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BI: Blockchain in Insurance

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Abstract- *We all live in a world with various types of properties through which people invest their money in the market. Insurance helps gain from these financial losses. The insurer gets a compensation against the losses from an insurance company. The trust and accountability in auto-insurance in past few years has been damaged to an irreversible extent. People make fraud claims or are invoiced of services that were never provided to them. Insurance industry has nearly lost 13.3 billion in 2011 alone because of frauds. Blockchain in Insurance (BI) provides a secure way to make the system accountable and trustable from the customer's point of view. It also provides digital smart contracts to capture obligations and terms binding the insurer and insure along with improving accuracy of pricing through quantification of risk. Policyholders will be provided verifiable information which is being encrypted and also simplify claiming and assessment which promotes fraud-less transaction with more transparency. BI promotes automation of claiming process and better on-boarding of policyholders while keeping their data free from third party access. BI uses blockchain technology which can remove 15%-25% of the expenses incurred during the insurance process due to falsified thus saving around 5-10 billion.*

Key Words: **Blockchain, Insurance, Smart contracts, Solidity, Ethereum.**

1. INTRODUCTION

BI: Blockchain in Insurance will automate the entire system of coverage claiming and agreement. BI is a decentralized system that removes human interference in numerous steps of the insurance procedure. It uses the transparent and immutable technology of blockchain so that it will dispose of the 1/3 party involvement in coverage procedure by authenticating the information saved and thus there will be no single organization or group as a way to control all of the records. For the policyholder's, BI will give them higher person experience and less problem in claiming and getting on board with the policy and the insurer's terms. BI additionally ensures that the sensitive user and transaction information stored in the blockchain is encrypted and secure. BI will implement the "pay as you go" method which relies upon whether the policyholder is a safe or rash driver. BI makes the traditional insurance process simple, digitally secure, versatile, robust and scalable.[1]

1.1 Insurance

Insurance guidelines are used to hedge against the threat of economic losses, both huge and small, which can result from damage to the insured or their assets, or from liability for damage. Insurance is an agreement, represented through a policy, in which an individual receives monetary protection or compensation for their losses from an insurance organization. The company analyzes customers' risks to make payments extra affordable for the insured. The insurer and the insured get a criminal settlement for the insurance, which is called the insurance policy. The insurance policy has details about the situations and occasions under which the insurance company can pay for the coverage amount to both the insured person and the nominees. [2] [3]

1.2 Blockchain

Blockchain technology gives a novel way for constructing a decentralized architecture. Initially designed as a system provider for detecting double spending in crypto currency structures, blockchain is extensively applicable to many enterprise applications in which there is a demand of trust amongst distributed parties. At an excessive level, a blockchain is a distributed ledger carried out by means of a couple of contributors, with each of them storing a neighbourhood copy of the ledger. The ledger's consistency is accomplished by certain consensus protocols concerning all its members. Blockchain systems may additionally choose from a wide range of consensus protocols relying on the believe model. Immutability of the ledger is accomplished with the aid of a mixture of cryptographic primitives and open distribution of the ledger.

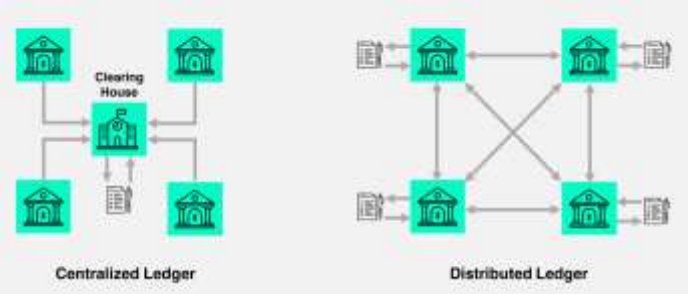

Fig 1: Blockchain Architecture

1.2 Smart Contracts

A smart contract is a self-executing settlement with the phrases of the settlement among purchaser and dealer being without delay written into lines of code. The code and the agreements contained therein exist throughout a dispensed,

decentralized blockchain network. The code controls the execution and tracking of every transaction which is irreversible. Smart contracts permit trusted transactions and agreements to be completed amongst disparate, nameless entities without the need for a central authority, felony gadget, or outside enforcement mechanism. [3] [4]

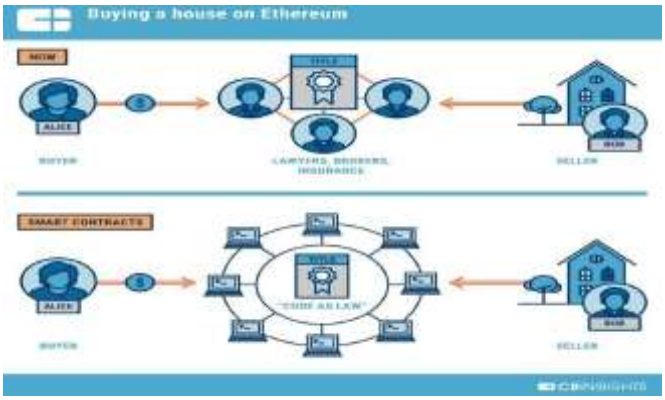

Fig 2: Working of Smart Contracts

1.3 Solidity

Solidity is the most widely used high-level language for creating smart contracts for Ethereum, one of the cryptographic currencies. Its users can use solidity to create smart contracts and use them for digital transactions. However, solidity is understood to have many vulnerabilities, observed with the aid of monetary damages from transactions through smart contracts. In particular, many vulnerabilities have been identified, mainly while invoking capabilities of other smart contracts. In a smart contract environment, it is tough for the caller to apprehend and manage the call action, ensuing in harm For example, when a function of other smart contract is called through the address, an unintended function may be executed due to an incorrect address reference. In this case, if the characteristic no longer exist at that address, the fallback feature, a special feature without a call is implicitly referred to as a substitute. Since the caller isn't always conscious of the conduct of the fallback characteristic, attackers may additionally take benefit of this to allow malicious behaviors to be inserted into the fallback feature and executed.

2. HARDWARE AND SOFTWARE REQUIREMENTS

The requirements for this project are the basic configurations of a computer device and some domain specific software required for the model to work properly and efficiently.

2.1 Hardware requirements

- Graphics Processing Unit (GPU).
- Intel Core i3 processor or above.

2.2 Software requirements

- Windows 7 or above.
- Node.js 12.16
- Metamask chrome extension
- Sublime editor
- Ganache (Dapp).

3. METHODOLOGY

When the user interacts with the browser and either registers for claim or wants to buy a certain policy, BI will initiate the process and send the request to the block chain which will then approve it and do the required computational work for completing the claim process or onboarding the new customer into the system.

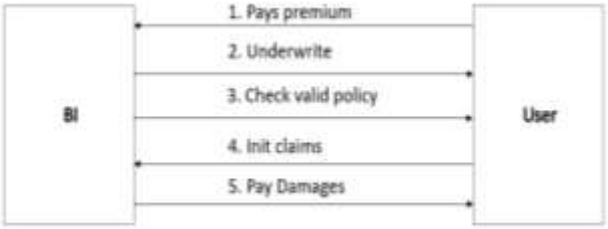

Fig 3: Block Diagram

3.1 Working

When a new user is added into the system his user id is created. This means that a block is added onto the blockchain. Furthermore all the transactions made by this user will be written into this block. The blockchain stores data like timestamp, transaction amount, etc. When the insurer puts forth a claim the blockchain authenticates the user and checks if the user is banned or not. If the user is found to be valid the claim is processed. The insurer also has to pay a premium every month to the insurance company. The premium may vary based on the type of vehicle, number of accidents, make and model, etc.

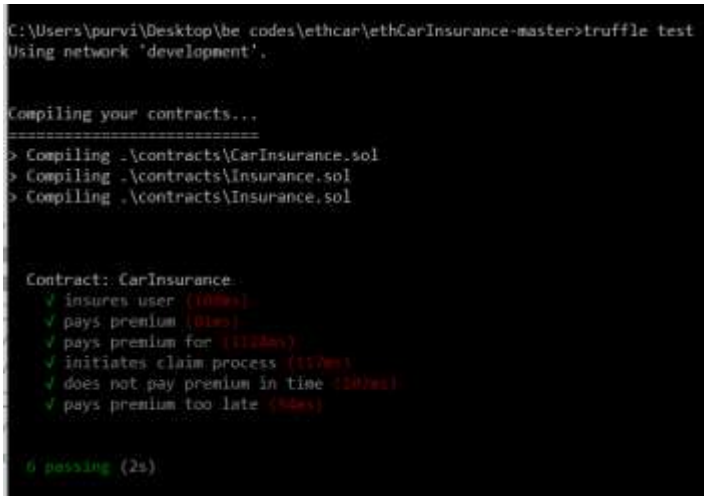

Fig 4: Successful testing of solidity.

Fig 5. Damage payment to user after claiming sucessful.

Fig 6. Transfer of premium to the user.

4. CONCLUSION

The BI framework seeks to provide a solution for the issues encountered within the traditional insurance method. It proposes to provide better cooperation among insurers and customers with the usage of smart contracts. This project also assists in getting rid of the intermediaries in the insurance process by enhancing the transparency between the insurer and the clients like giving them access to statistics on premiums, payment dates, number of accidents and so on. In blockchain technology standards of distributed computing and hashing algorithms are implemented to create a decentralized ledger. This ledger being immutable makes the gadget robust to failure and assault. In end the project gives a more secure and comfy alternative to the current insurance system.

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