Report On

Breast Cancer Detection using ML and AI techniques

Submitted in partial fulfillment of the requirements of the Major project in Semester VII of Fourth Year Computer Engineering

by

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**Vidyavardhini's College of Engineering & Technology Department of Computer Engineering**

**CERTIFICATE**

This is to certify that the Mini Project entitled **“ Smart Farming Solution And Traceability Of Supply-chain Using Blockchain.”** is a bonafide work of **Sarvesh Kale (Roll No. 12) , Mohit Singh (Roll No. 68) , Avdhoot Jadhav (Roll No. 11)** submitted to the University of Mumbai in partial fulfillment of the requirement for the award of the degree of **“Bachelor of Engineering”** in Semester VII of Fourth Year **“Computer Engineering” .**

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**ABSTRACT**

The current agricultural supply chain is a centralized system that has many issues related to integrity, organizing the transactions. There is lack of trust and transparency in the supply chain. There are many irregularities in the implementation of schemes. The consumers doubt the quality of the food supplied to them. The farmers, wholesalers are affected from the payment frauds by the middlemen. Blockchain helps us solve these issues by keeping track of all the different stages of food. The public blockchain being transparent, open, immutable, trackable helps in reducing the irregularities, frauds. This application proposes the agricultural supply chain system model that uses the Ethereum platform. The smart contracts are developed for different stages of the supply chain. These contracts ensure that all the pre-decided conditions are satisfied before proceeding with the transactions. This system ensures security, reliability, trust, openness. It eases the transactions, administrative processes. It gives a fair chance to farmers to quote a price using smart contracts.

**(i)**

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1. **INTRODUCTION**

## INTRODUCTION:

Maintenance and retrieval of electronic medical records of patients and devices involved are among the technologies used in healthcare. The diagnosis and management of haematological illnesses have always involved difficulties in the detection of cancer. A large proportion of the population is currently afflicted by one or more diseases. In recent years, medical research has made enormous strides. Despite this progress, there is still a lack of public awareness. There is a high possibility that a vast section of the populace has health complications, some of which could be fatal.

Due to a culmination of distinctive genetic and epigenetic abnormalities, cancer is characterised by the unregulated proliferation of cells. The development of tumors is influenced by the cells' unchecked proliferation. When cancer first manifests itself, it may already be incurable if the tumour quickly spreads to other organs and bodily systems. The early diagnosis of Breast Cancer can improve the prognosis and chance of survival significantly, as it can promote timely clinical treatment to patients. Further, accurate classification of benign tumors can prevent patients undergoing unnecessary treatments. To reduce fatality rate, it is vital to precisely identify cancer cells. For this, effective early cancer diagnosis and therapy are necessary to boost cancer patients' survival rates.

One of the most used approaches for quickly training machines and building predictive models for good decision-making is machine learning (ML). By analyzing the size of the tumor, machine learning can identify breast cancer early and define its type. Machine learning methods are the most effective approaches for achieving favorable results in classification and prediction challenges. Breast cancer research could benefit from ML approaches used to detect cancer and predict tumor presence or absence.

## PROBLEM STATEMENT AND OBJECTIVE :-

**Problem Statement** :-

In agricultural supply chain, there is reliability, security, transparency issues. The farmers suffer due to these issues. They don’t have accurate information about weather conditions, their agricultural land soil conditions, crop demands. Some blindly start growing the crop without knowing all the details of crop. There is no proper systematic analysis done on crops data. The involvement of middlemen worsens the situation and the farmers end up selling the crops at lower price whereas consumer pays high price for the crop. Agricultural commodities produced have to undergo a series of operations such as harvesting, threshing, winnowing, bagging, transportation, storage, processing and exchange before they reach the market, and as evident from several studies across the country, there are considerable losses in crop output at all these stages. A recent estimate by the Ministry of Food and Civil Supplies, Government of India, puts the total preventable post-harvest losses of food grains at 10 per cent of the total production or about 20 million Mt, which is equivalent to the total food grains produced in Australia annually. In a country where 20 per cent of the population is undernourished, post-harvest losses of 20 million Mt annually is a substantial avoidable waste. According to a World Bank study (1999), post-harvest losses of food grains in India are 7-10 per cent of the total production from farm to market level and 4-5 per cent at market and distribution levels. These losses would be enough to feed about 70-100 million people, i.e. about 1/3rd of India’s poor or the entire population of the states of the Bihar and Haryana together for about one year. Thus, it is evident that the post-harvest losses have impact at both the micro and macro levels of the economy.

# Objective :-

# Our main objective is to create a fully-decentralized traceability system for the Agri-Food supply chain management. In the Agri-Food domain, in order to maintain trust and reliability along the whole supply chain, it is essential for the stored records to be tamper-proof, while the best case would be if each actor issuing transactions could do that without relying on any centralized third-party intermediary. A potential solution to alleviate all of such issues and concerns is the Blockchain technology, which is a peer-to-peer digital ledger that does not rely on centralized servers. Since all the records stored in a blockchain are based on a consensus reached at least by the absolute majority of peers of the network itself, this distributed ledger is immutable by design and offers an auditable and transparent source of information. And from an IoT perspective, instead of requiring connectivity to a central cloud, sensor networks in a blockchain-based traceability solution would only require stable connection to their closely located peer. Thus, blockchains exposes all the required properties for decentralizing food traceability systems, while making traceable data available at every step of the supply chain.

# LITERATURE SURVEY

Today, the vast majority of traditional logistic information systems in Agriculture and Food (Agri-Food) supply chains merely track and store orders and deliveries, without pro- viding features as transparency, traceability and auditability. These features would surely improve food quality and safety, therefore they are more and more requested by consumers.

S.Madumidha et al. [1] proposed a methodology which is limited to the supply chain and doesn’t consist of any mechanism to ensure quality of farm produce being transported. Also the system fails to ensure that farmers get’s fair prices since farmers are not aware of the current market trends. The methodology is limited to some crops and dataset was small in size.

Qingmin Yuan et al. [2] proposed a paper which is limited to the agricultural supply chain model but uses centralized database, also the paper doesn't involves any method to trace the farm produce between parties which can be solved by introducing blockchain as a data storage and tracing mechanism for the supply chain.

Feiyang Qu1 et al. [5] investigates the Ethereum blockchain support for online Supply Chain systems and its feasibility in Business-to-Consumer (B2C) business model. They propose Consumer Ordering Consensus Protocol (COCP) for B2C online retail stores to securely and efficiently process orders. They compare three different systems- Retail Store outlet, Online Retail Store, Smart Contract based Online Retail Store based on order requests. They have developed an application to demonstrate smart contracts in the B2C Supply Chain system.

# 3 Proposed System

**3.1 Architecture and Algorithm.**

**3.2 Design details.**

**3.3 Methodology.**

Our propose system consists of a layered architecture able to rely on the Blockchain and the machine learning model to achieve transparency, auditability and immutability of the stored records in a trust- less environment. We consider the blockchain as a layer of our system and allowing our ML model to be blockchain- independent, while it can be integrated into existing traditional software system. software systems (ERP, CRM, etc.). The proposed architecture takes advantage of the increasing capabilities offered by modern edge devices (e.g., gateways, mini-PC, etc.), which may be directly used as full nodes of our layered blockchain implementation, hence extending the resistance, decentralization, security and trust of the whole network.

We are using Ethereum is the public blockchain that is open source, distributed. It also acts as an operating system where the decentralized Applications (dApps), games are developed. It’s going to change the way internet works. An internet where everything is open, people own their data, earn from their data. Everyone can see other’s data. The transactions in Ethereum platform is controlled by smart contract not by any government, organization, person. Ether is the cryptocurrency of Ethereum. This platform can be used in financial transactions as a digital wallet, a digital asset. The transactions are cryptographically signed. Ethereum provides a decentralized virtual machine, the Ethereum Virtual Machine (EVM) that execute scripts in a public network of nodes. The dApps are developed using Solidity language, these dApps don’t run on any traditional server, it runs only on Ethereum blockchain.

# 4 Experimental Details

# 4.1 Details of Database.

4.2 Hardware And Software Details.

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