

Hardware part consists of Load cell, HX711 amplifier, Arduino UNO and Node MCU. Here Load cell which is fixed with the container, measures the weight of the stock. Total setup with Load cell and containers is mounted on a wooden board for perfect balance and accuracy. Stack cell may be a sensor or a transducer that changes over a stack or drive acting on it into an electronic flag. This electronic flag can be a voltage alter, current alter or recurrence alter depending on the sort of stack cell and circuitry utilized. It sends data to the HX711 module. The HX711 stack cell intensifier is utilized to induce quantifiable information out from a stack cell or strain gauge.

In this extend, we have utilized Arduino to control entire the method. Stack cell faculties the weight and supplies an electrical analog voltage to HX711 Load Amplifier Module. HX711 may be a 24bit ADC, which opens up and carefully changes over the Stack cell yield. At that point this intensified esteem is nourished to the Arduino. Presently Arduino calculates the yield of HX711 and changes over that into the weight values in grams.

Different data from different Load cell is collected to the Arduino Uno via HX711 and calibrated in a correct measurement. The final data of all stocks in means of weight is then send to the Node MCU through serial communication from the Arduino Uno. ESP8266 Node MCU is mainly used to send data to the required cloud through internet connection as it has wifi facility. The code for Arduino Uno and Node MCU is integrated to the device using a software called Arduino IDE which is open source software.

Software used here is Android studio for creating mobile application and Firebase for creating database in cloud which acts as mediator for the hardware setup and the mobile application. In cloud each stock is stored in parent cell and its weight is continuously updated in child cell. We can edit the stocks name via Mobile application, weight is automatically and continuously updated from the hardware.

We have two major section in Mobile application after the splash screen. One is Stocks section another one is Notification section. In stocks section we can able to view real time quantity of the stocks present in kitchen wardrobe in the form of weight(grams). Based on our observation we can edit name of the stocks in an order. Notification section shows alert message when a stock is below threshold value (example:50g). I also show notification in the notification bar of the mobile to check the stock. When the stock is below the threshold value we can able to get notification in mobile, on clicking that notification we will directed to the notification section of the app, and there we can able to fine which particular stock is insufficient in our kitchen wardrobe.

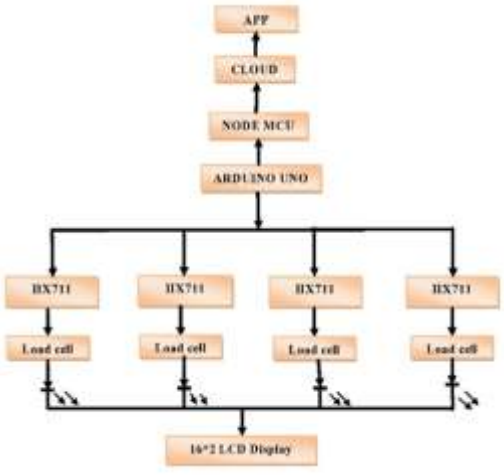

Figure 1: Block Diagram of Proposed Model

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IV. FLOW CHART

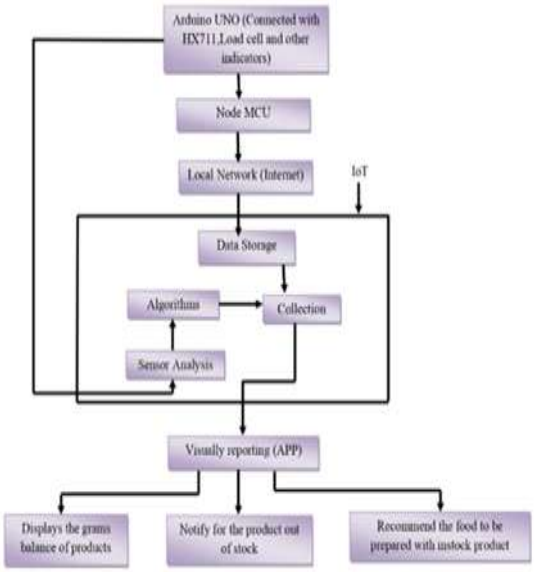

Figure 2: FLOW CHART

V RESULT

Figure 5: Cloud Firebase Result

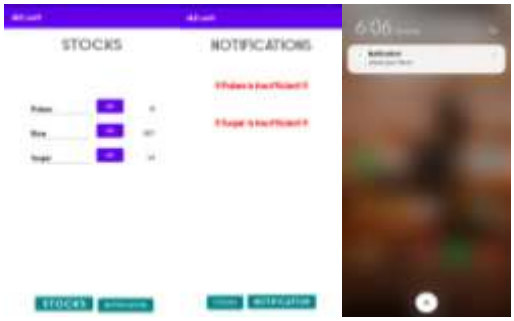

Figure 6: App Result

Figure 3: Kitchen Wardrobe Model

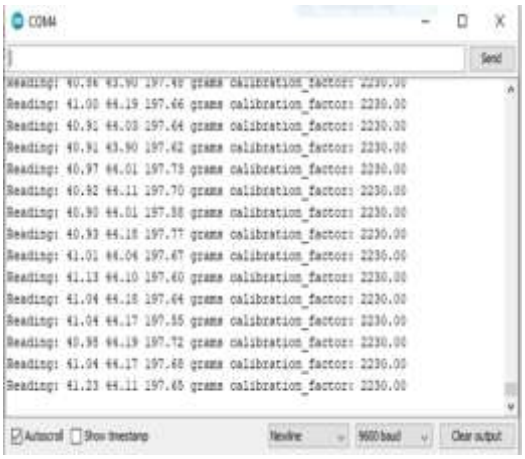

Figure 4: Weight Calculation Result

VI CONCLUSION

Our IoT based kitchen wardrobe stock tracking system is designed, constructed and tested. The result gotten from the tests carried out appears that the framework is competent of sending alarms to versatile at whatever point there is shortage of stocks within the kitchen closet. Subsequently this framework can be utilized in homes and open buildings such as inns and eateries. This system provides tracking of your kitchen stocks. For this we are using Load cell to measure weight of each stocks in the system. Threshold values are set , when it crosses that values it will send a notification to the user, about the shortage of stocks and information of the particular stock . Server can communicate with the client through android gadget. It can prevent the sudden shortage and helps to know required groceries or ingredients

whenever and wherever we want and can buy that particular product. The as it were to get the data in the event that the client is distant form the domestic. It is a cost effective and time-consuming solution. We can use this in various applications like home automation, Hospital management, Military management, Zoo management industrial applications.

REFERENCES

[1] Sifat Rezwan, Wasit Ahmed, MahrinAlamMahia and Mohammad Rezaul Islam: "IoT Based Smart Inventory Management System for Kitchen Using Weight Sensors", Fourth International Conference on Advances in computing, Communication and Automation (ICACCA) ,IEEE,2018

[2] K. Sakthisudhan, S. Mohanraj, T.V.P. Sundararajan: "A Smart Kitchen Automation and Grocery Management System using IoT", International Journal of Recent Technology and Engineering (IJRTE) ISSN: 2277-3878, Volume-8, Issue-1, May 2019.

[3] Omkar Mulay, Manas Bhalerao, SayaliBhamare, Vinod Gaikwad, Dr. Kamini Nalavade : "IoT Based Food Inventory Tracking System for Domestic and Commercial Kitchens." ISSN: 2455-2631 October 2019 IJSDR | Volume 4, Issue 10

[4] Wu-Jeng Li, Chiaming Yen, Yon-Sheng Lin, Shu-Chu Tung, ShinMiao Huang, "JustIoT Internet of Things based on the Firebase real-time database", International Conference on Smart Manufacturing, Industrial aand logistics Engineering, IEEE,2018

[5] Desai, H., Guruvayurappan, D., Merchant, M., Somaiya, S., Mundra, H.: IoT based grocery monitoring system. Presented at the Fourteenth International Conference on Wireless and Optical Communications Networks (WOCN). IEEE, Mumbai, 24–26 February 2017. [3]. Bradbury, J., S

[6] P Reddy, P.P., Suresh, P.V.B., Reddy, P.T., Manitha, P.V., Deepa, K.: Remote control of an electronic device using EOG. In:2017 International Conference On Smart Technologies For Smart Nation (SmartTechCon), Bangalore, pp. 780–783 (2017).

[7] Vigneshu, R.I., Dinesh Udhayan, R., Raghav, S., Wilfred Thadeus, P., Anguselvan, S., Prabhu, E.: Design and implementation of digital household energy meter with a flexible billing unit using FPGA. Int. J. Appl. Eng. Res. 10(11), 28331–28340 (2015).

[8] Muller, I., de Brito, R.M., Pereira, C.E., Brusamarello, V.: Load cells in force sensing analysis—theory and a novel application. IEEE Instrum. Meas. Mag. 13(1), 15–19 (2010).