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A Survey Paper on Fake Product Identification using Blockchain

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Abstract- *In this era of technology it is easier to create unidentical counterfeit products. Manufacturers face the biggest problems and huge losses in sense of brand damage which affect the trust between the manufacturer and the user. Blockchain, a new Technology that can be used to overcome this problem. Blockchain technology is a distributed and immutable technology that provides data consistency and security. Here the QR code is generated automatically and stored in a decentralized block. Once a product's QR code is added it cannot be changed by the Manufacturer due to the immutable characteristic of Blockchain. By scanning this QR code the user can identify the original products amongst the fake once.*

Keywords—Counterfeit, blockchain, QR code

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I. INTRODUCTION

Counterfeiting generally occurs when they are selling goods pretending like some other items. Counterfeit goods have a poor impact on the economy, citizens, and electronics. Poor quality cosmetics may lead to skin problems and fake electronic equipment's can cause flaws and mishaps. To address this, solutions must be found for the sale of counterfeit products.

This has a negative effect on a company's reputation, as customers are often unaware that the object they are holdingis a knock-on. This can lead to customers demanding compensation, as a refund or a brand-new item. Companies are caught between trying to overcome delay and effort handling with inadequate replication of their products parallelly keeping their users satisfied. The problem led by malicious manufacturers decreases users association, as distributors, retailers, and other business partners lose faith in legitimate enterprises.

This paper presents a system designed for the identification of counterfeit products implementing blockchain technology to provide the customers and the suppliers for holding the ability to trace the supply chain of the item in a safe surroundings. Blockchain is a distributed system that guarantees that each new block appended to the blockchain is the only accurate version accepted by every node. It is used for maintaining a regular document as a genuine database through distributed system. It aims to fix the complication of counterfeiting brands and provide an opportunity to check the integrity of a product.

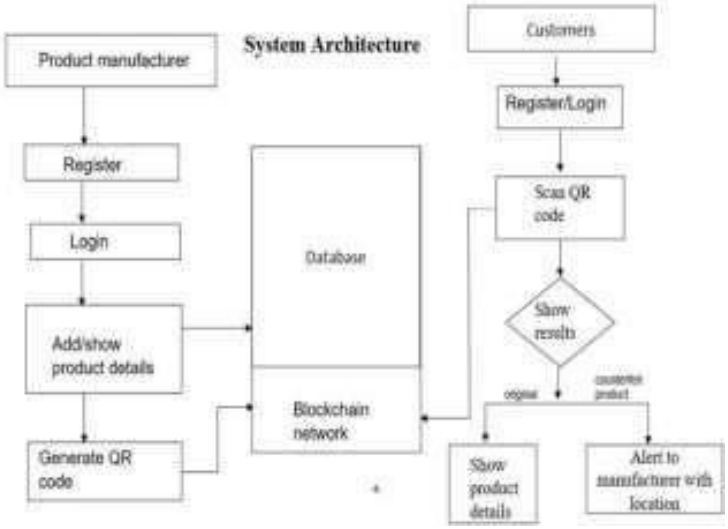
II. Blockchain Technology

[1] CNN(Convolution Neural Network) was used in the suggested method to classify pictures of turmeric powder. Pictures of turmeric powder were requested from the web during the training stage. Next, the output of the CNN network was planned. The output of the network was compared against the appropriate response, and the error rate was computed. Based on stochastic gradient descent, all parameters were changed to account for their effects on network error. In this work, the effectiveness of thesuggested model (CNN) and that of other classification techniques applied to turmeric photos were assessed and contrasted. To achieve this, HOG and LBP first extracted the desired properties from 6240 color photos of turmeric powder. MLP, Fuzzy, KNN(K-Nearest Neighbor) , SVM(Support Vector Machine) , GBT(Gradient Boosted Trees), ` EDT(Euclidean Distance Transform) algorithms were used to categorize the attributes that were taken from the photos. The following datasets were utilized for these classifiers: training, validation, and testing. Training: 4368 photos (70% dataset), validation: 624 pictures (10% dataset), and testing: 1248 pictures (20% dataset). Comparing the effectiveness of several classification techniques revealed that CNN outperformed the other algorithms. As a result, it showed that the upgraded CNN methodology and image processing method is very efficient in replacing the old mechanisms for spotting fake turmeric powder. As well as improvingmarketability, using this technique will stop the illegal sale offake turmeric.

[2] In markets across Asia and Africa, counterfeit pharmaceuticals are frequently marketed that appear just like the real thing. The packaging is identical to that of the genuine brand, the pills are the proper size and form, and the boxes frequently bear copies of the regulators' logos andholographic stickers. Because of this, engineers from Global Good, a charitable invention lab in Bellevue, Washington, are attempting to address the issue of fake medications using amobile gadget that employs optical spectrometry to examine the chemical makeup of drugs. By shining a beam of near-infrared light (NIR) at a pill and observing how the light is absorbed, the new method uses NIR spectrometry. That pattern of absorption is a distinctive spectral signature that, without harming the pill, reveals its chemical make-up. NIR spectrometry was previously only used in specialised sectors like astronomy and medical imaging since it requires large, expensive apparatus. Yet, quick technological advancements have produced low-cost, tiny gadgets that allow for new uses.A smartphone app was initially created by Global Good researchers to interact with the recently released SCiOhandheld infrared spectrometer both for clients and companies. Recently, Nayyar, a consultant and advisor at the Global Health Policy Institute in San Diego, studied emerging technology being used to thwart counterfeit pharmaceuticals.Although these devices might be used by pharmacists or patients themselves to check their prescriptions, she claims there is a need for low-power portable devices with minimal user training. Nevertheless, she also recognises the value of more systemic methods, like employing RFID(Radio Frequency Identification) tags or blockchain technology to trace genuine medications from the manufacturing to the pharmacy.

[3] This study 1A assessed the level of dissimilarity needed between authentic and counterfeit logotypes to enable accurate counterfeit identification. Participants had to choose if a brand's emblem was an imitation or the real thing as it appeared in the centre of the screen. via the "E" or "I" keys ona computer keyboard (key mapping was counterbalanced between participants). Each authentic and fake brand logo was exhibited for a maximum of three seconds, and participants were free to respond at any point after the logo was displayed. To draw focus to the centre of the screen before the brand logo appeared, a "" was shown for 700 milliseconds. Each logo from the LLF(low-level fake logo), MLF(mid-level fake logo), and HLF(high-level fake logo) categories was presented once, totaling 60 trials per participant. The logos were presented in random order (12 OLs were presented twice). Only after receiving a correct or incorrect response were the participants given the opportunity to move on. Twelve practise trials using real and false versions of the "Ford" and "Google" brand logos were conducted prior to the study's start. The LLF logos, which likewise had the greatest likeness to the original designs, and for which the error rate in logo recognition was the highest, caused the most uncertainty. The least confusion, however, was observed for HLFs (which resemble the original logos the least), for which the error rate in logo identification was the lowest. Also, participants took longer to correctly identify the LLF logos than the HLF logos (M = 1007.79 ms, SD = 240.00) and were quicker to correctly identify the HLF logos (M = 819.62 ms, SD = 169.86). The study 1B Five different types of brand logos (LLF, MLF, HLF, RLF, and OL) and two visual target words ("Fake" and "Real") were employed as the seven visual stimuli. Each test involved the presentation of a particular brand emblem and a target term (see Figure A9 for a schematic representation of a trial). When the word "Fake" was displayed, participants were instructed to press the "E" key, and when the word "Real," to press the "I" key. Study 1B was designed with the assumption that if a counterfeited logo could show the participants' responses to the target words, one might anticipate shorter response latencies for "fake" when a fake logo is presented before this target word (i.e., a congruent trial) and longer response latencies when it is presented before the target word "real", and contrariwise for OLs. Only

the proper answer delay And they found that these false logos may influence participants' responses and lead to subconscious recognition of the fakery.



III. CONCLUSION

With the large volume of counterfeit products available, the counterfeiting industry is increasing at an exponential rate. As a result, there is a great demand to detect counterfeit products, and blockchain technology is utilized to detect counterfeit products. Manufacturers can store product information in the Blockchain that offers properties like confidentiality and consistency of data that provides privacy and security of the data. The customer can prospect the product and verifies if the product is genuine. The proposed system can effectively lowerthe rate of counterfeiting of branded goods by assuring the consumers that they will not buy fake goods. Manufacture will be able to prove their product is authentic. Users can scan QR codes attached to products to obtain information, allowingthe end-user to determine if the goods are fake or not. It builds the trust between the manufacturer and customer and indeed helps in improving the economy and reducing the corruption.

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