

P. Radhika¹, G. Sayi Rosshhun^{2*}, J. C. Pavan Kaushal³, T. Vijay Rao⁴, N. Srikanth⁵

¹Assistant Professor, Department of Computer Science and Engineering, VNR Vignana Jyothi Institute of Engineering and Technology, Hyderabad, India ^{2,3,4,5}Student, Department of Computer Science and Engineering, VNR Vignana Jyothi Institute of Engineering and Technology, Hyderabad, India

Abstract: Live streaming commerce, which arose from social commerce, has expanded significantly in popularity over the last several years in certain parts of the world. It is a new business model that enables merchants to engage directly with customers. It has just become a new feature offered by social commerce platforms, allowing small businesses to sell their wares online. In comparison to traditional computer commerce, live streaming shopping emphasizes direct interpersonal engagement. When viewing their live streaming selling channel, viewers will develop a good perception of expertise, familiarity, and likeness to live streamers. Meanwhile, they may pick up on other viewers' social presence through the conversation. We would like to find a feasible solution to connect both the sellers and consumers using effective software applications which can benefit both the parties directly or indirectly.

Keywords: Android, APP, APK, consumer, e-commerce, live streaming, live streaming commerce, seller, shopping.

1. Introduction

Before learning about live streaming commerce, it's important to have a firm grasp on a few existing methods of conducting business. A thorough understanding of these systems can help you understand the benefits and drawbacks of existing methods, as well as the additional features that live streaming commerce offers.

A. Introduction to E-Commerce

E-commerce stands for electronic commerce. It refers to the electronic exchange of goods and services over the internet. This is the most basic approach of using the internet to sell and buy items. E-commerce is defined as the act of conducting business using the internet and information technology such as Electronic Data Interchange (EDI) (EDI). E-commerce refers to a vendor's website on the Internet that allows customers to buy and sell goods and services directly from the portal. Through a digital shopping cart or digital shopping basket, the website accepts credit card, debit card, and EFT (Electronic Fund Transfer) payments.

The main types of electronic commerce are:

- 1. Business-to-business transactions (B2B)
- 2. Consumer to business (B2C)
- 3. Business-to-government relations (B2G)
- 4. Consumer-to-consumer transactions (C2C)
- 5. Commerce on the go (m-commerce)

B. Introduction to Social Media

The phrase "social media" refers to a collection of Internetbased programmes that allow users to create and share usergenerated content. It is built on Web 2.0's conceptual and technological foundations. According to Scheibe et al. [1], social networking sites are a subset of social media that can be divided into two categories:

- a) Asynchronous
- b) synchronous.

C. Introduction to Social Commerce

Social Commerce can be referred to as a technique of trade mediated by social media. A social commerce as a subclass of e-commerce in which social network sites are used to encourage online purchase through social interactions. In other words social commerce is a new e-commerce business model that is facilitated by social media and allows for the purchase and sale of products and services. There were two forms of social commerce identified:

- 1. E-Commerce with Web 2.0 features, such as Amazon.
- 2. E-commerce social networking sites; Customers may engage and produce content such as comments and reviews, tags, and suggestion lists in the first kind of social commerce. Consumers might utilize word of mouth to spread the second sort of information.

D. Introduction to Live Commerce

We already know the language for social commerce and E-Commerce, but we now need to learn about live streaming to gain a whole picture of live commerce. Live streaming is a synchronous social media, referred to as mixed media by some scholars [3], that distinguishes itself from asynchronous social media such as Facebook and Twitter by having some distinguishing properties such as simultaneity and authenticity.

Now, we have some familiarity over all the necessary concepts, which we call them as prerequisites for understanding the complete picture of live commerce. Now, we will understand about live streaming commerce (live commerce).

According to Cai et al. [2], live streaming commerce is a sort of e-commerce that incorporates real-time social involvement via live streams. From this vantage point, we can consider live streaming commerce to be a subset of e-commerce that employs real-time social interactions to enable purchasing. Real-time contact between steamers and viewers is an important

^{*}Corresponding author: sayirosshhun@gmail.com

component of live streaming business.

We can consider shopping through live streaming as a novel manner of shopping that incorporates not only several social commerce features but also unique social media features.

A main feature of this technology is live streaming, which is a real-time means of online communication and a mode of "collecting, releasing, and consuming video content at the same time" over the Internet. Streaming live E-Commerce is a sort of live streaming that includes E-Commerce in order to sell products while also drawing viewers. It creates an environment in which buyers and sellers interact regularly and deeply. Because of the "group effect" communication, live broadcasting encourages buyers to buy more than they would otherwise.

Despite the rise in popularity of e-commerce Conversion rates (the percentage of visitors who make a purchase decision) on e-commerce websites have been as low as 3% on average globally in recent years.

Customers are particularly apprehensive to purchase experiential products online, such as cosmetics and apparel. According to the MECL theory, a consumer's purchasing decision is influenced by his lifestyle, which is a set of individual behaviours (for example, daily consuming habits) used to address unmet requirements and actualize one's life values. Because consumers are unable to trial things out online and lack relevant consumer experience. Uncertainty about lifestyle fit is particularly prevalent, and it is a big barrier to online customers acquiring experience products.

Online shopping has long gone beyond text and images, thanks to advancements in Internet technology. Social commerce has evolved into an essential component of Ecommerce. Furthermore, as live streaming grew in popularity, In China, some vendors on social commerce platforms began to use it as an E-commerce tool. As a result, a new social commerce model known as live streaming commerce has emerged.

Although we got more knowledge about some of the prerequisites, we would like to describe our product in short. Basically, live streamers demonstrate the product's appearance, function, and any related introduction through our platform and if customers have any inquiries about the product's price, shipping, and other details. Live streamers have the ability to respond based on the live content, which can influence consumer behavior. Then, to complete the purchase, they click on an embedded product link provided by the vendors and make payment within the platform. This gives high flexibility to both parties. As everything is managed with in the product

There are three types of live streaming commerce:

- 1. Live streaming platforms that incorporate commercial activities (e.g., TIK TOK).
- 2. E-commerce sites, marketplaces, or mobile apps that integrate live streaming features, and
- 3. Social networking sites (SNSs) that add live streaming features (e.g., Facebook Live) to facilitate selling.

In terms of product display, time cost, shopping experience, and sales logic, live streaming commerce outperforms traditional e-commerce. Live streaming commerce is not only a vital channel for merchants; it's also a novel business strategy that allows merchants to communicate directly with customers.

2. Related Work

A literature survey is a comprehensive review of previous research on a certain topic. A literature review looks at scholarly articles, books, and other resources relating to a specific topic. It should serve as the theoretical underpinning for the study and assist you (the author) in selecting the scope of your research.

According to Jinyue Zhu et al., live streaming commerce has a huge potential in both social and business terms. According to the author's research and interview analysis, marketers use this function as a marketing strategy to stimulate consumers' purchasing intentions in three ways: the combination of ecommerce and live-streaming, the use of pushed livestreaming to target specific audiences, and the emotional bond between strea and strea According to research, 66.2 percent of live broadcast users purchased things during the ecommerce live broadcast, and 17.8% of users' ecommerce live broadcast consumption was three times their overall online shopping consumption.

According to Ye Wang Et. Al, the new e-commerce model from two perspectives: from a technical standpoint, live streaming effectively improves communication between consumers and merchants, providing more useful information to consumers in making decisions and additional perception of online stores other than the product itself; from a human standpoint, streamers significantly increase social factors in ecommerce, and streamers infuse more social factors in ecommerce.

According to Nur Hazrini Mohd Zahari, Nik Nur Aisyah Nik Azmi, impulsive buying is the tendency of a customer to purchase products and services without prior planning. The study deduces and analyzes the aspects that lead to a customer's impulsive purchasing behavior. Trust, Product Characteristics, Variety Seeking, and Social Influence are all characteristics of a website.

According to Mehrabian and Russell's SOR (Stimulus-Organism-Reaction) paradigm, external factors will elicit a specific cognitive or emotional reaction, resulting in changes in customer behaviour. With the growing popularity of live streaming e-commerce, experts have turned to the SOR model to see how it affects users' purchasing intentions and behaviours. The SOR model is being used to examine how relational interactions might promote customer involvement. Based on the SOR theory, we will employ the live streaming function (S) as an external stimulus and investigate how it affects customers' cross-border purchase intentions from the perspectives of overall perceived value and overall perceived uncertainty.

Igonor and Cocosila both agree. Perceived value has a multidimensional structure and is linked to a sense of utility for a product or service. Perceived value is a person's conviction that certain things or activities will benefit them. According to the findings, total perceived value is derived from a variety of value perceptions, including customers' overall assessment and appraisal of the transaction value and acquired value of crossborder live streaming purchase based on their needs.

Cross-border live streaming e-commerce, according to Wolfinbarger and Gilly, may not only assist customers pick items more intuitively and easily, but also often launch different online marketing strategies such as discounts, freebies, and trials to improve consumers' buy possibilities. They said that one of the reasons people purchase online is for the thrill of discovering a good deal. As a result, the employment of promotional strategies to save customers money may influence the effect of live streaming features on consumer perception in cross-border e-commerce to some level.

E-commerce, according to Aleksandar Andonov, Georgi P. Dimitrov, and Vasil Totev, has emerged as one of the most successful business models, providing several advantages to firms in the modern environment. The purpose of this research is to examine the influence of E-commerce on company performance. The globalized marketplace, no time limitations, greater connection development with clients, lower fixed costs, and other important effects have occurred.

Jiwat Ram and Di Xu wonder, "What operational techniques do the firms use to increase their clientele and market share in the LSV marketplace?"

The study performed semi-structured qualitative interviews with senior executives from LSV companies, and the results were content analysed. According to the findings,

- Product creation, marketing, pricing, and distribution are four areas where LSV enterprises construct their operating strategy.
- 2. Although the shared video material of esports contests and games benefits LSV companies, it also has significant drawbacks, as it may move market power away from LSV platforms and toward users.
- 3. LSVs that take advantage of the network effect by providing a 'Danmu' system (online conversation while video streaming, gifs) In theory, the research proves a novel operational method that connects marketing aspects and delivers insights into specific key tactics for LSV company success. In terms of management, the study suggests practical methods for enhancing decision-making in fast-growing LSV markets.

Many apps and platforms offer interactive live streaming, which allows viewers to influence the content of the stream through their activities. A short capture-display delay is critical in these scenarios. Despite the fact that recent technological developments have enabled web-based interactive livestreaming, there has been little research on how well the various web-based methods perform in the real world. Using educational remote labs as a case study, this study investigates the constraints of web-based interactive live-streaming systems, such as low latency. and consider other desirable characteristics in production systems, such as universality and deployability across institutional boundaries. The paper empirically compares and analyses the most important research approaches. The offered explanations and real-world experimental results can be used by researchers, designers, and developers to:

- 1. Choose from a variety of interactive live-streaming options for their real-world systems.
- 2. determine which one is the best fit for their needs.
- 3. know what kind of performance and outcomes they can expect.

3. Existing Model

As of now, there are no effective or a complete implemented systems accessible in the market that can assist both customers and sellers in buying and selling things directly without any difficulties, but there are a few comparable products that are currently used as an alternative way and these products are available in the market that demonstrate similar behavior, features but not exact behaviour. To mention a few, YouTube, TikTok, live TV, Facebook, WhatsApp, and a few more social networking sites all fall under the category of influencing social media marketing, in which influencers attempt to attract consumers with valuable content and sell items connected to the material that they have posted.

Table 1 Similar products in the market	
S. No.	Similar Featured Products
1.	YouTube
2.	TikTok
3.	Facebook Market Place
4.	WhatsApp
5.	Social Media Platforms

The aforementioned platforms rely on influencer-based selling, which can be advantageous if the influencer can attract users; however, the seller must first build sentiment and connection with their followers in order to successfully sell the products; however, this process can take several months to years; if the seller is unable to build connection and attract users, the product may not be sold out.

The present approach is built on influencer selling, in which the seller first establishes a presence on social media networks and builds a large following before launching their own product or attempting to sell other people's goods and earning commissions based on no. of items sold. The main issue may be trust; first, the seller lacks a legitimate platform to sell the goods, and second, the present social networking platform has an inherent custom cart capability for the seller to sell their own items. Finally, the consumer has no idea about the legitimacy of the payment platform through which they are making payments.

Now, we will look into the similar platforms that we have listed out which exhibit some tradeoffs to the live streaming commerce.

A. Television Shopping

Television purchasing, like live streaming E-commerce, goes from the Internet to the television. The media richness of persuasive information becomes increasingly relevant, appropriate, and correct for TV viewers. Second, shopping reality programs are comparable to television chat shows. The salesperson explains the product's selling pitch, resulting in a more convincing product. Promotion in an appealing manner. Because the customer has no notion what the product looks like or how long it will last, trust may be a problem. There is no assurance that the advertisement will be seen. Television commercials aren't cheap. Even with thorough research, reaching your target demographics is a risk.

B. Facebook Influencer Based Selling

Facebook has always been about connecting you to the things you care about. This includes not just people and family, but also goods, brands, and enterprises. People have used facebook apps for years to buy and sell items, even though there is no proper facilities in the app, people have started selling from sharing a picture of a product with the message "for sale", however recently facebook has introduced a marketplace, it's an official platform for selling products to followers and to entire world.

Partially we can consider Facebook Live + Facebook Marketplace as the best solution for building trust and effectively selling products, but there are a few requirements that facebook puts and these requirements must be satisfied in order to provide a tailored shopping experience for sellers through Facebook Shops. A seller must have a Facebook business page with at least 2,000 likes, and items must be tangible. Facebook Shops do not allow the sale of digital services, goods, or subscriptions.

There is a minor cost for using Commerce Manager to sell things via the Facebook app. On all sales above \$8.00, Facebook deducts a 5% selling charge each shipping. A fixed charge of \$0.40 is collected automatically when a transaction is completed for shipments of \$8.00 or less.

These caveats can hit sellers margins and directly or indirectly increase the cost of the product. Which is not a viable solution for sellers.

As the wide adoption of the internet and technology are increasing, people are creating innovative solutions for problems, which somehow eliminates existing solutions like, TV-based selling and selling through YouTube, Facebook and other social platforms. However, there are numerous issues that a seller and a consumer may encounter when using the aforementioned systems which need to be solved.

C. Problems with Existing Systems

There are other challenges that a seller may have while utilizing the aforementioned methods, the following are the primary faults with the present system:

- 1. Existence of proper facility for listing the products.
- 2. Availability of Checkout system.
- 3. Concerns with Platform and commissions.
- 4. The level of difficulty to set up.
- 5. Effective Methodology to engage with the vendor during live sessions.
- 6. Proper mechanism for tracing the merchandise while shipment.

Given the current systems with different implementation techniques and approaches, there are a few methods that are being explored. These methods are explained in the next section.

4. Proposed System

The system we are proposing is an app that contains all of the current features from the existing system, but in much better shape, as well as all of the needed features and the missing features listed in the existing system. This solution will alleviate the load and hassles that both merchants and consumers are now experiencing.

There are several techniques and architectures available for building a basic E-commerce system, but incorporating live streaming capabilities as well as interactive alternatives to successfully establish communication between merchants and buyers might be challenging.

We chose a single-tier server architecture design to provide all of the required services for both parties, as well as a CDN to distribute the content as quickly as possible.

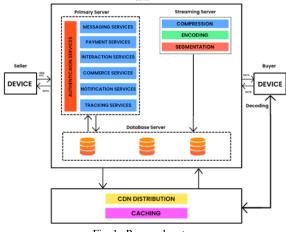


Fig. 1. Proposed system

To begin, we'd like to provide a brief summary of our suggested system. Our users are vendors and buyers, and each must install and register with our application in order to use our system. Following that, a seller or user is given the choice to sell or purchase a product, implying that any registered user on our site may sell or purchase, if they have merchandise and a supported payment method.

As sellers are the backbone of our proposed system, let's start with them. The seller in the app has the ability to send a request to the server and receive a response from the server, and the same is true for the buyer. The seller will be presented with a cart option, where he/she can list products, and then an immediate live streaming option is provided, where the seller has the option to send a notification to their users to join the stream if he wishes.

If the seller initiates the live stream, several requests and responses are sent back and forth to the live streaming server, these requests are sent through HTTP, websockets, and webRTC protocols, in addition to data packets, where additional data like messages, interactive responses are.

The request provided to the live streaming server via the core server consists mostly of a video stream, which is transmitted in the form of a bytes stream, which is compressed, encoded, and segmented before being stored in a database and shown to the user.

Assume that if a user wishes to communicate with other users and execute actions other than live streaming, these requests are routed through the core server to the primary server.

If we examine a typical user who wishes to purchase a product through the live broadcast, the following operations are carried out by the user:

- 1. The user will click on a product and add it to the basket; these actions will send requests to and get replies from the server's Commerce Services.
- 2. Then, if he tries to make a payment using one of the various payment methods, these activities send requests to and get answers from the primary server's Payment Services.
- 3. If a user wishes to communicate with the seller during these activities, he may utilise the messaging services, which will send and receive requests as well as answer to and from the Messaging Services.
- 4. Finally, once a user has successfully completed the payment, the user will be given the opportunity to track the order, which will make use of the tracking capabilities supplied by the primary server via the core server.

Here is a quick review of the services accessible in the core server to help you understand them better:

- 1. *Authentication Service:* This is the first step in the verification process, in which users are verified based on their credentials; if the provided credentials are correct, the user is allowed to perform core tasks such as interacting with other users and leaving comments, and so on; if the credentials are incorrect, the user is still allowed to use the product, but with certain limitations.
- 2. *Messaging Service:* During live broadcasting, messaging services are used to allow users to connect with one another and with the provider. This feature is handy when a customer wants to learn more about a product while it is being broadcast or after it has completed.
- 3. *Payment Service:* Payment services allow buyers and sellers to make payments without hesitation. If consumers are sent to a third-party website, payment services often result in a change in purchase behaviour. Payment services will serve as the system's foundation, enabling for on-the-go payments.
- 4. *Interaction Service:* Interaction services enable a vendor to engage the user in a live broadcast to speak with them or to encourage them to connect with the situation. Interactive services include polls, custom emoji, surveys, and giveaways.

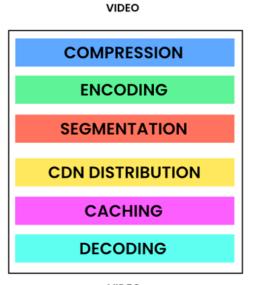
These services aid in the establishment of a link between the seller and the client during a broadcast, which leads to popularity and repeated visits to the same stream, or it can even lead to order fulfilment.

1. E-commerce Service: These E-commerce services aid

in the creation of a good purchasing and selling experience within the app. These services, such as cart, item listing, and so on, might be termed fundamental services. The primary goal of the suggested system is to provide a pleasurable purchasing and selling experience.

- 2. *Notification Service:* The merchant uses these services to send alerts to users inviting them to join the stream.
- 3. *Tracking Service:* Tracking services enable users to monitor a product once they have successfully made an order.

5. Implementation



VIDEO PLAYBACK Fig. 2. Process in live streaming

The following are the basic steps that occur backend during a live stream:

- 1. Compression
- 2. Encoding
- 3. Segmentation
- 4. Content delivery network (CDN)
- 5. CDN caching
- 6. Decoding
- 7. Video playback
- Video Capturing:

The beginning point for live streaming is raw video data, which is the visual information received by a user through the app's camera. Within the mobile phone to which the camera is connected, this visual information is represented as digital data — in other words, 1s and 0s at their most basic level.

A. Compression

The next stage is to compress the collected video, which is a complex process that takes a large amount of computing that mobile phones cannot manage. As a result, this step is carried out on the server side.

The captured video is transferred to the server i.e., sent to a server, and the video material is compressed. Compression occurs by removing extraneous visual information from the collected video.

B. Encoding

The next step in live streaming is video encoding, video encoding can be defined as the process of transforming data into a new format is referred to as "encoding." The data from live streaming video is encoded into a digital format that can be read by a variety of devices. The following are examples of common video encoding standards:

- AV1
- H.264
- VP9
- H.265

1) Introduction to FFmpeg

FFmpeg is a free and open source project that develops libraries and tools for processing multimedia data. FFmpeg can handle the whole transcoding and encoding, packaging, streaming, and playing process for both videos and images. It is by far the most popular video and image processing software, and it is used by a wide range of enterprises across a wide range of industries. FFmpeg is used to implement an encoder on a server.

What are the Features of FFmpeg?

For live video streaming, FFmpeg supports a broad variety of functions. Users of FFmpeg may accomplish the following:

- 1. Convert between several file types and codecs (i.e., encoding)
- 2. Change the bitrate (both audio and video)
- 3. Volume may be adjusted, audio can be removed, and/or an audio file can be merged with a video clip.
- 4. Transform a mono audio source into stereo channels.
- 5. Cropping, scaling, and rotating a video file
- 6. Input from a camera or other video source is being recorded.
- 7. A live video feed should be broadcasted.

C. Segmentation

The third step in the flow is segmentation, as video contains a lot of digital information, downloading or transmitting a video file takes longer than downloading a small picture. Because it would be impractical to transmit all of the video data out over the Internet at once, unless the streaming video is broken into short parts of a few seconds.

D. CDN

We can use a CDN, which is the next stage after compression, encoding, and segmentation, because obtaining data from a live server may cause some latency. The CDN (content delivery network) caches – or temporarily saves – each segment of the live feed, allowing most viewers to access the live video from the CDN cache rather than the origin server.

E. Decoding

Decoding is the last step before video playback. The CDN distributes the live feed to all users who are viewing the programme. The segmented video data is received, decoded,

and decompressed by each user's device. Finally, the data is converted into visual information by a media player on the user's device, and the video is played.

6. Results

The final implementation of the above-mentioned methods results in a beautiful application, which is quite simple and easy to use and contains all the features that are essential and that are present in existing systems.

We would like to categorize the product into multiple different fragments, each fragments exhibits and implements a single or a multiple functionality. And these fragments can contain multiple sub fragments.

The screens which we have implemented are:

- 1. Home
 - a. Live
 - b. Following Feed
 - c. Feed
 - d. Like
 - e. Comment
 - f. Share
 - g. Bookmark
 - h. Buy
- 2. Search
 - a. Promotion Banner
 - b. Hashtags
 - c. categories
- 3. Upload
 - a. Live Video
 - b. Categories
- 4. Notification
 - a. chat
- 5. User
 - a. Uploaded Videos
 - b. Lives
 - c. Private Bookmarks
- 6. Login/SignUp
- 7. Settings

Firstly, we will go into implementation of Home Fragment and its sub fragments.

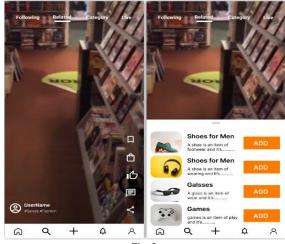


Fig. 3.

We took personalisation very seriously, so we implemented our own user personalisation system, based on the user interests, this feature is implemented in the home fragment there are multiple personalisation features implemented and a few of them are, Related personalisation feed feature, it can be explained as a personalised feed it helps users find content related based on interests this attracts more users to re visit the applications and can influence the purchasing behaviour.

To spice things up, we've implemented a new customisation option that allows users to connect with the material that they actually want to, depending on their following. This feature is designed to entice customers to buy from their favourite merchant.

Another interesting feature that a user can easily access through home fragment is Categories, where a user can access the content i.e., recorded live based on their category.

To add up, we implemented search, a feature where you can search both the recorded videos as well as the live videos. And also, there is a notification feature with which users get notifications and when their favorite seller starts a live stream or when they receive a message.

We gave power to the user by providing all the advanced features, these features can be accessed through user profile.

7. Conclusion

Brands can use films to tell a story about their products, and storytelling has been proven to be one of the most successful ways to advertise, raise brand awareness, improve customer engagement, and boost sales.

Our software combines social media, the popularity of video, and technological improvements to deliver a highly personalised service for consumers who have been confined at home due to lockdowns and quarantines yet want to shop online.

Because the internet is such a vast arena, live streaming allows businesses to swiftly engage with their customers while also encouraging them to grow their customer base if done correctly. The cost of live broadcasting is reduced. Live streaming is used by certain firms as part of their employee training programmes. WebRTC has been proved to be considerably superior to RTMP (Real-Time Messaging Protocol) in terms of customer satisfaction when it comes to deployment. Livestream shopping mixes live video content with two-way discussion and the ability for viewers (customers) to purchase or save selected items directly from the site.

Integrating live streaming with ecommerce acts as a catalyst, driving seller efforts toward boosting consumer purchasing intents while also allowing for spontaneity in consumer and seller interaction.

Customer queries should be swiftly answered during the broadcast to ensure spontaneous communication.

By commenting and asking questions throughout the stream, one can discover all the important data regarding the product. Because the manner of communication is live, it creates a sense of urgency, motivating purchasers to act quickly, which stimulates customer buying intentions.

Sellers may turn to live streaming if the application has a

large user base and can drive a significant number of appropriate customers to the seller's stream, as well as the ability to get an instantaneous response that tells him whether or not his customers enjoy the goods.

According to the results of various surveys, adding live streaming to e-commerce greatly increases consumers' overall perceived value and purchase intention, while also significantly reducing consumers' overall perceived uncertainty.

8. Future Scope

A well-designed and developed live streaming e-commerce app can grow into a profitable and recommended product. The ability to live stream and communicate in the stream, as well as the ability to purchase, are the most basic elements required for the live streaming e-commerce application to function.

The elements listed above have been implemented, and other things that we anticipate adding to our application's value and competency are listed below.

Customers prefer to receive recommendations rather than looking for things, which is why popular and competent apps in the current e-commerce market inadvertently recommend products they could be interested in.

As a result, tracking and maintaining user activity and transactions has become an important feature that significantly improves the application's market and customer value. User activity tracking and insight gathering are essential to stay up with this trend. In the future, consumers may be able to have virtual face-to-face interactions with streamers, just like they would in a store.

Streamers are unable to see how many people are currently viewing the stream. With their attractiveness index on an appropriate scale, products can be demonstrated to be trending.

The desirability index is an abstract element that can be influenced by a variety of product parameters, such as the total number of visits to the product page and the number of users who visit the page frequently (as tracked by activity tracking), overall product rating, and rating frequency.

In the future, sellers can be certified using certifications that categorise them based on the products they are renowned for, as well as their honesty and reputation.

References

- Scheibe, K., K.J. Fietkiewicz, and W.G. Stock, "Information Behavior on Social Live Streaming Services", Journal of Information Science Theory and Practice 4(2), 2016, pp. 6–20.
- [2] Cai, J., D.Y. Wohn, A. Mittal, and D. Sureshbabu, "Utilitarian and Hedonic Motivations for Live Streaming Shopping", ACM Conference on Interactive Experiences for Television and Online Video (TVX), 2018.
- [3] Hamilton, W.A., O. Garretson, and A. Kerne, "Streaming on twitch: fostering participatory communities of play within live mixed media", Proceedings of the SIGCHI Conference on Human Factors in Computing Systems, 2014, pp. 1315–1324.
- [4] Jinyue Zhu, How Live-streaming Has Been Utilized to Function on the Market of E-commerce in Recent China: Proceedings of the 2021 International Conference on Public Relations and Social Sciences, ICPRSS 2021.
- [5] Wang, Ye and Lu, Zhicong and Cao, Peng and Chu, Jingyi and Wang, Haonan and Wattenhofer, Roger, How Live Streaming Changes Shopping

Decisions in E-commerce: A Study of Live Streaming Commerce, June 25, 2021.

- [6] Ming, Junlan & Jianqiu, Zeng & Bilal, Muhammad & Akram, Umair & Fan, Mingyue. (2021). How does social presence influence impulse buying behavior in live streaming commerce? The role of S-O-R theory. International Journal of Web Information Systems.
- [7] Cocosila and Igonor, How the Impacts of Live Streaming Features on Overall Perceived Value, Overall Perceived Uncertainty, and Purchase Intention.
- [8] Jonelle Zimmerman, B. S., "Using the S-O-R model to understand the impact of website attributes on the online shopping experience."
- [9] Wolfinbarger and Gilly, How Cross-border live streaming e-commerce helps.
- [10] Aleksandar Andonov et al., "Impact of E-commerce on Business Performance," TEM Journal, vol. 10, no. 4, pp. 1558-1564, November 2021.
- [11] Ram J., Xu D. (2019). Live streaming video e-commerce: Examining the operational strategies, Journal Europeen des Systemes Automatises, Vol. 52, No. 1, pp. 1-9.
- [12] Rodriguez-Gil, Luis & Orduña, Pablo & Garcia-Zubia, Javier & Lópezde-Ipiña, Diego, Interactive live-streaming technologies and approaches for web-based applications," Multimedia Tools and Applications, 2018.