DOCUMENTATION : FOOD SUPPLY CHAIN TRACEABILITY SYSTEM.

1. **Team Name**
2. **Number of Team members:**
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6. **Problem(SDG Relevant).**

We have developed a web application called Food Supply Chain Traceability system. This system seeks to address the UN SDG goal – zero Hunger. Currently in Africa, there’s a challenge of food reaching the consumer from the manufacturer or wholesaler within stipulated timelines owing to delays at different process points like packaging, warehouse, transport thus some people suffer hunger. These delays may cause food to rot or expire while on transit. Besides, there may be no provision for consumer to verify state of food if it is actually from the manufacturer it was ordered.

**Purpose of the system**.

This ethereum based blockchain system thus comes in handy to address the lack of trust due to delays among stakeholders at different business processes of the food supply chain as well as speed up the food delivery processes by eliminating intermediaries. With a feature called the LPO Tracker, the system will alleviate the problem of lack of trust in the supply chain. LPO(Local Purchase Order) is sent by buyer to seller indicating what the consumer wants to buy. In this case, when the seller or manufacturer receives this order and dispatches the goods, they generate cryptographic keypair. A copy of the public key is used to generate qrcode which is tagged on the good, say packed maize bag, then shared with the receiver. Upon scanning the qrcode, the output should read the public key. This public key is what the receiver should use to verify the sender of the product. Private key will be reserved by sender to trace the flow or movement of this product once it has been dispatched until it is delivered to the buyer/receiver.

1. **Description of codebase:**

**QRCode generation with python:**

(i)Import libraries : qrcode and RSA from crypto.Publickey

(ii)Generate keypair (public key and private key) using RSA algorithm.

(iii)Function definition using ‘def’ keyword.

(iv)Print public key.

(v)Generate image of qrcode using make method on public key.

(vi)Save image.

(vii)Go to working file and open image.

(viii) Scan the image using your phone. The output should be the public key.

1. **Languages/Frameworks**:

**(i)**CSS, HTML.

**(ii)**JavaScript.

**(iii)**React.js.

**(iv)**Python.

**(v)**Solidity.

**6. Blockchain protocol used:**

Ethereum.

**7. Instructions on how to run the code:**