Gandhinagar Institute of Technology
Computer Engineering & Information Technology Department
A Report on
"Expert Lecture on Blockchain Technology"
(18th August, 2021)

Objective:
The objective of the session was to provide the knowledge of blockchain is a type of database. To be able to understand blockchain, it helps to first understand what a database actually is. A database is a collection of information that is stored electronically on a computer system. Information, or data, in databases is typically structured in table format to allow for easier searching and filtering for specific information. What is the difference between someone using a spreadsheet to store information rather than a database? Bitcoin mining is the process of creating new bitcoin by solving a computational puzzle. Bitcoin mining is necessary to maintain the ledger of transactions upon which bitcoin is based. Miners have become very sophisticated over the last several years using complex machinery to speed up mining operations.

About Expert Lecture:
This conference provided a valuable platform for the company's industry experts to exchange and discuss the latest views on the technology of the Blockchain. 44 participants have been attended from Sem-7 Students from Computer Engineering and Information Technology Department.

Structure of Lecture:
Time: 11:25 am to 1:00 pm
Mr. Raj Makhijani discussed about Blockchain technology is most simply defined as a decentralized, distributed ledger that records the provenance of a digital asset. By inherent design, the data on a blockchain is unable to be modified, which makes it a legitimate disruptor for industries like payments, cybersecurity and healthcare.

A database structures its data into tables whereas a blockchain, like its name implies, structures its data into chunks (blocks) that are chained together. This makes it so that all blockchains are databases but not all databases are blockchains. This system also inherently makes an irreversible timeline of data when implemented in a decentralized nature. When a block is filled it is set in stone and becomes a part of this timeline. Each block in the chain is given an exact timestamp when it is added to the chain. Each node has a full record of the data that has been stored on the blockchain since its inception. For Bitcoin, the data is the entire history of all Bitcoin transactions. If one node has an error in its data it can use the thousands of other nodes as a reference point to correct itself. This way, no one node within the network can alter information held within it. Because of this, the history of transactions in each block that make up Bitcoin's blockchain is irreversible.

Blockchain technology accounts for the issues of security and trust in several ways. First, new blocks are always stored linearly and chronologically. That is, they are always added to the "end" of the blockchain. If you take a look at Bitcoin's blockchain, you'll see that each block has a position on the chain, called a "height." As of November 2020, the block's height had reached 656,197 blocks so far. After a block has been added to the end of the blockchain, it is very difficult to go back and alter the contents of the block unless the majority reached a consensus to do so. That's because each block contains its own hash, along with the hash of the block before it, as well as the previously mentioned time stamp. Hash codes are created by a math function that turns digital information into a string of numbers and letters. If that information is edited in any way, the hash code changes as well.

Glimpse of Expert Lecture on Blockchain

Introduction of Blockchain

Explanation of Smart Contract

Explanation of Blockchain

Explanation of Mining

Explanation of Consensus Protocol

Explanation of Blockchain