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# TECH ZONE

By school of  
technology

**Decoding  
Fin-tech**



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# PayPal; The Revolutionization of a Fintech

K.S. Sri Kumar – (Btech 2024)



Everybody knows PayPal, to someone living in the dark ages PayPal is the very first online payment application which was available to the world, but it is not just that, it was also the start to a revolution in the Fintech industry.

## A Little History

In December 1998, Max Levchin, Peter Thiel, and Luke Nosek founded Confinity, a business that created security software for portable electronic devices, with the sole purpose of enabling people to send payments through email. But after failing with that commercial strategy, it shifted its attention to a digital wallet. In 1999, the PayPal electronic payments system debuted in its initial iteration.

Confinity and x.com, a provider of online financial services established in March 1999 by Elon Musk, Harris Fricker, Christopher Payne, and Ed Ho, merged in March 2000. Musk felt confident in the Confinity-developed money transfer company's ability to succeed in the future. Musk and Bill Harris, then-president X.com's and CEO, disagreed on the likelihood that the money transfer industry will succeed in the future. Musk made the decision for X.com to discontinue its other online banking services and concentrate on PayPal in October of that year. Elon Musk was replaced as CEO of X.com by Peter Thiel in the same month; X.com later changed its name to PayPal and went public in 2002.

## The Start Of A Revolution

The business gained popularity, especially among buyers and sellers on the expanding online marketplace known as eBay. Payments on eBay used to be made with slow-moving money

orders and cheques delivered via normal mail. A faster, simpler, and safer payment option was introduced by PayPal to replace it. Due to its success, eBay bought PayPal in 2002.

The business focused on important partnerships and acquisitions over the following ten years that improved its platform, including Verisign in 2005 (which offered additional security support), the MasterCard partnership in 2007, Fraud Sciences in 2008 (which provided online risk tools and management), IronPearl in 2013, and Braintree (a payment gateway). Over 100M consumers in 190 markets were now served by the leading developing payments provider as of 2010.



## Business Model

Meg Whitman, the former CEO of eBay, outlined a three-phase approach that led to PayPal's success in terms of users and volume: "PayPal first concentrated on extending its service to US eBay consumers. Second, we started bringing PayPal to eBay's global websites. Third, we started to rely on eBay to grow PayPal's business."

## Phase 1

The majority of payment volumes in the initial period came through the eBay auction website. Both buyers and auction vendors, the majority of whom were individuals or small businesses unable to accept credit cards, found the method to be quite appealing. In order to hasten its expansion, PayPal ran an aggressive marketing effort that credited new customers' accounts with \$10.

## Phase 2

Prior to 2000, PayPal's business model consisted on charging interest on funds in user accounts. However, the majority of PayPal credit receivers promptly withdrew their money. Additionally, a lot of senders used credit cards to finance their payments, which cost PayPal about 2% of the payment amount every transaction. PayPal modified its platform to better serve corporate accounts in order to address this issue. PayPal began depending on revenue from service fees rather than interest accrued on deposited cash. Holders of PayPal accounts were given seller protection as long as they followed the rules regarding refund. For instance, PayPal sellers must either keep a traceable proof of delivery to a verified address or offer a signed receipt for goods costing more than \$700.



Dan Schulman, President and CEO of PayPal,

## Phase 3

PayPal launched its off-Ebay approach after fine-tuning its business model and expanding its local and global penetration on eBay. Despite the slowdown in growth on eBay and low-single-digit user growth on the eBay website, this was predicated on building greater growth in active users by adding people across numerous platforms.

## My Views

Due to the variety of alternatives it offers its consumers, PayPal may be utilized in more than 200 areas and countries. Another factor contributing to its success is the extensive network it has built up by acquiring new competing firms. The rapid expansion of PayPal is due to these few simple yet effective steps. Even if there are other fintech companies operating today, such as GPay, it can be claimed that these new businesses are only expanding on what PayPal has been doing for so long.

# Making Tech Companies Work: Finance's Role

Financing is the cash or funding support your tech startup will require to either launch a firm selling a good or service based on your idea, licence your technology to a partner for commercialization, or both. Early-stage technology business financing typically takes the following forms:

- Effort equity
- Government initiatives
- licencing proceeds
- Customers' money
- Bank equity
- Debt
- Type

## What Is Fintech (Financial Technology)?

Fintech, as it is more often known, is a term used to describe emerging technology that aims to enhance and automate the provision of financial services. At its foundation, fintech uses specialised software and algorithms that are employed on computers and, increasingly, smartphones to assist businesses, business owners, and individuals in better managing their financial operations, processes, and lives. The term "financial technology" is combined with the word "fintech."

Examples of fintech applications include roboadvisors, payments apps, peer-to-peer (P2P) lending apps, investment apps, and crypto apps, among others.



The overarching promise of fintech is that technology makes it easier to provide financial services to people who historically have had little or no access to them. Indeed, several fintech companies aim to eliminate long-standing barriers so that people — typically tech startups can more easily save, invest and build wealth for themselves.

There are various options for funding your tech firm or idea, which could take one or more of the aforementioned forms. Remember that not all financing options are suitable for all kinds of technology enterprises at all stages of development.



# SENSEX- Where Finance & Technology Collide

Raja Muneesh Kanth (B.Tech 2025)

The SENSEX, also known as the S&P Bombay stock market index, is a price weighted index of 30 leading publicly listed companies. It is a measure of the performance of the market, and not indicative of any one individual company or sector. The SENSEX was first published on July 19, 1985, in Business Today. In this article you will learn about what is SENSEX and how it works its impact as well on Indian economy. The SENSEX (or Sensitive Index) is an index that represents a basket of stocks from various sectors that trade on the National Stock Exchange (NSE) and comes under the category of market capitalization indexes. It is designed to respond quickly to change in investor sentiment, and place greater weight on stocks with high liquidity. There are many other stock indices like NIFTY, CNX100, CNX200 and SNDEX which are based on different criteria for measuring their performance.

## How SENSEX Works?

The SENSEX is a market-capitalization weighted stock-index that tracks the 30 largest companies listed on the Bombay Stock Exchange. The selection of stocks included in the SENSEX is based on their market capitalization. A company's weight in the SENSEX is determined by its size relative to other companies in the same industry. The SENSEX is calculated on a real-time basis every minute based on the latest prices of the stocks included in the index. That is, the value of the SENSEX changes minute-to-minute in response to price changes of the stocks that make up the index. The SENSEX is published at the end of every trading day and is the most widely followed index in India.

It is used to gauge the performance of the equity markets and is also used as a reference index for various derivative instruments.

## IMPORTANT: What is SENSEX?

The SENSEX is a market-capitalization weighted stock-index that tracks the 30 largest companies listed on the Bombay Stock Exchange. The SENSEX has a base value of 1,000 points. This means, at any given point of time, the value of the SENSEX will be 1000 points. The value of the SENSEX at any given point of time will be the 30 stocks that are part of the index multiplied by the index value, divided by 1000.



## SENSEX Calculation

The formula for calculating the SENSEX index is as follows:  
$$\text{SENSEX} = (\text{Price of Stock 1} \times \text{Company's Weight}) + (\text{Price of Stock 2} \times \text{Company's Weight}) + (\text{Price of Stock 3} \times \text{Company's Weight}) + \dots$$
  
... If the total is 1000, the index is at its base value.

## Impact of Sensex on Indian Economy

The Sensex is the best barometer of the Indian economy. As it is a basket of 30 blue-chip stocks, it is representative of the state of the economy. When the Sensex is up, it means the economy is doing well. When the Sensex is down, it is a sign of a slowing economy. When the Sensex is volatile, it indicates an uncertain economic environment. The Sensex gives an idea of the state of the Indian economy and is used as a reference index for many derivative instruments like options, futures, etc. It is also used as a benchmark to gauge the performance of mutual funds. When the Sensex is strong, the rupee will be strong, reducing the import of goods. Similarly, when the Nifty is strong, the rupee will be strong.

## The Big Difference Between NIFTY and SENSEX

NIFTY and SENSEX are both market capitalization-weighted stock indices that track the 30 largest companies listed on the National Stock Exchange. The difference between the NIFTY and SENSEX is that the NIFTY is a broader based index that includes all sectors, whereas the SENSEX is limited to 30 stocks from the Information Technology (IT) sector. The NIFTY is calculated in real-time, like the Sensex, whereas the SENSEX is calculated at the end of every trading day.



## Conclusion

The SENSEX is a market-capitalization weighted stock-index that tracks the 30 largest companies listed on the Bombay Stock Exchange. The SENSEX is published at the end of every trading day and is the most widely followed index in India. The SENSEX is a best barometer of the Indian economy and is the most widely used index in India. The formula for calculating the SENSEX is as follows: 
$$\text{SENSEX} = \text{Sensex} = (\text{total free float market capitalisation} / \text{base market capitalisation}) * \text{Base index value}.$$

# Bitcoin & Cryptocurrencies

Akash Kalasagond (B.Tech 2024)



## History of bitcoin

The idea of having a digital currency is not new one. Prior to cryptocurrency, many attempts at creating one have taken place. The main issue most of them were facing, was the double spending problem. A digital asset somehow needs to be usable only once to prevent copying it and effectively counterfeiting it.

Over 10 years before cryptocurrencies, the concept had been introduced by computer engineer Wei Dai. In 1998, he published a paper where he discussed "B-money". That same year, another attempt by the name of Bit Gold was drafted by blockchain pioneer Nick Szabo. Bit Gold equally looked into creating a decentralized digital currency. Szabo's idea was spurred by inefficiencies within the traditional financial system, such as requiring metal to create coins and to reduce the amount of trust needed to create transactions. While both were never officially launched, they were part of the inspiration behind Bitcoin.

Twelve years ago, Bitcoin emerged as the first cryptocurrency. A lot has happened since the last day - let's do look back at the history of cryptocurrency to understand the important changes it catalyzed.

## Birth of Bitcoin, the first cryptocurrency

Satoshi Nakamoto published the white paper called Bitcoin: A Peer-to-Peer Electronic Cash System, describing the functionality of the Bitcoin blockchain network. This day in Bitcoin history has carved the path for the events that followed. The first recorded purchase of goods was made with Bitcoin when Laszlo Hanyecz bought two pizzas for 10,000 BTC. This day is still commemorated to date as the Bitcoin Pizza Day.

## The start of a cryptocurrency market

After the birth of Bitcoin as the first cryptocurrency, solutions had to be found in order to trade them. In March 2010, the first cryptocurrency exchange appeared in the name of bitcoinmarket.com (now defunct). In July that year, Mt.Gox was launched as well. From 2011 to 2013, Bitcoin managed to reach parity with the US Dollar in February.

During this year, a few rivaling cryptocurrencies emerged: By May 2013, the cryptocurrency market counted 10 digital assets, including Litecoin. Another major crypto asset joined in August in the name of XRP (Ripple).

## From there on

The cryptocurrency world has not stood still since. Prices reached an all-time high in the bitcoin history in January 2018 and many new crypto assets have joined since, including EOS (July 2017), Tron (September 2017) and Cardano (October 2017). The cryptocurrency market currently hosts over 2000 digital currencies and is still expanding. It is easy to see how cryptocurrencies are slowly but surely becoming global. The rising trend around crypto has led to more and more acceptance and use cases.

Today, even the creation of a Central Bank Digital Currency (CBDC) is in progress and major companies show an increasing interest in blockchain and cryptocurrencies by investing into them. Obviously, those types of events will fuel a fast expansion of the market.

This list is expanding at a rapid pace, exactly like how the cryptocurrency prices went through the roof. Late 2018 the BTC were no in the picture of people's mind it has gain the popularity at the peek level.

## Bitcoin (BTC)

[bit-koin]



A cryptocurrency, a virtual currency designed to act as money and a form of payment outside the control of any one person, group, or entity, and thus removing the need for third-party involvement in financial transactions.



**CZ Binance**  
@cz\_binance

Following

Lol, it's spreading. I will buy a Tesla if you accept crypto...



**Elon Musk** @elonmusk  
Replying to @vicentes @Grimaszsz  
Wanna buy some Bitcoin? 🤔🤔

12:07 AM - 23 Oct 2018

532 Retweets 2,274 Likes



Congratulations..

**Mr. Salman Baig**

**B Tech (2021-25)**

For being invited to the

**2022 X-Culture Global Symposium,  
Panama City, FL, USA**

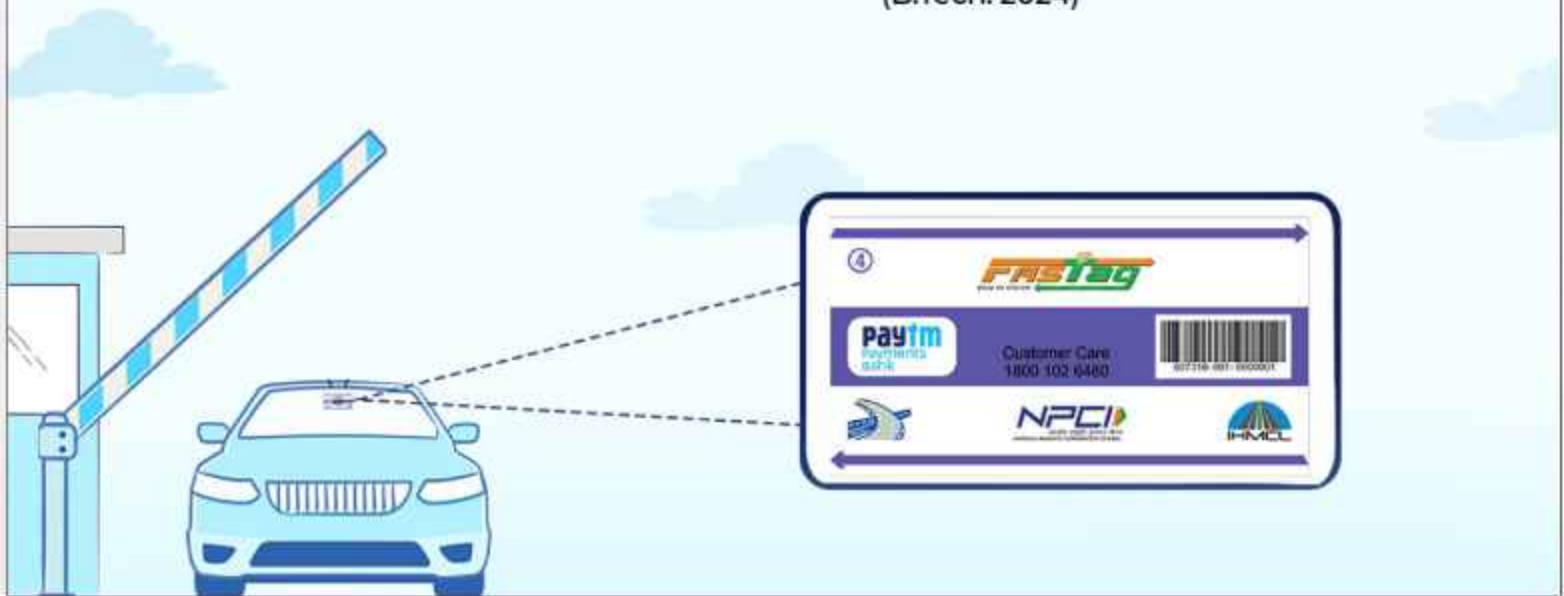
and for being unique talent to be selected out of  
80,000 students across the globe.





# UPI and Working of FASTag

Valvanoor Udayrangan Varsha  
(B.Tech. 2024)



Technology which has become a key factor in daily life, it has helped organizations to develop innovative financial services. Especially the payment systems which is the main factor to the respective organizations. The banking sector throughout has become very competitive in today's world. To be able to survive in the changing market banks are in plan for using up the latest technologies which can react to the dynamics of the rapid changing market scenario. It is very vital for all the finance departments to prioritize so that the business sits on the mountains of data which will help reach their transformational goals and this ultimately requires input from IT. Admitting that technology and finance are like fish and water interconnected with each other let us dig deeper to one of the co-dependent innovations that is UPI and Working of FASTag.

Unified payment Interface (UPI) is a developed platform of payment systems by National Payments Corporation of India (NPIC). Through this the users can rake in their respective accounts maintained with different banks and can make necessary transactions, by using a smart phone. UPI facilitates money transfer through payment identifiers like a combinations of an account number and IFS code or a virtual address.

FASTag is operated by NHAI which is an electronic toll collection system. It works on RFID technology basically they are rechargeable tags which is placed in the wind screen of vehicles. It does not have any specific expiry date. We can mostly use it till the tags are not tampered.

Exponential growth in information technology had promoted companies to leverage digitization of banking technology to transform the financial services industry through customer experience management.

National Electronic Toll Collection is a program which uses FASTag device that employs Radio Frequency Identification (RFID) technology, for making toll payments directly from the prepaid account which is linked to it. National Electronic Toll Collection (NETC) program has been launched by NPCI, NHAI & IHMCL to automate toll collection to ease out traffic woes and create an efficient and interoperable system on a national scale covering all toll plazas. Currently we cover 390+ National Toll Highway Plazas and 7 State Toll Plazas. This move is expected to boost up the toll collection. In response the RBI has stated that "In order to further broad base this system by allowing more payment choices for the customers, as well as for fostering competition among the system participants, all authorised payment systems and instruments non-bank PPIs, cards and Unified Payments Interface (UPI) shall from now be permitted for linking with the FASTags, which can be used for various types of payments (vehicle toll, parking fee, etc)." by this the resolution for failed transactions is also applicable which is carried out to the NEFT system. If there is FASTage on mind, then you must look up to the benefits given below:

1. Cashless payments: The customers need not carry cash for the transactions nor there is a need to worry about collecting the exact change.
2. Promotional Cashback: All the Fasttag users will get a monthly cashback of 5%
3. Faster transit: Auto-debit of exact amount takes place which results in saving time.
4. Online recharge - FASTag can be recharged online through Credit Card / Debit Card / NEFT/ RTGS or Net Banking
5. SMS alerts will be sent to the registered mobile number for transactions low balance etc.

# Student Achievements



The summer break was long but the students at School of Technology continued their work. Current third year students all participated in a Societal Internship, where they worked with various NGOs or independently towards social problems and contributed to society in various ways and developed solutions for their problem statements over a course of many hours. Their contributions included the field of agriculture, environment, domestic help, child care, and marine safety. A poster presentation regarding the same was conducted on September 3rd in chief guest Shri. Armstrong Pame, where they showcased their work to the Deputy Secretary of Ministry of Information and Broadcasting.



School of Technology was made proud by 1st batch of B.Tech program when four brilliant students, namely K.S. Sri Kumar, V. Bindu Hasita, E. Manjith Reddy and B. Arun Chandra were selected to participate in the extended internship offered by BOB eProcure, a company which creates, develops, and delivers products and specialized solutions to help customers with their unique procurement process. The selected students will work as Software Engineer Trainees at this company and will aim to unleash a wide range of skills by taking the first step on their professional paths.

Many congratulations to Second year students Ms. Aditi Baggu and Mr. Vignesh Devamulla had published a patent for their invention "Portable Demoisturizer for Natural Produce" under the mentorship of Dr. Kiran Ravulakollu and Dr. Ravi Gunupuru.



**inPASS** Patent Published

**WU WOXSEN UNIVERSITY**

**Aditi Baggu**  
B.Tech 2021-25  
School of Technology

**Vignesh Devamulla**  
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**Mentors**

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Dr. Ravi Gunupuru	Associate Professor, School of Technology, Woxsen University, Hyderabad, Telangana, India - 502005	India	India
Dr. Kiran Ravulakollu	Dean, School of Technology, Woxsen University, Hyderabad, Telangana, India - 502005	India	India

# Faculty Achievements

Heartiest Congratulations to Prof. Jyothi Katari - School of Technology, as her article 'Realism and Socialism in the Novels of Jonathan Franzen's Freedom and the Corrections' gets indexed by SCOPUS.

Launched in 2004, Scopus is Elsevier's abstract and citation database that covers nearly 36,377 titles from approximately 11,678 publishers, of which 34,346 are peer-reviewed journals in top-level subject fields.



## Heartiest Congratulations

to our esteemed faculty members, School of Technology, who have recently been conferred with the highest academic degree in academia - PhD (Doctor of Philosophy)



**Dr. Ravilisetty Revathi**  
Title of her Thesis: "Numerical Solutions to Compressible Flow Problems" from BITS - Pilani, Hyderabad, Telangana.



**Dr. Sasi Mallampalli**  
Title of his Thesis: "Issues & Challenges in learning Writing Skills in English of the students of Government High Schools in Dehradun (Urban), Uttarakhand: An Analytical Study" from Uttaranchal University, Dehradun, Uttarakhand.



**Dr. Reddy Sekhar K**  
Title of his thesis: "Performance Analysis of Mobility-Impaired VLC Systems" from IIT, SriCity, Andhra Pradesh.



**Dr. Jaswanth Nidamanuri**  
Title of his Thesis: "Multi-sensor Mechanism for Intelligent Vehicles and Driver Assistance Systems" from IIT, Sri City, Andhra Pradesh.

Two professors have published their research papers in Scopus index Journals:



Prof. Jyothi Katari got one of her papers entitled "Realism and Socialism in the Novels of Jonathan Franzen's Freedom and The Corrections" in the INT-JECSE. One of the Articles published by Prof. Jyothi Katari Chapter in a book "Teaching English Through Internet, Social media and other Visual Communication- A review of its Challenges and Possibilities" Volume-1 Recent Advances in Fine Arts Architecture, Literature and Interactive Technologies.



Dr. Bhargav Prajwal Pathri published his paper titled "Machining of ceramic materials: a state-of-the-art review" in IJIDem.