



QR CODE ASSISTED IDENTIFICATION OF AUTHENTIC PRODUCTS

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Abstract: In recent years, Counterfeit products play an important role in product manufacturing industries. This affects the companies name, sales, and profit of the companies. Any product is subject to several risk factors such as counterfeiting and duplication, that can affect the brand name, reputation, revenue or customer satisfaction at all stages of development. Counterfeit products are rapidly being traded and marketed. Due to counterfeit products many people are going to lose a lot of money. In this paper, with emerging trends in mobile and wireless technology, Quick Response (QR) codes provide a robust technique to fight the practice of counterfeiting the products. counterfeit products are detected using a QR code scanner, where a QR code of the product is linked to a product details. Whenever the customer scan the product QR code then the customers can get to know whether the product is real or fake. If the product is real the product details are displayed, if not product details are not displayed.

Keywords - QR code, Product Details, Counterfeited Product identification.

I. INTRODUCTION:

Counterfeit products have become a major problem in today's market. The increase in the number of counterfeit products is not only a threat to the financial well being of the companies but also poses serious health and safety risks to consumers. There are many traditional methods used in order to identify the originality of the product, but due to their own disadvantages there are not being used now.

In this paper, we propose a fake product identification using QR code. The implementation of this application demonstrated high effectiveness in identifying fake products. Users can able to seamlessly register, browse products, place orders, and verify product authenticity through QR code scanning. This application aims to provide a robust and user-friendly solution that ensures customers can easily and reliably confirm whether a product is genuine.

II. EXISTING WORK:

Many businesses depend on third-party vendors for various aspects of their operations, from manufacturing to logistics. This outsourcing can be advantageous, offering cost savings, expertise, and efficiency. However, it also introduces risks, particularly when the outsourced supplier has access to all of the original assets necessary to produce a product. One significant risk is that the supplier might produce counterfeit versions of the product, leveraging the knowledge and assets provided by the original company.

To mitigate this risk, businesses should implement a rigorous vetting and management process for their outsourcers. This involves thoroughly assessing the supplier's capabilities, reputation, and track record. Regular audits and continuous monitoring of the supplier's operations can help ensure compliance with the company's standards and prevent unauthorized production. Contracts should include strict confidentiality and anti-counterfeiting clauses, with clear consequences for breaches.

An additional strategy is to avoid outsourcing the entire production process to a single firm. Instead, businesses can divide the manufacturing process among several companies. By adopting these strategies—rigorous vetting and management of suppliers, dividing production among multiple firms, and retaining some production in-house—businesses can better protect their intellectual property and reduce the risk of counterfeiting. This multifaceted approach not only secures the supply chain but also maintains the integrity and trustworthiness of the final product.

III. PROPOSED SYSTEM:

The Android application we are developing serves as a Fake Product Identification system. Here's a detailed breakdown of its key features and functionalities:

3.1 Product Database Management: The application stores product details and generates a unique code for each product, which is stored in the database. This ensures the security and immutability of product information.

3.2 Product Authenticity Verification: Users will scan the product QR after delivery of the product, by scanning the QR code the customer can get to know whether the product is fake or original. Product details are displayed if the product is original if not details are not displayed.

3.3 Admin Features: Admin users have privileges to add product information to the database. This includes details such as product name, description. Admin users can view order requests submitted by customers.

3.4 Manufacturer Features: Manufacturers can generate QR codes containing product details. These QR codes serve as a convenient way to access product information and facilitate verification.

3.5 Customer Authentication: Customers can register and log in to the system. This allows them to access additional features and personalized services within the application. Registered customers can view product details within the application. They can also place orders for products directly through the interface and can know the authenticity of the product.

3.6 Dispatcher Functionality: Dispatchers can scan product QR codes to access product details and update the status of orders. This ensures efficient management of order processing and delivery logistics.

3.7 Delivery Assistant Features: Delivery assistants utilize the application to scan product QR codes, enabling them to access product information and update the status of orders as they are delivered to customers. Overall, this Android application provides a comprehensive solution for combating counterfeit products by leveraging QR technology for verification of product authenticity.

3.8 Architecture

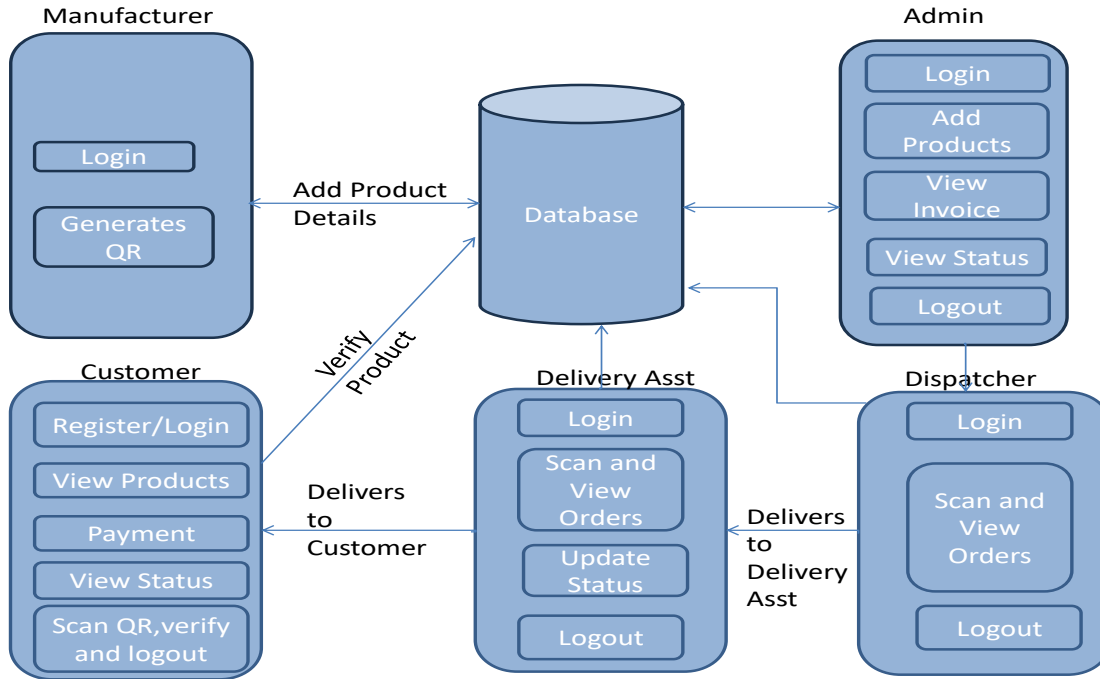


Figure 3.8 Architecture

IV. EXPERIMENTAL RESULTS:

The Fake Product Identification Android Application successfully demonstrated its capability to identify and manage fake products through an integrated system involving customers, admin, dispatchers, and delivery assistants. Users were able to register and log in securely, browse products with detailed information, place orders, and verify product authenticity via QR codes. The QR code-based verification was highly effective, ensuring that each product was uniquely identifiable. Admin efficiently manage product listings and order requests, generating unique QR codes for each item, which facilitates accurate verification. Dispatchers and delivery assistants used QR code scanning to confirm product details at each stage, updating the system status to reflect the product's journey from dispatch to delivery. Customers confirms authenticity upon delivery, completing the verification cycle and significantly reducing the risk of counterfeit products. The system's user-friendly interface, combined with secure authentication and data handling, provided a positive user experience. Operational efficiency was enhanced through streamlined processes, from product addition to final delivery, ensuring reliable and timely updates at each step. The implementation highlighted challenges such as initial setup, user training, and scalability, but these were effectively managed to maintain system performance and reliability. Overall, the application proved to be a robust solution for combating counterfeit products, demonstrating strong potential for scalability and widespread adoption in various markets. The is output is demonstrated as follows:



Figure 4.1 Registration page

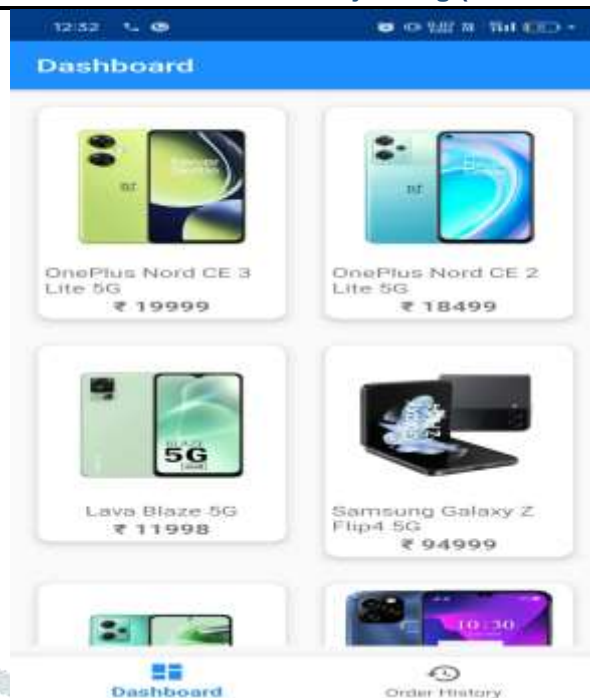


Figure 4.2 Dashboard



Figure 4.3 Product Details



Figure 4.4 Payment



Figure 4.5 Order placed



Figure 4.6 Adding products



Figure 4.7 Order Details



Figure 4.8 Order Status



Figure 4.9 Result



Figure 4.9.1 Result

V.CONCLUSION:

In conclusion, Fake Product Identification using QR Code technology has demonstrated significant effectiveness in enhancing the security and authenticity of products. This innovative approach involves integrating QR codes into products, which are then verified through a secure backend system. Each product is assigned a unique QR code that encapsulates product details stored in a database. To know the authenticity of the product, users can simply scan the QR code, and the system cross-references the code with the stored data to confirm its authenticity. This process effectively mitigates the risks associated with fake products. By ensuring that each QR code is unique and securely linked to a product details, this technology prevents the development of duplicate products. Additionally, the use of QR codes streamlines the verification process, making it quick and user-friendly while maintaining a high level of security. Thus, the adoption of QR code technology for fake product identification represents a robust solution to the growing concerns of duplication of products.

VI. REFERENCES:

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