**Title:Food Tracebility System**

**Problem statement:**Development of an IOT based smart systems on food tracebility

**Description:**

Food safety is becoming more and more serious topic worldwide. To tackle the food safety issues from the technical aspect, people need a trusted food traceability system that can track and monitor the whole lifespan of food production, including the processes of food raw material cultivation/breeding, processing, transporting, warehousing, and selling etc. In this paper, we propose a trusted, self-organized, open and ecological food traceability system based on blockchain and Internet of Things (IoT) technologies, which involves all parties of a smart agriculture ecosystem, even if they may not trust each other. We use IoT devices to replace manual recording and verification as many as possible, which can reduce the human intervention to the system effectively. Furthermore, we plan to use the smart contract technology to help the law-executor to find problems and process them timely.

Some people even feared that all animal food may have hormone and all plant food may have toxins and colorant. This fear may be overdone, but it also reflected many problems in the current food production, supply chain and processing environment. We summarize some causes of these problems as follows:

1. The common use of chemical fertilizers, pesticides and other substances in some of the vegetables, fruits.
2. Heavy metal contamination in food
3. The use of inferior raw materials in the manufacturing and processing of food poses a great risk to food safety
4. Excessive use of food additives and other chemical products in food processing.

**Story:**

Once upon a time, there was a small family-owned farm that produced fresh, high-quality produce for their local community. They prided themselves on their commitment to sustainability, and their customers loved knowing exactly where their food came from.One day, a neighboring farm experienced a food safety incident that resulted in a widespread outbreak of a dangerous illness. The incident shook the entire community, and the small farm realized that they needed to take steps to ensure that their customers could trust their products completely.They decided to implement a food traceability system, which would allow them to track their produce from the moment it was harvested to the moment it was sold. They worked closely with a technology company to develop a system that would integrate with their existing processes and provide real-time visibility into the supply chain.The system was simple to use: each crate of produce was labeled with a unique code that could be scanned with a smartphone or tablet. The code contained information about the type of produce, the date and time it was harvested, and the location of the farm where it was grown.The farm also worked with their distributors and retailers to ensure that the code was scanned at each stage of the supply chain, allowing them to track the produce as it made its way to the final consumer.Their customers loved the new system. They could now see exactly where their food came from and had confidence in the safety and quality of the produce they were buying. The farm was also able to use the data collected by the system to make better decisions about their operations, such as which crops to plant and how much to produce.As a result of the successful implementation of their traceability system, the small farm was able to expand their business and increase their market share. They had earned the trust of their customers, and their commitment to sustainability and food safety had become a key differentiator in a highly competitive industry.

**Statistics:**

1. According to a survey conducted by the Canadian Food Inspection Agency, 93% of Canadians believe that food traceability is important, and 84% are willing to pay more for products that have a traceability system in place.

2. The global food traceability market is expected to reach USD 22.27 billion by 2025, growing at a CAGR of 8.9% from 2020 to 2025, according to a report by MarketsandMarkets.

3. A study by the European Union found that traceability systems can reduce the cost of recalls by up to 80%, and the time required to trace the source of a contamination can be reduced from weeks to just a few hours.

4. The United States Food and Drug Administration (FDA) has established regulations that require certain food products to have a traceability system in place. These regulations are expected to reduce the impact of foodborne illnesses and improve public health.

5. The use of blockchain technology in food traceability is increasing rapidly. According to a report by Research and Markets, the blockchain in agriculture and food supply chain market is expected to grow at a CAGR of 47.8% from 2020 to 2025.

These statistics highlight the importance of food traceability and the growing trend towards implementing traceability systems in the food industry.

**Reference Images:**

****

****