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# Dealz Smart - AI Deployment for Business System from a Sociotechnical Strategic Perspective

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## Abstract.

Socio-Tech AI is an interagent Android TV application between consumers and the local shops. It displays the current offers and updates on product information that is available in the local market ventures and suitable for the user's preferences. Features such as up-to-date news and reviews of the tech products, which satisfies the user can buy the product or request a product demo. The user had a stress-free purchase, which breaks the normal human fatigue due to the infinite search for the product. It can generate revenues using the partnership with local sellers, purchase percentages, advertisements, subscriptions, etc...

**Keywords.** AI, Android TV, application, news and reviews, demo, human fatigue, subscriptions.

## 1. INTRODUCTION

The conceptual model is a Socio-Tech AI agent that can provide a hands-free shopping experience for tech products and allow users to explore up-to-date notifications on portals. It establishes an automated interaction between the consumer and the dealer in order to close the purchase at a reasonable price and in a convenient location [1]. It shows the current deals and product information updates available in the local market ventures that are appropriate for the user's tastes. If the user is satisfied, he or she can purchase the product or the model, can request a product demo [2]. The shopkeeper can either sell the product or arrange a timeframe for the user to try it out, according to the user's preference.

This proposed framework facilitates in the review of present market stock scenarios involving similar products. In addition to these insights, the framework can bring these things to the user's house for a hands-on feel [1]. As a result, the consumer endured a stress-free purchase, which reduces the time it takes for identical products from different place to arrive, breaking the normal mortal fatigue caused by an endless hunt for a product [3, 4]. This model includes noteworthy elements such as tech product improvements revealed by day-to-day gadget technology advancement. It gives notifications to the hands with the most recent tech launches and product news, as well as past year's tech news. Hence Partnerships with local sellers, purchase percentages, adverts, subscriptions, and other methods can all be used to create cash for a Socio-Tech AI agent [5].

User had a stress purchase, which they are in fatigue due to infinite search for the product and it also leads to time loss, energy loss, money loss. In e-commerce sites, they have the monopoly rule - which one specified product is sold by a specific merchant, results in loss to others, especially in local markets. Consumers can be easily made aware and avail of online deals, but in local shops, it is very difficult to identify them at the right time. In shops too, they don't have the higher budget for advertising, thus the lower budget product is not reachable for the purchase.

The existing system doesn't have the all features integrated as a single Android TV application as one solution. It has a separate specification for separate work like delivery, product recommendation, tech news, videos, demo system, behaviour pattern on customer purchase, etc...

## 2. SYSTEM MODEL

The proposed system provides the user a stress-free purchase reducing the normal human exhaustion due to infinite search for the product and also reducing the time of delivery of similar products from different states [2, 3]. It displays the current offers and updates on product information that is available in the local market ventures and is suitable for the user's preferences. It has up-to-date news and reviews of the tech products, which it satisfies, the user can buy the product or request a product demo [6].

### 2.1. The need for the system model

- The user had a stress-free purchase, which breaks the normal human fatigue due to the infinite search for the product;
- It can generate revenues using partnerships with local sellers, purchase percentage, advertisements, subscriptions, etc...;
- one of the main advantages of using the local market is the delivery will be done faster than expected;
- The sale of defective products will be reduced;
- The user purchase products news will be recommended for the user;
- The selection of product choices increases due to the recommendation system based on specifications and reviews;
- AI-based delivery and demo optimization system;
- Increase the local seller market as much as other state sellers.

$$A_0 = \frac{V_0 \omega I_0}{4n} = 10^{-7} \omega I_0$$

## 3. ARCHITECTURE

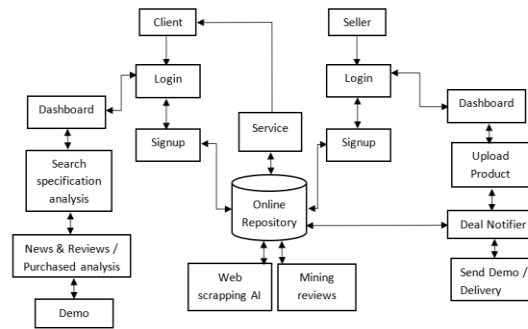


Figure 1. System model architecture for process flow

### 3.1. Methodology

Architecture Methodology will be used in making a project Android TV application that aims to develop great software that will be easy to maintain and repair as well as give additional code or reduce code. In the process of developing an AI-based e-commerce system-based Android TV platform, each layer in the architectural methodology will be implemented differently such as firebase database serves as a model, based on the Android TV platform will be the user interface view uses flutter, and other algorithms for the suggestion and nearby delivery (KNN Algorithm), deal notifier using chatbot and feedback check (KNN Algorithm) or review check (NLTK) for recommendation products by specs and reviews.

#### 3.1.1. ClientSide

This is the user-side work plan. It contains the user login, user signup pages designed using flutter and user data are collected and retrieved using Firebase Database. After the login success, you can navigate to the Dashboard page which shows the deals of the product, product suggestions [5, 8] for the user using KNN and NLTK algorithm. The deal specification analysis is used to specify the deals of the product using KNN, SEO, and Text Processing using NLTK algorithms [10]. News and Reviews are pages that display reviews from our tech team and the latest trends on tech and other products.

#### 3.1.2. Database

This Android TV application uses a firebase database. The database contains the product deals and product of the seller, seller details, and user details. It contains the product sales count. The data of the product from the seller can reflect the client's suggestion and product showing [5, 9]. It also collects the searched product details of the client and analysis them using a search engine optimization algorithm to give suggestions for the client using KNN, NLTK algorithm [4].

#### 3.1.3. Seller Side

Seller side contains Seller login and Seller signup pages designed using flutter and user data are collected and retrieved using Firebase database. After the login success, you can navigate to the Dashboard page which shows upload the products and deals of the product the seller has. The data of the product and deals of the product are stored in the firebase database. The demo request from the client is shown to the seller as a notification and as well as on the dashboard page [7, 8]. The AI also request to send the suggested product as a demo [4]. This request will be approved by the seller.

### 3.2. Mining Review Algorithms

#### 3.2.1. Beautiful Soup Algorithm

In Flutter the package used for the beautiful soup algorithm is called beautifulsoup: ^0.0.1. We collect all the links of apps and use these for feature extraction. The URLs are forwarded to a web scraping algorithm, which extracts data from the original file. Pass each link from the directory where we stored the crawled data. Get the features using a suitable library.

It parses through HTML to find information through tags and HTTP headers. After the reviews are gathered, we use natural language processing to classify reviews. we programmed the natural language processing to include positive and negative reviews that have a positive sentiment score. Then it passes through to the NLTK and KNN for recommendation system.

Syntax: s = BeautifulSoup (r. content, 'html5lib')

Parameters:s=soup

r. content: It is the raw content.

HTML. Parser: Specify the HTML parser we want to use.

#### 3.2.2. NLTK

In Flutter the package used for the Text processing NLTK algorithm is called lemmatizer: ^1.0.0 and stemmer: ^2.2.0. NLTK is a powerful package that consists of the most algorithm that helps to analyze, pre-process, and understand the written text. It analyzes the beautiful soup scores and use it to process the reviews.

- The first step in text analytics is tokenization where the process of breaking down a text paragraph into smaller chunks.
- The lemmatizer package is used to reduce words to their base word, which is linguistically correct lemmas.
- It transforms root words with the use of vocabulary and morphological analysis.
- Stemmer works on a single word without knowledge of the context.

#### 3.2.3. KNN Algorithm

In Flutter the package used for the KNN algorithm is called Flutter package: dart\_ml: ^0.0.4. K-NN is a non-parametric approach for categorizing objects based on nearest training. It is a sort of lazy learning.

This main task for the K-nearest neighbours is to mining review from the given data set of review [5]. we can easily differentiate between fake and original reviews in the given data set [1]. It gives the recommendation to the users for products.

After training, the next step is to predict the output of the model on the testing dataset, and a confusion matrix is generated which classifies the review as positive or negative [1]. We are defining as Fake the set of reviews that are identify to be False (False Positive or False Negative) and defining as Real the set of reviews that are identify to be True (True positive and True Negative).

- True Positive: True Positive Reviews in test data correctly classified by the model as Positive (P).
- False Positive: False Positive Reviews in test data are incorrectly classified by the model as Positive (P).
- True Negative: Real Negative Reviews in the testing data correctly classified by the model as negative (N).
- False Negative: Fake Negative Reviews in the testing data incorrectly classified by the model as negative (N).

Table1. The matrix of confusion

	True		False	
True	(TN)True Reviews	Negative	(FP)False Reviews	Positive
False	(FN)False Reviews	Negative	(TP)True Reviews	Positive

$$\text{Fake Positive Review Rate} = \frac{FP}{FP+TN} \text{ (a)}$$

$$\text{Fake Negative Review Rate} = \frac{FN}{TP+FN} \text{ (b)}$$

$$\text{Real Positive Review Rate} = \frac{TP}{TP+FN} \text{ (c)}$$

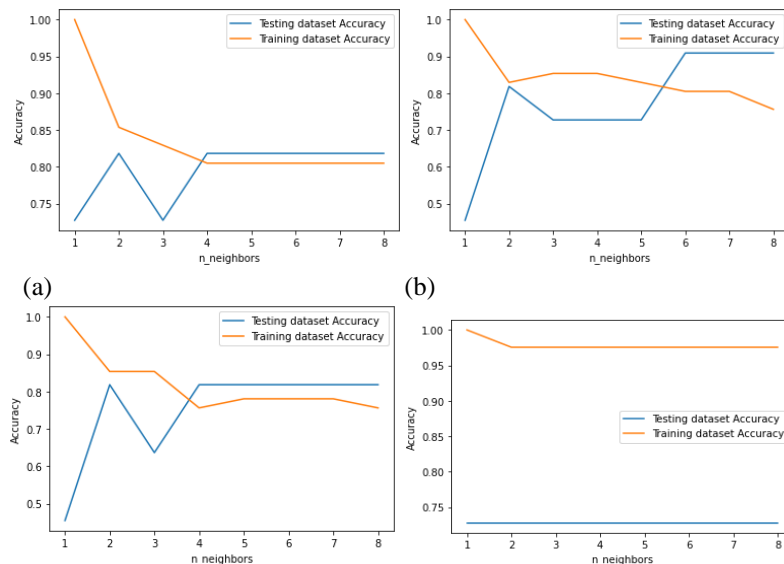
$$\text{Real Negative Reviews Rate} = \frac{TN}{TN+FP} \text{ (d)}$$

$$\text{Accuracy} = \frac{TP+TN}{TP+TN+FN+FP} \text{ (e)}$$

$$\text{Precision} = \frac{TP}{TP+FP} \text{ (f)}$$

For this algorithm different Performance evaluation and confusion matrix.

Here the performance and confusion matrix evaluation are based on the best price fit finding using the KNN algorithm. In this algorithm, we consider comparing four different shops offering different prices and offers which need to find the best price fit for the client. The KNN algorithm analyses the four prices and offers to evaluate which shop produces the high accuracy for the best price fit. The Android TV application provides the best price fit for the client using the KNN algorithm. The performance evaluation produces the 4 different confusion matrixes also. The final best accuracy is referred to the client for the best price fit. The four different shops are considered Madras Mobiles, IFlyies Shopy, HiT Mobiles, and Indigo Mobiles.



(c) (d)  
Figure 2. KNN testing & training dataset accuracy: (a) Madras Mobiles, (b) IFlyies Shopy, (c) HiT Mobiles, (d) Indigo Mobiles.



Figure 3. Best price fit comparison among four sellers

#### 4. RESULT

The real-world family shopping experience for larger screen applications like Android TV brings a different experience using this application. Hereby attached are the sample screenshots of the application which are the Splash screen, home screen, best price page, Map search page, and Checkout page.

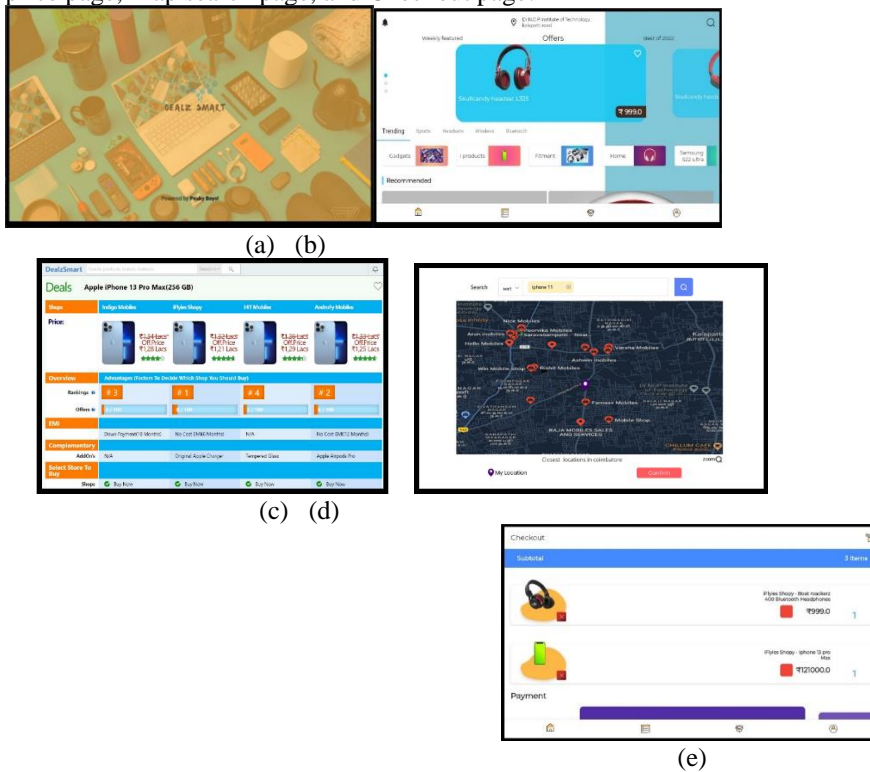


Figure 4. Screenshots of result: (a) Splash screen page, (b) Home screen page, (c) Best price page, (d) Map search page, (e) Checkout page

#### 5. CONCLUSION

Therefore, in the real-world scenario, such as local vendors and local clients can directly benefit from using the Android TV application. The rich and relevant user interface for both Android TV and iOS platforms enables a family-friendly shopping purchasing system. a user interfaces display and a web service which will be the controller to make sure for fast and efficient maintenance of the Android TV application.

#### 6. FUTURE SCOPE

In future work, implementation of Augmented Reality to experience the products virtually on live and gesture control for shopping & navigate through the app. It enhances the user experience.

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