# BLOCKCHAIN BASED INSURANCE PROCESS

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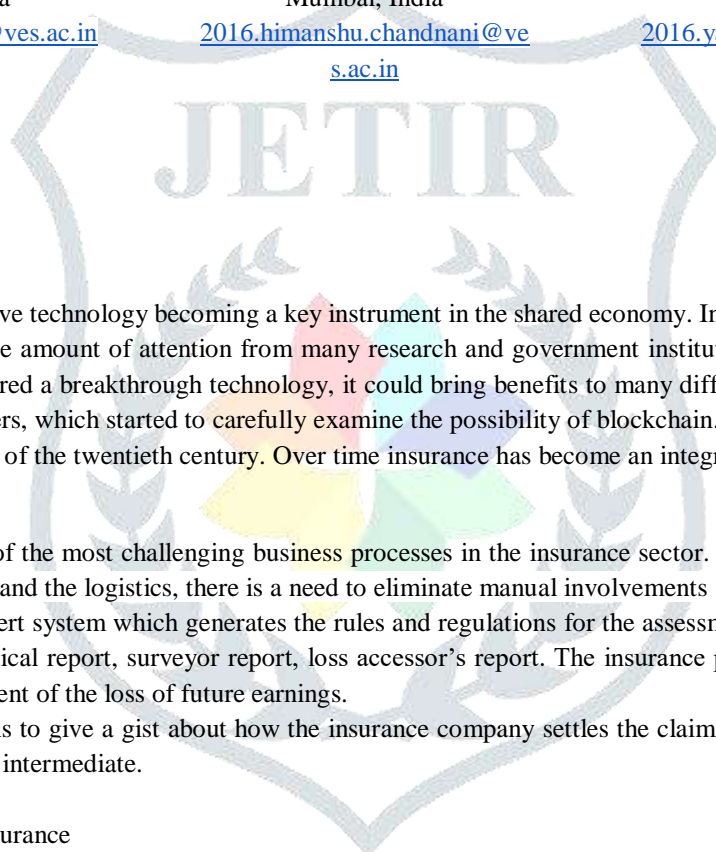
ABSTRACT

Blockchain is a fast disruptive technology becoming a key instrument in the shared economy. In recent years, Blockchain has not only received a considerable amount of attention from many research and government institutions but also from academy and industry. Since it is considered a breakthrough technology, it could bring benefits to many different sectors. Insurance is one of the sectors that, among others, which started to carefully examine the possibility of blockchain. The field of Insurance has taken a giant leap at the threshold of the twentieth century. Over time insurance has become an integral part of the life of man all over the world.

Claim management is one of the most challenging business processes in the insurance sector. With the number of stakeholders involved, the dependencies and the logistics, there is a need to eliminate manual involvements
Insurance process is an expert system which generates the rules and regulations for the assessment of general damage using the key information in the medical report, surveyor report, loss accessor's report. The insurance process regulates the payment of general damages also payment of the loss of future earnings.
The objective of the paper is to give a gist about how the insurance company settles the claims, the procedure that is followed, which does not involve any intermediate.

Keywords : Blockchain ;Insurance

I. Introduction :

A. Blockchain introduction

Blockchain technology has been one of the emerging and trustworthy technologies .A blockchain originally means **block chain**, which is a growing list of records called blocks which are linked together using cryptography. Each growing block in the chain consists of a cryptographic hash of the prior block along with the timestamp and the data.It is a decentralized ,distributed public ledger service that is used to record transactions across many computers.By design ,all the blocks are resistant to the modification of data.Once the data is recorded, it cannot be retroactively altered without alteration of all subsequent blocks, which requires a agreement from network majority. Under blockchain block becomes validated only when it has been verified by multiple nodes. A blockchain database is managed autonomously using a peer-to-peer network and a distributed timestamping server. Blockchain has been implemented in well known cryptocurrency Bitcoin.

B. Purpose

Existing insurance systems have reached a certain level of automated processing .However due to lack of trust on single source in contact the companies are not able to gain the trust of customers which lacks them in business. In general, the insurance industry is heavily dependent on many processes between transacting parties from initiating policies to maintaining them to closing them when its maturity period is over. Also in between this many processes, there are major concerns like transaction processing time,payment settlement time and security protection to processes in execution. Apart from these internal challenges there are many other challenges which the insurance industry is facing like competition,lack of trust,mismanagement and economic instability.

So to solve this problem a blockchain based decentralized insurance system is designed in this study .Using the properties of blockchain an immutable and decentralized system is designed which in turn will provide the status of the policy to the customer. Customers can track and know what is the status of their transaction,whether it is approved for reimbursement or not .

II. Literature Survey

- In paper [1] ,it proposes that all the insurance transaction processes can be implemented as smart contracts on a blockchain based framework.The main idea is to implement all the transactional processes of insurance companies as smart contracts and place all contracts on the blockchain enabled platform. Here prime focus is on the design of blockchain framework for insurance use cases to offer a controlled access to a set of endorsers for each smart contract.
- In paper [2],a blockchain based insurance system is proposed with web identity security(WIS),which is named WISChain. It provides two insurance service models, one for personal web identity security of end users and other for data security of commercial websites .Claim evidence can be uploaded directly to the blockchain thus ensuring authenticity.To build trust between insurers and policyholders ,smart contracts are directly applied between them. The DengLul server is adopted which provides web identity security to the end users.

- In paper [3],BlockCIS i.e Blockchain -based Cyber Insurance System is proposed.This system is proposed as many traditional insurance companies are looking to enter into cyber insurance to overcome all manual procedures. It aims at continuous, automated ,realtime and immutable feedback loop between insurers ,customers ,third parties and potential auditors .BlockCIS is implemented using opensource Hyperledger blockchain framework . It also describes how advanced feature like selective disclosure of data can be added to a system..

III. Proposed Methodology

A. *Overview*

The system consists of three stakeholders: insurance company(seller), customer(buyer), police. The insurance company can add different types of auto insurance and general insurance.Customers can buy these insurance from our decentralised app using ethereum cryptocurrency. When claiming the insurance customers can claim a theft claim which is then approved by the police using the website. Once the claim is approved by the police the insurance company reimburse the claim amount to the customer.

B. Methodology:
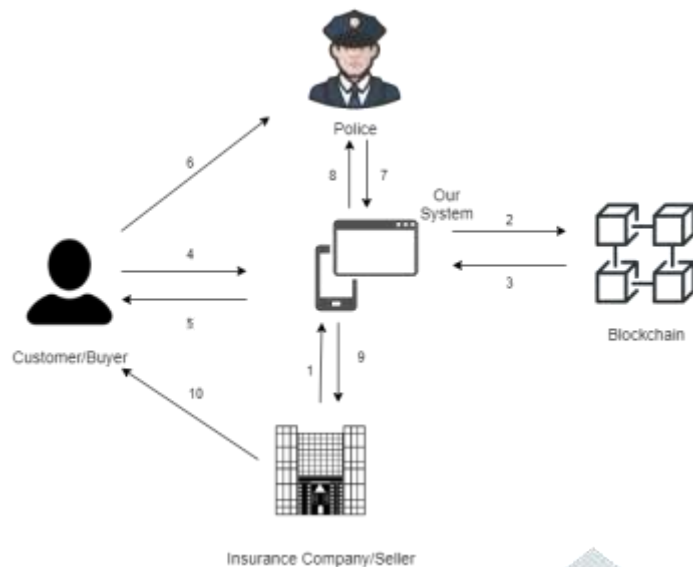
There are three stakeholders:
- Insurance Company(seller)
- Customer(buyer)
- Police

1) Insurance Company:The insurance company is the seller of different types of insurance on the blockchain website and also reimburse the claim amount in ethereum to the customer once the claim is approved by the police.

2) Customer: The customer or buyer buys the insurance directly from the insurance company using the ethereum cryptocurrency and also can claim the insurance when needed without any intervention of the middle agent.

3) Police: The police are responsible for approving or rejecting the theft claims of the customers based on the FIR records.

Process:

1) The insurance company logs into our portal using the metamask extension which verifies the address of the company with that stored in our database.

2) Then the insurance company can add products(insurance) specifying the product name and product price and these products are stored in the blockchain with a unique ID.

3) The Customer can login to our portal in a similar way and can buy any product(insurance) by filling the form. These purchased products are mapped with customer ID and are stored in the blockchain.

4) Each transaction creates a block in the blockchain which generates a unique hash thus providing the secure chain of records

5) Once the customer buys a particular insurance from a particular company the company can trace these records.

6) Then, whenever the product for which the customer has the insurance is stolen and he/she wants to claim the insurance can do it directly without any intervention of the middle agent.

7) The police will now look at the claimed insurance records in blockchain and approve or reject the claim based on the FIR records.

8) Once the Claim is approved by the Police on the portal the insurance company can see it and will now reimburse the claim amount to the customer.

9) Our system stores all these transactions in blockchain with a proper timestamp and Hash. Which makes the buying,selling and claiming of the insurance transparent, cost effective, time saving and secure.

C. Operation

1) Buying and Selling of Insurance:
The company or seller creates a list of products(insurance) that are stored in the blockchain and the customer or the buyer buys the insurance from our system using ethereum without any intermediate checkout gateway thus saving the gateway charges.
All these products(insurance) mapped with the customer IDs are stored in the blockchain.

2) Claiming the Insurance:
Whenever the product for which the customer has the insurance is stolen the claiming operation starts. The customer files a theft claim which is stored in a blockchain. This claim is further approved or rejected by the police on our system. Once the claim is approved by the police the insurance company reimburse the claim amount in terms of ethereum to the customer.

IV. Conclusion

Traditional insurance companies are looking to enter into the digital world as there are a lot of manual procedures and paperwork involved in between customers and insurance companies. Even after a lot of manual work there is a lack of trust between companies and their customers. Also the evidence to claim the insurance can be tampered sometime ,especially in case of theft or accidental insurance. So to overcome these drawbacks,the blockchain based insurance system is well suitable in these conditions.This decentralized system will help to gain trust of customers and also cut off all the intermediate agents involved in between processes ,thereby increasing the business of the company. Using this system the customers can track the real time status of their insurance .

V. Future Scope

In future ,we are planning to deploy our system in an operational environment where we can assess our work and identify if there are any vulnerabilities that can be exploited and fix them and check if our system is fulfilling all requirements as specified. Also we are working on how we can scale up our project to other insurance industries like healthcare and travel etc.
Also that the blockchain based projects are not much user friendly ,we are trying to make it more user interactive . We are looking for companies to collaborate with and scale up project.

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