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"Fake Product Identification Using Blockchain"

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INTRODUCTION:

- ✓ The global development of a product or technology always comes with risk factors such as counterfeiting and duplication.

- ✓ Because of counterfeit or fake products manufacturers facing the biggest problem and huge losses.

- ✓ To find the genuineness of the product we can use blockchain technology.

- ✓ Blockchain is an arrangement of recording information that makes it hard to change, hack, or cheat the framework.

- ✓ Blockchain technology helps to solve the problem of counterfeiting a product.

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OBJECTIVES:

The idea of this project came into existence because of the increase in the counterfeit products.

The main objectives of this project are:

➤ To design an Anti Counterfeit System to find whether a given product is fake or original using Blockchain Technology.

➤ To ensure the identification and traceability of real product throughout the supply chain.

➤ To secure product details using a QR code.

➤ To create web interface for the user to scan the information of the product through the product QR code.

➤ To provide security to the clients by offering data to client.

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LITERATURE SURVEY:

Blockchain-Based System for Product Anti-Counterfeiting:

In this particular Paper, Manufacturers can use the system to store relevant information on product sales in Blockchain which is accessible to everyone. The user can use the functions of the system to immediately perform vendor-side verification. The system provides identity verification by using digital signatures.

Disadvantage : This system even though it uses a Ethereum Blockchain which is best for smart contracts, it uses digital signatures for transactions. Every time using digital signatures for all transactions becomes clumsy.

IMPLEMENTATION:

Hardware Requirements:

- ✓ Operating Systems : Windows 7 or above.

- ✓ Hard disk : 20GB

- ✓ RAM : 4GB and above.

- ✓ Processor : i3 and Above

Software Requirements:

- ✓ Tools : Ganache, Ethereum Blockchain

- ✓ Language : Solidity

- ✓ Front end : HTML, CSS, JavaScript

- ✓ IDE : Visual Studio

- ✓ Browser Extension : MetaMask wallet

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PROPOSED METHODOLOGY:

In this project we are proposing a web application that uses blockchain technology to verify the genuineness of the products by the consumers.

Technologies used:

➤ **Visual Studio**: popular source code editor which is lightweight, highly customizable, and supports a wide range of programming languages and frameworks.

➤ **Ganache:** is a personal blockchain for rapid Ethereum distributed application development. It is used for setting up a personal Ethereum Blockchain for testing Solidity contracts.

➤ **Solidity:** Solidity is a statically typed programming language designed for developing smart contracts that run on the Ethereum Virtual Machine (EVM).

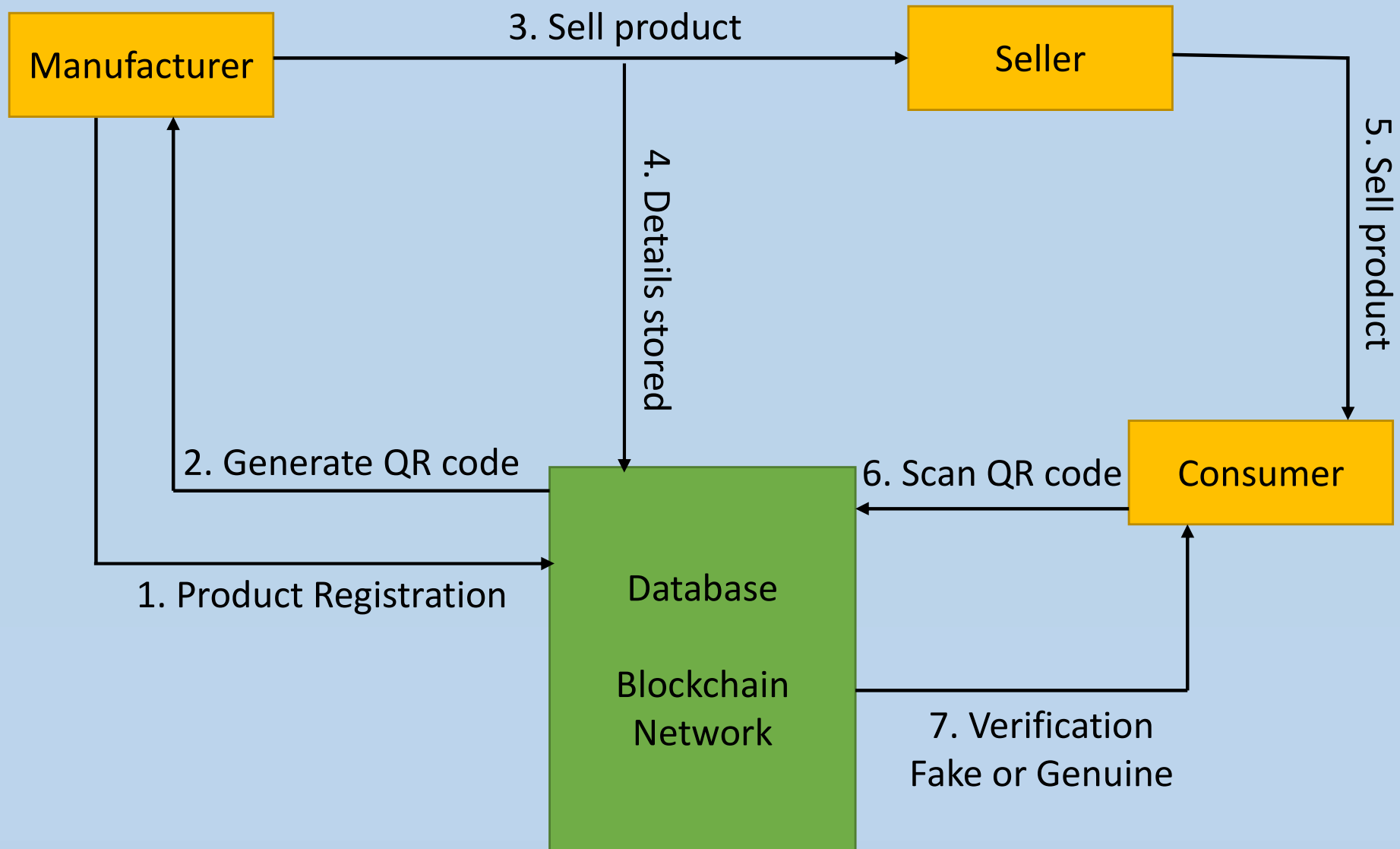➤ **MetaMask:** It is a browser plugin that serves as an Ethereum wallet, and is installed as a browser plugin.

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- **Manufacturer** can first register himself, then can register the products, register sellers and sell the products to sellers (retailer).

- Once the registration is done all the details are stored securely in the blockchain.

- QR code is generated for each product that the manufacturer registers.

- This QR code can be scanned by uploading the image or by scanning through the camera.

- **The seller** can sell the products to consumer based on the product's QR code.

- Seller can get the details of all the products available with him for sale.

- **Consumer** can view his purchase history.

- He can verify if the product is genuine or fake that he wishes to purchase before buying it with the help of QR code.

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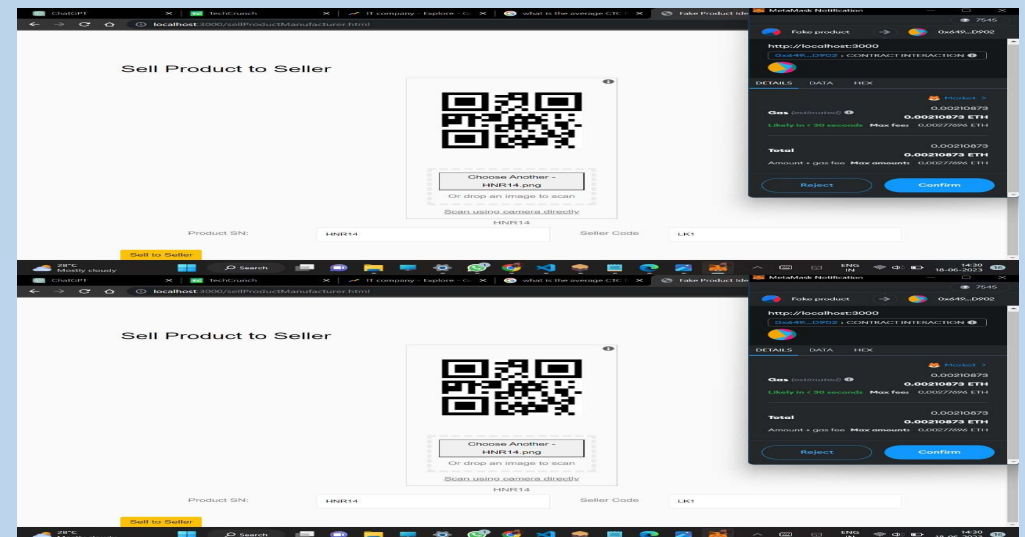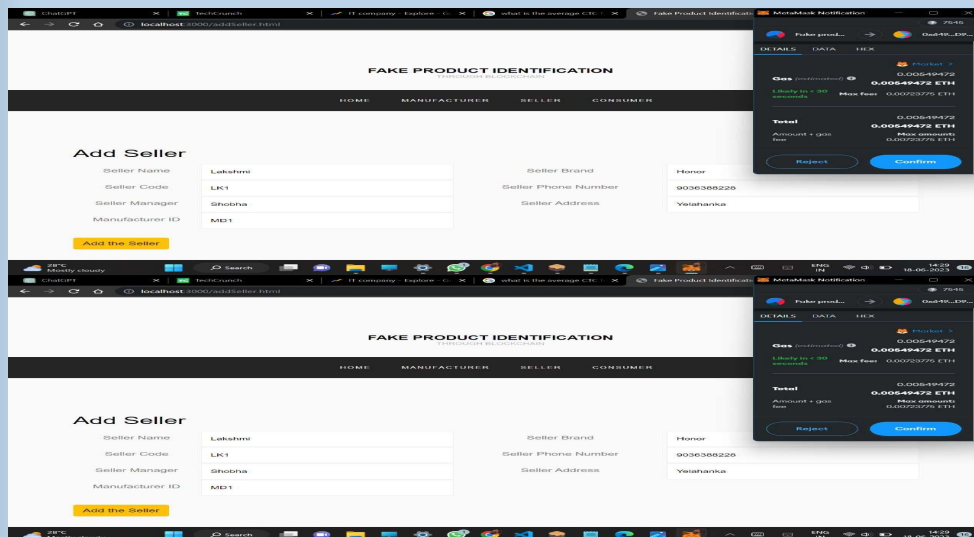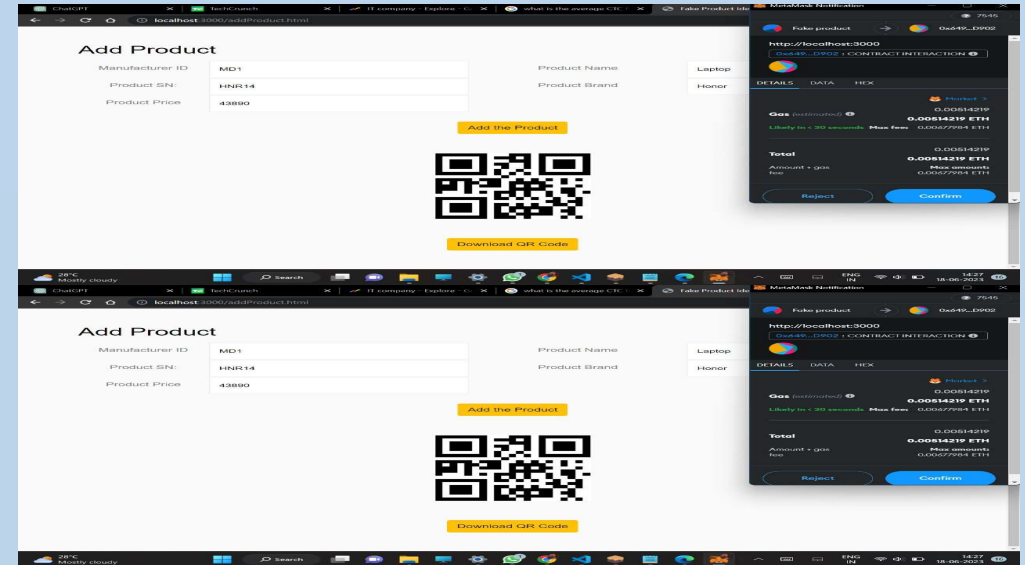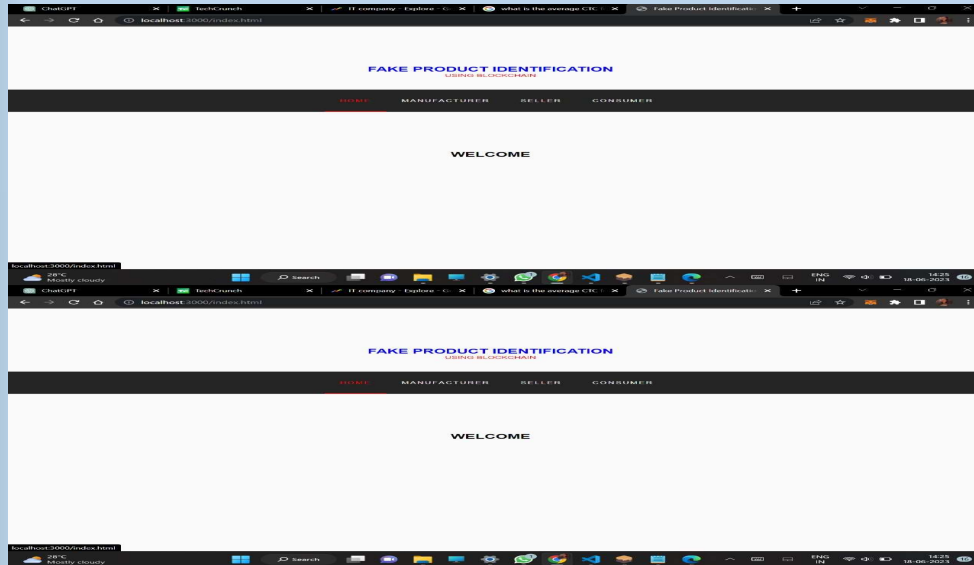
SYSTEM ARCHITECHTURE:

Manufacturer

3. Sell product

Seller

5. Sell product

4. Details stored

2. Generate QR code

1. Product Registration

Database

Blockchain

Network

6. Scan QR code

Consumer

7. Verification
Fake or Genuine

8

VALIDATION:

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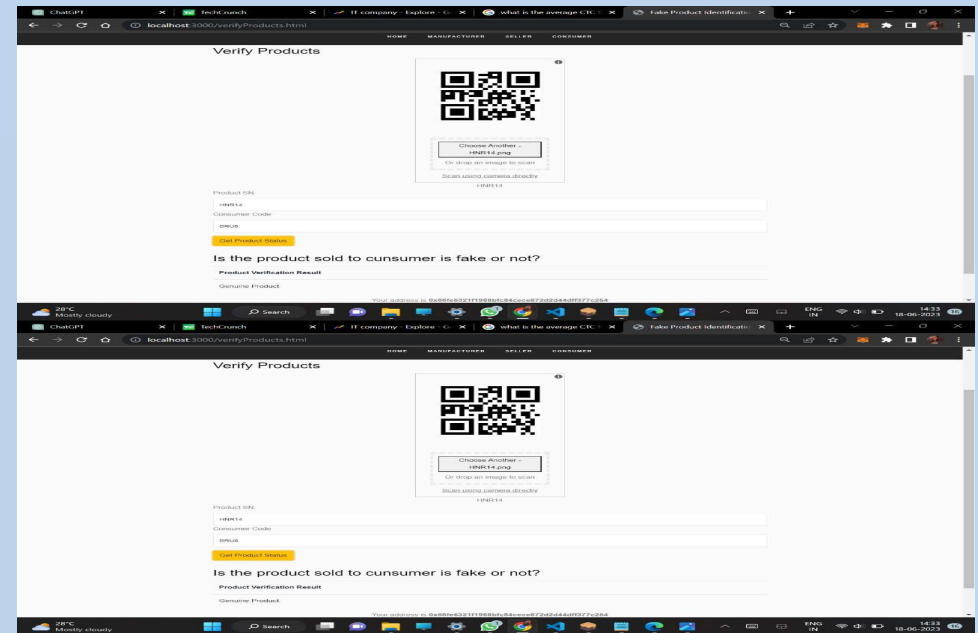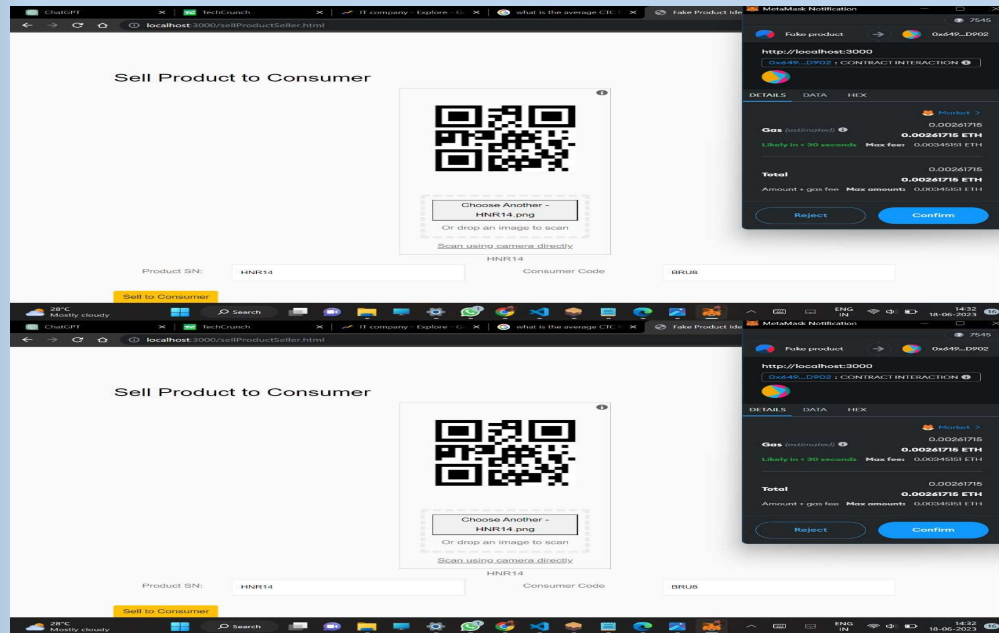
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FUTURE SCOPE / ENHANCEMENT:

- ✓ The future work of the system can be proof of code simplicity which can indirectly increase consumer's trust because of distributed applications.

- ✓ It can be difficult on the manufacturer side to add all the details of the products manufactured so instead of manually adding the products details, data can be extracted using company's API which can increase efficiency and manufacturer friendly.

- ✓ QR code is not hackable but information in it can be copied or known to generate similarly QR code as well as print out of QR codeworks well to scan and retrieve information so in order to overcome this secure graphic QR code can be used that if when QR code is photocopied then it will lose information due to the ink smearing