An Approach to E-Commerce with Voice Recognition

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Abstract: E-Commerce or Electronic Commerce is process of doing business through computer networks virtually. A person sitting in front of his computer can access all facilities to buy and sell products. E-commerce has reduced human effort by reducing physical work and saving time of the seller and buyer both. The main advantage of E-commerce is that the user can browse online shops and compare prices of products sitting at home in their comfort. The buyer/consumer surfs through the internet to the seller's website and views the products sold by them. There the buyer compares the price and selects items that he/she wants to buy and then proceeds with transaction.

Most E-commerce websites are limiting consumer's senses to only viewing. Shopping can be made more convenient if the buyer could communicate with the website just by verbally asking for the product and receiving audio + visuals as a result. Here comes the role of AI powered voice recognition. This is the problem we aim to solve to make the user experience better by combining two very popular technologies that are Reactjs and Alan AI. The power of React makes a website faster. React allows developers to create large web applications that can change data, without re-loading the page. The main purpose of React is to be fast, scalable, and simple. Alan AI is an advanced Voice AI Platform that allows us to add a voice interface to our app without overhead.

INTRODUCTION:

Developing a web site for the Internet (World Wide Web) or an intranet (a private network) is called Web Development [1]. Web development ranges from developing a simple static page to complex Web applications. Web development also commonly refers to Web design, Web engineering, client liaison, Web content development, client-side/server-side [2] scripting, network security configuration, Web server and e-commerce development. Web development is basically the collaboration between departments and not the domain of a designated department. Three kinds of Web developer specialization include front-end developer, back-end developer and full-stack developer. Responsibility of the Front-End Developers is behaviour and visuals that run in the user browser, while back-end developers are responsible to deal with the servers. Since the time the web is commercialised, Web development has been a rapid growing industry. Development industry is growing rapidly because every business wishes to use their Website for advertising and selling their products and services to customers.

Some of the many open source tools for Web development are GlassFish, BerkeleyDB, stack, LAMP (Linux, Apache, MySQL, PHP) and Perl/Plack. Cost of learning Web development is minimum because of these. Easy-to-use WYSIWYG (What You See Is What You Get) Web-development software, such as BlueGriffon, Adobe Dreamweaver and Microsoft Visual Studio are another contributing factor to the

growth of the industry. It is still required to have knowledge of Hypertext Mark-up Language (HTML) [3] or of programming languages to use such software, but the basics can be learned and implemented quickly.

Online shopping [4] could be a sort of e-commerce that permits customers to directly purchase product or services from any vendor over the net employing a mobile app or an online Browser. customers notice a product of interest by visiting the web site of the distributer directly or by looking among multiple sellers employing a program, that displays the a product's convenience and valuation at completely different e-retailers. As of 2020, customers will search on-line employing a vary of various computers and devices, as well as desktop computers, laptops, pill computers and smartphones. Internet search evokes the physical analogy of searching for product or services at an everyday "bricks-and-mortar" distributer or searching centre; the method is named business-to- consumer (B2C) online shopping. Once an internet store is ready up to modify businesses to shop for

from another business, the method is named business-to-business (B2B) [5] on-line searching. A typical on-line store allows the client to browse the firm's vary of product and services, read photos or pictures of the product, alongside info regarding the merchandise specifications, options and costs.

Online stores sometimes alter shoppers to use "search" options to search out specific models, brands or things. Online customers should have access to the net and a legitimate methodology of payment so as to finish dealings, like a master card, AN Interact-enabled revolving credit, or a service like PayPal. For physical product (e.g., paperback books or clothes), the e-tailer ships the product to the customer; for digital product, like digital audio files of songs or computer code, the e-tailer sometimes sends the file to the client over the net. The biggest of those on-line selling companies square measure Alibaba, Amazon.com, and eBay.

LITERATURE SURVEY:

Online shopping is basically electronic commerce to purchasing products or services directly from the seller through internet. With time, more people than before are using online shopping for a extensive variety of items, from household essentials to designer dresses and shoes to airplane tickets. Now purchasers have multiple options to choose their products and services while they are shopping through online platform.

Online searching has several distinctive characteristics. Huseynov and Yildurm (2014) [6] highlited that the shortage of physical interaction tends to be the important obstacle in on-line retail sales followed by the privacy of individual info and security of moneytary transactions over the net. Demangeot and Broderick (2010) [7] conjointly discovered that perceived simple use doesn't have an effect on the behavioural pattern during this case rather influenced by security and privacy problems. No relationship is constructed between the client and therefore the on-line look within the presence of perceived on-line risk although a client spent hours on the net Zuroni & Goh (2012) [8]. Day-by-day style, preference and selections ar varied relating to various factors like the net emergence. However, this development desires some a lot of understanding associated with the consumer's behaviour. shopper behaviour analysis identifies a general model of shopping for behaviour that depicts the processes employed by customers in creating a buying deal call (Vrender, 2016) [9]. Those styles are preponderant to the merchandiser as they'll make a case for and predict shopper purchase behaviour.

Jarvenpaa, and Todd (1997) [10] projected a model of perspective, behaviour, and searching intention towards net searching normally. The look includes many indicators classified into four broad classes like product price, quality services offered through the web site, the searching expertise, and also the risk perception of the web searching. Chang, Cheung, and Lai (2005) [11] studied classes of variables, that drive on-line searching activity. In their study, they divided the options into 3 broad

classes. Perceived characteristics of the online sale channel square measure the primary one which incorporates risk, on-line searching experiences, advantage, service quality, trust. The second class may be a web site and merchandise options that square measure risk reduction measures, website options, and merchandise characteristics; and also the last cluster is client characteristics. Varied styles of options, demographic variables, client searching orientations, client originality and psychological variables, computer, net information, and usages drives client characteristics.

Riley, Scarpi, and Manaresi (2005) [12] projected that consumer-related factors have an effect on on- line getting and therefore the ensuing implications for on-line retailers. The authors give sensible suggestions for retailers to cut back or overcome a number of the barriers that stop customers from increasing the number of product purchased on-line. Their work provides a radical analysis of 3 key factors which will influence shopper purchase behaviour on the net. These factors embody product- related factors (e.g., product kind, brand name, etc.), consumer-related factors (e.g., shopper experience, attitudes, risk perceptions, searching orientation, etc.), and retail-related factors (e.g., ways and tactics). Finally, the paper mentioned however e-retailers selling efforts (retailer factors) may be accustomed overcome the barriers to net getting ensuing from specific product and shopper connected characteristics. Clear and simple to implement recommendations to managers offered.

Rahman, et.al (2018) [13] explored the most factors, that issues the on-line customers to buy on-line and the way these factors influence the customers, once looking on-line. The paper emphasised on why customers hesitate or delay whereas looking on-line. The study known worth, confidence, security, convenience, time, when sale service and discounted deals because the main influencing factors.The paper known anxiety of sharing personal and money info collectively of the prime obstacles on the means of on-line looking. One study has known the impact of demographic factors (age, gender, education, income) on on-line looking behaviour (Possession of net, Frequency of on- line purchase, Motivation drives for on-line purchase) of customers. The paper concludes that gender has important impact on on-line looking behaviour.

Another work (2012) [14] analyzed the factors moving on on-line searching behaviour of shoppers which may be one amongst the foremost vital problems with e-commerce and selling field. it absolutely was complete that age and education have sturdy correlational statistics with perspective to on-line searching. The paper considers web site design/features because the most influencing factors. Also, demographic variables like age, gender, and level of financial gain play a facilitating role as a result of they influence shopper perception and shopper behaviour that drives them towards on-line searching Kim, Zhao, & Yang, 2008; Laforet& Li, 2005; SabbirRahman (2012) [15]. In China, on-line searching intention depends on consumers' age, income, and education additionally as legal status most significantly their perceived utility Gong, Stump, & Maddox (2013) [16].

All the views given by the analyst above mentioned shows how it can expand and become more profitable as it holds a definitive power over the consumers which influence the market.

BACKGROUND STUDY:

Problems faced in e-commerce websites and companies:

- **It is all Visual**

E-commerce websites are mostly visual in nature, which can be a disadvantage for visually unstable eyes or old people who have trouble viewing the product and trouble in reading and writing in digital devices. Since the popularity of E-Commerce website is increasing day by day, we should look into making it feasible for all spectrums of people.

▪ **An absence of online identity verification**

When a customer visits an e-commerce website, the portal has no clue about the customer and the information they have entered. The customer's information provided is real or not remains doubtful. Ordering something on Cash on Delivery (COD) payment mode using fake phone numbers or non- existing addresses can lead to large revenue losses.

▪ **Customer experience on delivering Omni channel**

Nowadays, customers can reach out to us through many numbers of times. They can visit to our website, contact with a agent, drop a message on your facebook/instagram or any other page or connect with you through a live chat session.

▪ **Competitor Analysis**

In today's competitive world, all other shopping aids will offer the same things and services as us. If we don't have any great strategy, it will be difficult for us to survive.

▪ **Stuck in at the old-school way of approach to selling**

The reason several e-commerce firms realize on-line marketing therefore troublesome is that they're, ironically, stuck within the past. Most of them lack the required insight into client behaviour and shopping for patterns, knowledge which may facilitate them thrive within the current e-commerce atmosphere.

▪ **Shopping cart abandonment**

Shopping cart abandonment could be a vast issue. Even e-commerce giants aren't proof against this drawback. For example, once brick Associate in nursing mortar heavyweight Nordstrom started an e-commerce portal, they witnessed massive losses from abandoned carts. The tedious and bug-filled checkout method was inflicting customers to escape in their droves. Nordstrom had to come back up

with a brand new checkout style, turning it into a ballroom dancing method.

▪ **Maintaining customer loyalty**

Even with the best-designed web site out there, while not client trust and loyalty, the business is absolute to struggle.

Creating new customers then maintaining them needs a vast effort. One in all the explanations e- commerce corporations particularly faces a challenge in building client trust and loyalty is that the merchandiser and client don't understand one another. Nor will they see one another. Thus, the client is robbed of the senses they'd usually suppose in face to face transactions. This could solely be created up for through time and energy. Across multiple transactions, eventually, the corporate will build thistrust and loyalty.

▪ **The headache of product return and refund**

When a product is came back, whether or not thanks to a disgruntled client or broken product, the business suffers an important loss in cargo and name. Logistical and shipping prices have perpetually been problematic to e-commerce sellers delivering their product for gratis.

▪ **The struggle of competing on price and shipping**

Online merchants oftentimes vie on value. Lots of sellers list constant merchandise on their sites, however the costs could also be completely different. Price cutting war notably affects little e- commerce businesses, as mid-sized and enormous competitors will typically supply merchandise for fewer. Mix this with free shipping, and smaller corporations merely can't afford to vie on value.

▪ **A problem of data security**

Security problems will result in nightmare eventualities. Fraudsters post spam and attack the online host server, infecting the websites with viruses. They'll doubtless gain access to confidential information

concerning your customer's phone numbers, card details, etc.

PROPOSED SOLUTION:

- ### Introducing Voice Interface

As we discussed in problem statement of the background study, E-commerce has to be made feasible for a large spectrum of people including the visually impaired or old people who have troubled eyesight, and also face problem in reading and writing in digital devices.

We introduce something very interesting that is Voice interface. Although many e-commerce websites already have Voice Interface but we are unique in a way that we are not only searching products through vocal instructions but also listening to the product description, and listening reviews and evenwriting reviews all through voice.

- ### Solution for an absence of online identity verification

First of all, look out for signs of suspicious activity. This might take the shape of significantly high worth or giant orders, determine pretend phone numbers and email addresses, check whether or not nothing codes match with the state/city. Send a verification link once a client signs up, via text message or email, to validate the client is real. With COD purchases, an automatic decision might even dial bent the client, asking them to validate the delivery address.

- ### Delivering an Omni channel customer experience

Make sure to equip your team with the correct technology. Up to date, visual engagement tools change your organization to serve customers across all bit points, channels, and journeys. Identify the key channels. Verify that channels square measure most vital to your customers. Client support employees ought to contact customers via their most well-liked channels, phone, email, live chat, video call, on-line facilitate centres or in-app electronic messaging. Integrate and optimize those channels, adding personalised messages and providing matched interaction with live chat or video job. Maintain the context. Direct the conversations supported a user's previous response. Keeps a track of client

conversations victimization parameters like user profile. This way, you'll be able to invariably respond contextually, regardless of the channels they used.

- ### Competitor Analysis

Conduct thorough analysis into competitors. Place stress on developing a method enabling you to shine brighter than your competitors. Use social media platforms and blogs for promoting merchandise. Invest in promotional offers to assist produce additional net presence and thus additional customers.

- ### Stuck in at the old-school way of approach to selling

Offer product in distinguished marketplaces like Amazon, eBay, etc.

These e-commerce sites have already got an existing network of consumers thus pitching andstigmatization your product becomes comparatively simple.

- ### Segment visitors

Visitor segmentation permits e-commerce firms to spot and communicate with guests supported their customer journey, past conversations, geographical location, browsing behaviour, referral page, and far additional. In turn, e-commerce firms will anticipate customer desires, giving them a customized service, like (free delivery or promo codes), making a additional economical stream of conversions.

- ### Shopping cart abandonment

Consider redesigning your go-cart, ensuring there aren't any bugs or an unnecessarily long and frustrating type filling method. Live chat solutions scale back go-cart abandonment instances. Combining this with options like traveller segmentation, it's doable to proactively reach resolute customers throughout key stages of their journey, providing the chance to interact with customers World Health Organization would otherwise drop out while not getting. Visual tools will facilitate address client queries throughout the checkout method.

- ### Maintaining customer loyalty

You must check that the client is happy with

the complete method, from ordering on-line to shipping. many on-line retailers is also commercialism a similar product, therefore you need to determine competitive advantage and nurture your client service consequently.

Increase trust with guests by:

Displaying your address, signalling, photos of employees, client testimonials and believability badgeson your web site.

Add a live chat choice to the web site.

Create blogs, they assist build trust. Create client service a priority over profit. Remember, it's easier to take care of Associate in nursing existing client than to seek out a replacement one.

Create loyalty programs. The points can't be transferred to alternative firms, that the client can got topurchase from you.

- ▪ **The headache of product return and refund**

Return and refund also are a part of nice client service.

It would be an enormous mistake to forget that. the most effective issue you'll do is build a robust returns policy. Take into account the subsequent once planning it:

Be clear. Never hide your policy.

Use plain English, intelligible to everybody. Not all of your customers are clued up with the word.

Try avoiding phrases like, "you must" ''and "you square measure required", which can appear harsh and suspend potential customers.

Outline what they will expect from you. Offer completely different choices for payments and shipping.

Educate employees regarding your come policy, in order that they will assist customers effectively.

Be ready to face the value of your mistakes.

If the merchandise is shipped wrong, take additional effort to stay the client happy.

- ▪ **The struggle of competing on price and shipping**

To survive in a competitive market, e-commerce companies need to distribute their inventory to fulfilment warehouses, become extremely resourceful shippers, or find some unique products to minimize this problem. Ultimately every online shopper expects free and fast shipping at the lowest price.

- ▪ **Competing against retailers and manufacturers**

Stopping makers marketing product on to customers might not be potential, however there ar a couple of ways to attenuate the matter.

Give priority to makers less probably to sell on to customers.

Offer the merchandise at a cheaper price or with extra advantages to extend sales.

Restrict the manufacturer from marketing the merchandise on to customers by setting this call at the contract. It'll be insufferable for each manufacturer, however you'll be able to work with smaller makers.

- ▪ **A problem of data security**

Manage your own servers.

It is suggested not to use common FTP to transfer files.

If the patron desires something, they're going to initial begin looking on the web once a client desires one thing, their initial port of decision is that the net. Though E-commerce transactions have enlarged grownup at a crazy pace at an improbable rate since its birth, the competition to put your product on the highest and to create a gentle sale has additionally enlarged then has the competition to create the simplest use of it.

TECHNOLOGY REQUIREMENT

Technologies that may be required are:

- MERN Stack
- Alan AI

Machine Learning components that may be used are:

- Recommendation System
- Sentiment Analysis
- Voice Interface

Recommendation system sometimes build use of either or each cooperative filtering and content- based filtering (also called the personality-based approach),as well as alternative systems like knowledge-based systems. cooperative filtering approaches build a model from a user's past behavior (items antecedently purchased or hand-picked and/or numerical ratings given to those items) additionally as similar selections created by alternative users. This model is then wont to predict things (or ratings for items) that the user might have AN interest in. Content-based filtering approaches utilize a series of distinct, pre-tagged characteristics of AN item so as to advocate extra things with similar properties. Current recommender systems generally mix one or additional approaches into a hybrid system.

Sentiment analysis (also called opinion mining or feeling AI) refers to the employment of language process, text analysis, linguistics, and statistics to consistently establish, extract, quantify, and study emotional states and subjective data. Sentiment analysis is wide applied to voice of the client materials like reviews and survey responses, on-line and social media, and care materials for applications that vary from selling to client service to clinical drugs.

Voice Interface helps the consumer by making the e-commerce experience easier by voice searches and adding items to cart, learning more about the item, listening to product reviews, just by vocal instructions.

CONCLUSION

In this present work, our study on most common online user activities showed that most of the respondents use Internet mainly for communication, social networking and multimedia and entertainment reasons, while shopping online is still finds a lower rank in the list. This result is quite similar with various published statistics in this regard, clearly showing, that even if online shopping is seeing rapid growth in India, it is still to become the most favourite among majority of the online user. More focus in building trust in the area of order fulfilment and quality assurance will definitely help to build customer confidence on online sellers and will boost its growth further. In this context cash- on-delivery payment should be provided in more variety of products with greater geographical coverage, as it has already given huge success to number of online sellers in Indian market.

We introduce something very interesting that is Voice interface. Although many e-commerce websites already have Voice Interface but we are unique in a way that we are not only searching products through vocal instructions but also listening to the product description, and listening reviews and even writing reviews all through voice.It was also found that online shoppers are often worried about security concerns while making payments through their debit / credit cards or net banking facilities, as the security of their accounts may be compromised. But newer technologies like digital wallet or e-cash services are having fewer risks involved, since bank account details of the customers are not used every time they make a payment online.Though internet is available to a major part of the country's mobile users, its speed is still a major setback, while performing online transactions. To overcome such setback the e commerce web sites and shopping apps should be designed to work in low bandwidth network also.

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