

Supply Chain Traceability for Organic Jaggery using Blockchain



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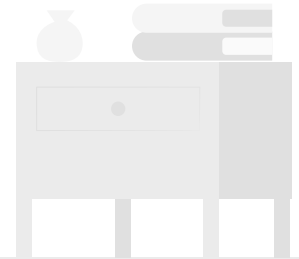


OUR PROJECT GUIDE

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WHAT WE ARE WORKING ON

Multichain

MultiChain is an off-the-shelf platform for the creation and deployment of private blockchains.



IOT

Sensors including light sensor, temperature & humidity sensor are being used to verify the quality of the product.



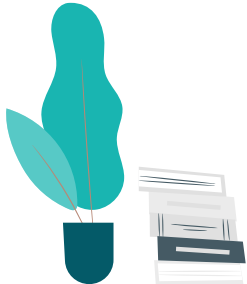
Javascript

JavaScript is a lightweight, interpreted programming language. It is designed for creating network-centric applications.



AWS

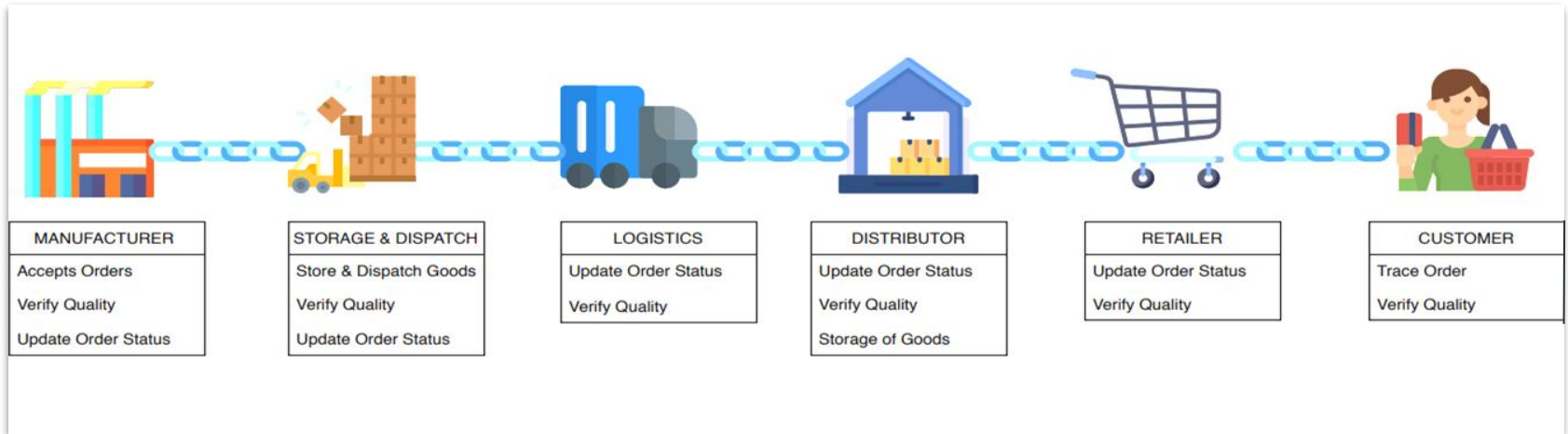
Amazon Web Services is a subsidiary of Amazon providing on-demand cloud computing platforms and APIs to individuals, companies, and governments, on a metered pay-as-you-go basis.



ORIGIN OF THE PROJECT

- A supply chain is a network between a company and its suppliers to produce and distribute a specific product to the final buyer.
- The steps include moving and transforming raw materials into finished products, transporting those products, and distributing them to the end-user.
- Nowadays, the customers are unaware of the events happening to the items in the supply chain which creates a lack of trust in their minds.
- So, the solution to this problem can be implemented efficiently using blockchain technology.

FLOW IN SUPPLY CHAIN



ABOUT THE PROJECT

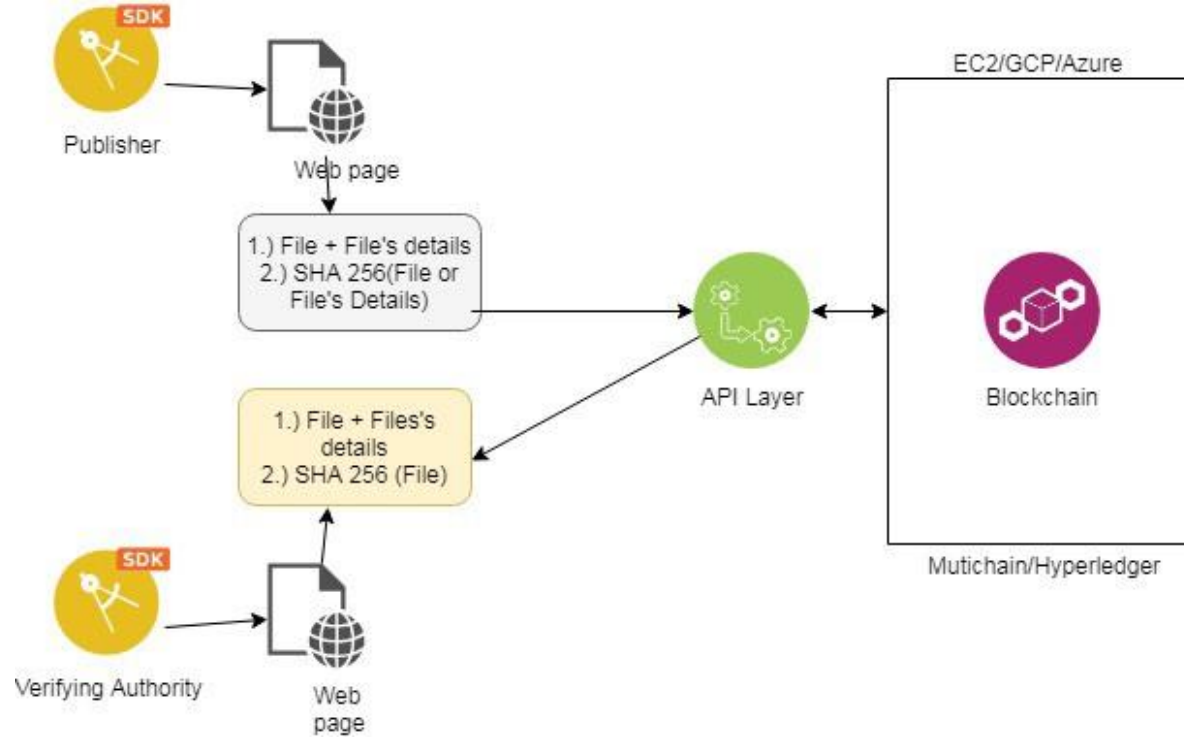
- Intended to explore transparency in the supply chain of organic products like Jaggery by the usage of Blockchain technology.
- Expected to replace the ongoing methods employed by the industry to trace products in the supply chain.
- Trace products in a reliable and tamper-proof environment with no central authority controlling the data.
- The blockchain could also be deployed on cloud services to increase availability and reliability.



METHODOLOGY

- The **backend i.e. business logic** will be developed using **JavaScript** language on the MultiChain framework which is based on Blockchain technology.
- The **frontend i.e. user interface** will be developed using **HTML, CSS, JavaScript**, and use of any particular frontend framework like **AngularJS, ReactJS**.
- The **nodes** representing the various actors will be deployed on **AWS Cloud Services** to ensure high availability and fault-tolerant working of the application.

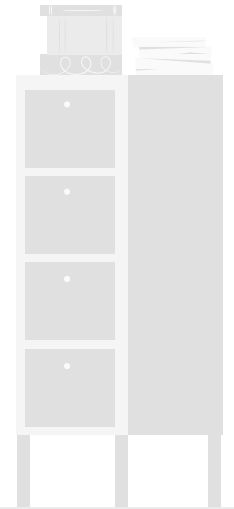
METHODOLOGY





“Blockchain provides supply chain capabilities that were not possible in the recent past.”

—DAVE WATERS



INTERNATIONAL & NATIONAL STATUS

- Supply Chain for Walmart Food stores- Developed by IBM (Hyperledger Fabric).
- Tracing yellowfin and skipjack tuna fish in Indonesia- Provenance pilot blockchain technology.
- Supply chain journey of the beans of coffee for Starbucks - Developed by Microsoft.
- Amazon is also planning to develop a Blockchain-based application that will trace products in the Supply Chain.
- Trace organic fruits and vegetables- Deployed by Sahyadri Farms, Nashik using the MultiChain platform.
- Supply chain finance(SCF)- Developed by Kryptech company based out of Mumbai.

BUDGET

10%



Sensor

DHT22 AM2302
Sensor

40%



Raspberry Pi

To connect to and
configure the
sensors

20%



AWS

To host the nodes
on AWS Cloud EC2

30%



Publication

Publishing
Research Paper in
IJSER.



₹ 10,000/-

PROJECT GOALS

- **Traceability**
- **Transparency**
- **Developing trust**
- **Security**
- **Reduction in cost and time**



TIMELINE

Implementing Basic
Traceability and
Creating
Documentation

Sept – Oct 2020



Integrating IoT in the
application

Feb – Apr 2021



Jul – Aug 2020

Research about SCM
and Various -
blockchain Platforms



Nov 20 – Jan 21

Migrating to the cloud
and implementing
special cases



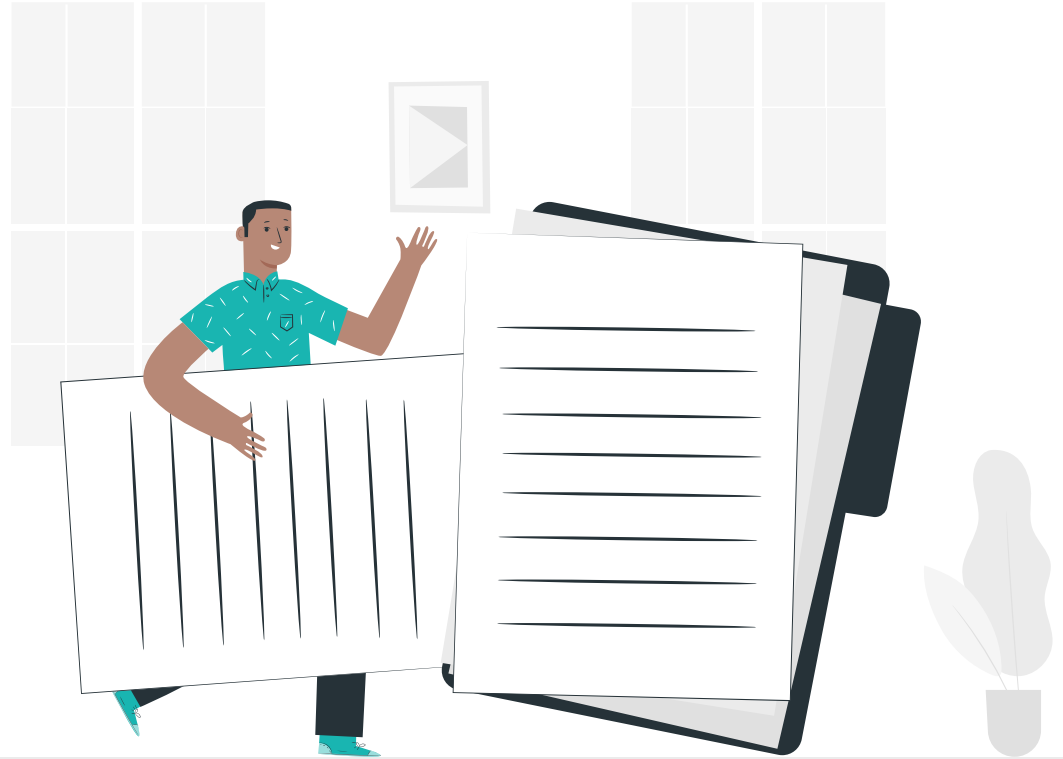
May – June 2021

Report Submission and
Paper Publication



THANKS

Do you have any questions?



RESOURCES

- <https://www.multichain.com/>
- <https://ethereum.org/en/>
- www.coursera.org/learn/aws-fundamentals-going-cloud-native
- [https://www.ey.com/Publication/vwLUAssets/ey-blockchain-and-the-supply-chain-three/\\$FILE/ey-blockchain-and-the-supply-chain-three.pdf](https://www.ey.com/Publication/vwLUAssets/ey-blockchain-and-the-supply-chain-three/$FILE/ey-blockchain-and-the-supply-chain-three.pdf)
- http://apeda.gov.in/apedawebsite/SubHead_Products/Jaggery_and_Confectionary.htm
- <https://ieeexplore.ieee.org/abstract/document/8842690>

