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# Automated Billing Trolley Based on IOT

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**ABSTRACT:** People are interested in shopping in supermarkets and malls these days. A grocery staffer scans the merchandise to complete the billing process. Therefore, clients must wait a considerable period for billing purposes. On weekends, things will get much worse. Customers must stand in a long queue. Therefore, we developed a technology known as the Automatic Billing Trolley to get around this. The complete bill will automatically appear on the LCD display when the RFID reader is placed close to the trolley. A message will be sent to the customer's mobile device and the entire bill will be mailed to them.

**KEYWORDS:** ESP32,LCD display, RFID tag, RFID reader, keys,LM2596.

## I. INTRODUCTION

Now a days shopping at supermarkets and malls has increased where customers looking for convenience in their shopping. However, the lengthy procedure of using billing systems is a regular way which leads to lengthy queues. Customer's need to wait in lengthy queues, which is especially on weekends and during busy shopping hours. We present a system called Automatic Billing Trolley, to overcome this issue and improve client happiness. This method uses RFID (Radio-Frequency Identification) technology that is built into shopping carts. Just load the trolley with RFID-tagged items, and the total bill is shown on an LCD screen fixed to the cart. The total bill will be sent to the customer's mail and notification will be sent to the customer's mobile.

## II. LITERATURE REVIEW

[1] In the year 2021, Automatic Billing System Using Smart trolley Boya Mohan Sai, Kamepalli Venkata Rao, Gurleen Kaur Walia Department of Electronics and Communication Engineering, Lovely Professional University: The project can demonstrate the likelihood of employing a wireless system for developing wise searches System that automates the whole request process. This technique is developed by extremely honest, and low-cost. It's reliable and genuine due to productive use of Wireless system. The technique is system is additionally associate in nursing energy constraint because it uses passive sensing an element, and it reduces the communication demand. This increases security using RFID technique.

[2] "In the year 2014,saw the introduction of an automated invoicing system by Chandrashekhar for supermarkets and Malls. When customers utilize PID, which transmits information about their products to the central invoicing system, they may pay their bills without standing in line at cash counters. Customers can pay their bills with cards. the RFID reader's 8-bit microprocessor, which it utilizes to receive 8-bit data. An EMBEDDED C program needs to be built in order to interact with the EEPROM because the AT89S52 don't have an integrated I2C protocol. Programmers may find it challenging to create programs that synchronize with EEPROM as a result. To improve the efficiency of this application, additional I2C protocol functionalities that come with some other microcontrollers and microprocessors can be used.

[3]"Using sensors, an automatic shopping trolley Dept. of Electronics and communications Engineering, JSPM NTC, Pune, Deepali Pandita 1, Ashwini Chauthe 2, and Nikhil Jadhav 3 states that the project was built at low cost and less power consumption. Customers can enjoy shopping with their project without having to push the shopping cart themselves. The trolley has sensors that will track the person and travel for a certain distance. When the costumer stops, it will also stop as well. An RFID reader is placed to the trolley to track the whole amount.



[4] The widespread use of devices like mobile phones has led to the growth of the Short Message Service (SMS) industry, which is estimated to be worth billions of dollars by Abhishek Patel, Priya Jhariya, Sudalagunta Bharath, and Ankita Wadhawan in 2021. With texting services becoming less cost, there's been a rise in unsolicited business offers and SMS spam. In some regions like parts of Asia up to thirty percent of SMS messages were discovered to be spam in 2012. The primary causes of challenges in SMS spam filtering include short messages, limited functionality.

[5] “Kavya P and Dr. A. Rengarajan state that unsolicited SMS spam messages pose a threat to user privacy and data security as a result of rising mobile phone usage and technological improvements. Since this field is still in its infancy, there is not a complete literature review on SMS spam detection at this time. This work uses machine learning techniques for filtering and treats SMS spam detection as a two-class document classification problem. The primary goals are to use Flask, a Python micro-framework for web service development, to design a Naive Bayes model for spam message recognition and to develop an API for the model.

[6] This research focuses on current advances in text, machine learning techniques and deep learning approaches for spam text identification. The usual problems and datasets used in social media spam identification researches are also shown in this article. Sanaa Kaddoura, Ganesh Chandrasekaran, Daniela Elena Popescu, and Jude Hemanth Duraisamy by 2022, hope to detect spam on a number of social media platforms like Facebook, YouTube, Twitter, Instagram, email. Spam content, fake accounts, and suspicious links, increased as a result of the sudden rapid growth.

[7] “Chensu Zhao, Yang Xin, Xuefeng Li, Yixian Yang, and Yuling Chen present a new methodology for detecting spam in the social networks in 2020, which addresses issue of imbalanced data. To accomplish effective classification, the method employs heterogeneous stacking-based ensemble technique that combines six distinct base classifiers with cost-sensitive learning in a deep neural network. Experiments with Twitter data indicate better performance than conventional methods. Future research aims to improve spam identification by investigating deeper feature representations and experimenting with the other dataset.

[8] “Through an analysis of more than thirty scientific journals, N. Widiastuti did research in 2019 that looked at the development of spam detection algorithms. Notwithstanding the achievements of Convolutional Neural Networks (CNN) in text mining and Natural Language Processing (NLP) fields for tasks like sentiment analysis and document classification, difficulties still exist, especially in computing efficiency and uncharted territory like named entity recognition. According to the study, CNN's computational efficiency should be assessed, and further NLP applications should be investigated, especially with regard to improving spam detection techniques.

[9] Because SMS does not require an active internet connection, it continues to be an important shape of communication in present digital market. However, because SMS is vulnerable to spammers and hackers, robust identification measures are needed. In 2020, Suman Kumar Das, Soumyabrata Saha, and Suparn Das Gupta conducted a study on a machine learning-based approach that utilizes TF-IDF Vectorizer to detect fraudulent SMS messages, achieving an accuracy rate of over 95 percent. Hence, the results prove how machine learning algorithms may successfully oppose SMS-based violent attacks, leading to a more secure mobile computing environment.

[10] Sahar Bosaeed, Iyad Katib, and Rashid Mehmood proposed the method for detecting SMS spam in 2020. The program is versatile for both outgoing and incoming SMS messages. It uses preprocessing methods and machine learning classifiers such as Naive Bayes and Support Vector Machine, and it operates on cloud, fog, or edge layers. Based on user choices, suggestions are generated from an examination of fifteen datasets. The Weka-based implementation offers flexible classification and execution, where SVM outperforms other methods. Subsequent research endeavors will center on enhancing classification techniques and addressing the escalating issue of SMS spam within communities and smart cities

### III. PROPOSED WORK

Now a days the person have to stand in a queue for billing. In the billing process, an employee scans each product's barcode and bills it to the final . This process can take a lot of time and it can be even worse on holidays or weekends. To overcome this, a smart way to shop has been developed .By placing the Rfid Reader near the trolley handle, So that the billing of product is done easily near the trolley itself and the total bill with GST calculations is displayed after the





completed of shopping and payment is done there itself. Once the purchase is complete, the purchase details are sent to the customer mail. Arduino IDE software tool is used for programming.

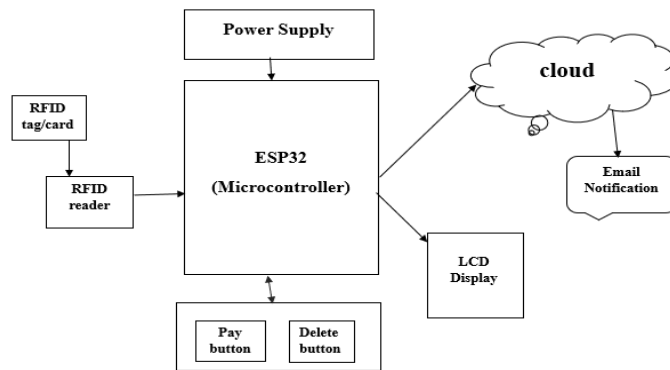


Fig 1 Block Diagram

### 3.1 IMPLEMENTATION METHODS

The architecture of an automated billing system using smart trolley for groceries in shopping mall Using automatic bill trolley, customers can save time at the counters. The system is meant specified products data is transferred to central system, where customers will pay their bills in simple way. The system helps in storing with associate degree economical process of registration on each purchase of an associate item. The automated cart has the ability to create the shopping quicker and easier. This project contains a RFID tag's scanner which is placed on the trolley. The main points regarding merchandise are square measure out there within the mall square measure already hold on in their server.

### IV.RESULT ANALYSIS

Based on this project , the circuit is implemented by using the components like; ESP32,RFID,LCD,CONNECTING WIRES,KEYS(DELETE KEY,PAY KEY),BLYNK APP. By using RFID we can scan the product details ,then automatically total cost is displayed on the LCD. In KEYS we have two different types of keys ,they are DELETE KEY and ADD KEY . If we want to delete or remove a product then we should press the DELETE KEY then automatically that product's cost will be deducted from the total bill . If we want to add a product automatically that product's cost will be added to the total bill . If we want to pay the bill then by pressing PAY KEY the total bill will be sent to customers mobiles in the form of SMS or EMAIL by sing that we can pay the bill.

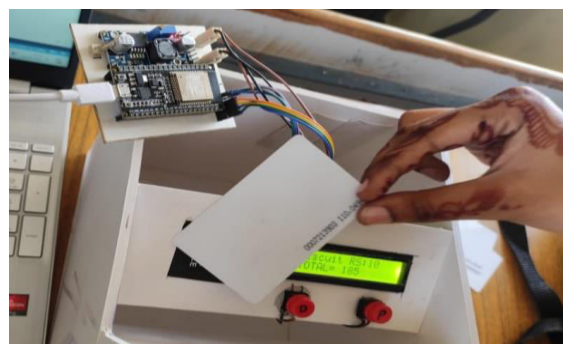


Fig2: Implementation



Fig 3: Total Cost Displayed On LCD

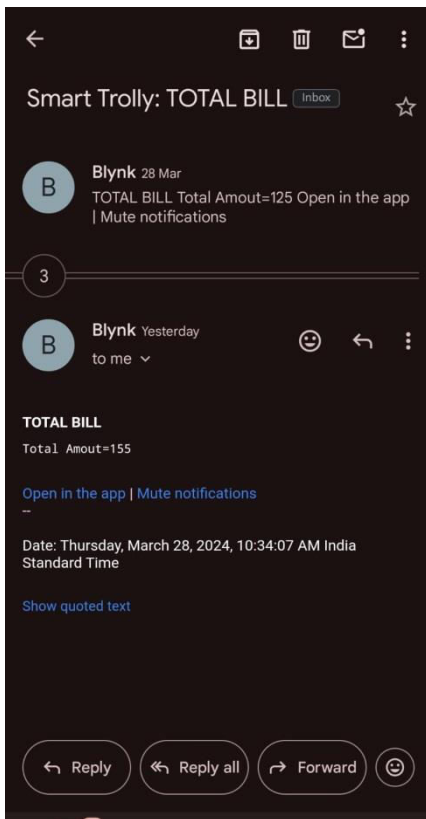


Fig 4 : EMAIL Notification

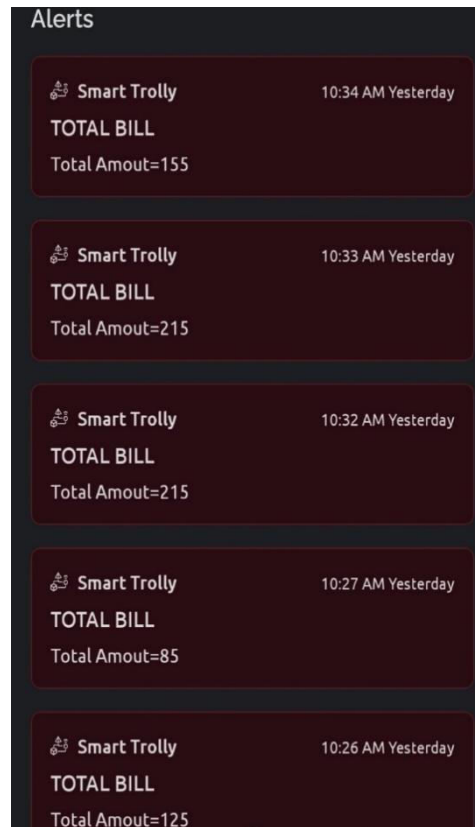


Fig 5 :Notification send to Phone

### V. CONCLUSION

This project can demonstrate the likelihood of employing a wireless system for developing. This technique is developed by extremely honest, and low-cost. It's reliable and genuine due to productive use of Wireless system it reduces the communication demand. This increases security using RFID technique. It provides contact less shopping and also it reduces waiting time at the billing counters for customers. The products code are detected by the RFID reader. At the last products list are detected and displayed on the LCD cart. Then, the ultimate final bill is sent to the customer's mobile via SMS or EMAIL.



### REFERENCES

- [1] Automatic Billing System Using Smart trolley BoyMohan Sai, Kamepalli Venkata Rao, Gurleen Kaur Walia Department of Electronics and Communication Engineering, Lovely ProfessionalUniversity.
- [2] Chandrashekhar P, Ms. T. Sangeetha —Smart shopping cart with automatic central billing system through RFID and zigbee, IEEE,2014.
- [3] Automatic Shopping Trolley using Sensors Deepali Pandita 1, Ashwini Chauthe2, Nikhil Jadhav 3 123 Dept. of Electronics and Telecommunications Engineering JSPM NTC, Pune.
- [4] Abhishek Patel , Priya Jhariya , Sudalagunta Bharath and Ankita Wadhawan, SMS Spam Detection using Machine Learning Approach, © 2021 IJCRT |Volume 9, Issue 4 April 2021 | ISSN: 2320-2882.
- [5] Kavya P , Dr. A. Rengarajan, A Comparative Study for SMS Spam Detection, International Journal of Trend in Scientific Research and Development (IJTSRD) Volume 5 Issue 1, November-December 2020 Available Online: [www.ijtsrd.com](http://www.ijtsrd.com) e-ISSN: 2456 – 6470, Unique Paper ID – IJTSRD38094.
- [6] Sanaa Kaddoura, Ganesh Chandrasekaran, Daniela Elena Popescu and Jude Hemanth Duraisamy ,A systematic literature review on spam content detection and classification,2022, PeerJ Comput. Sci. 8:e830 DOI 10.7717/peerj-cs.830.
- [7 ] Chensu Zhao ,Yang Xin ,Xuefeng Li , Yixian Yang and Yuling Chen, A Heterogeneous Ensemble Learning Framework for Spam Detection in Social Networks with Imbalanced Data, MDPI, Appl. Sci. 2020, 10, 936; doi:10.3390/app10030936.
- [8] N. Widiastuti, Convolution Neural Network for Text Mining and Natural Language Processing, 2019, IOP Conference Series: Materials Science and Engineering, doi:10.1088/1757-899X/662/5/052010.
- [9] Suparna Das Gupta, Soumyabrata Saha and Suman Kumar Das, SMS Spam Detection Using Machine Learning, Journal of Physics: Conference Series, Volume 1797, International Online Conference on Engineering Response to COVID-19 (IOCER-COVID-19) 2020 8-9 October 2020, JIS College of Engineering, Kalyani, West Bengal, India, DOI 10.1088/1742-6596/1797/1/012017.
- [10] Sahar Bosaeed, Iyad Katib, Rashid Mehmood, A Fog-Augmented Machine Learning based SMS Spam Detection and Classification System, 2020 Fifth International Conference on Fog and Mobile Edge Computing (FMEC), 978-1-7281-7216-3/20/\$31.00 ©2020 IEEE.
- [12] Nursing Monitoring System 1Sasippriya Saminathan, 2K.Geetha 1PG Student, 2Senior Assistant Professor, Faculty of Computer Science, SASTRA University, Thanjavur-613401. 1 sasippriya32@gmail.com





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