"AN EFFECTIVE CUSTOMER ENGAGEMENT USING MACHINE LEARNING TECHNIQUE SMART MARKETING SYSTEM"

FIELD OF THE INVENTION

The present invention relates to the field of Commerce. The purpose of customer engagement is to attract, retain and grow a customer base. Companies have traditionally used various marketing, customer service, and operational techniques to meet their customer engagement goals. However, today, technology has changed dramatically, resulting in the introduction of machine learning techniques to help businesses refine their customer engagement strategies. Machine learning techniques provide businesses with a powerful, automated tool to identify customer behavior patterns and predict customer needs, enabling companies to respond quickly and effectively

BACKGROUND OF THE INVENTION

[0001] Background description includes information that may be useful in understanding the present invention. It is not an admission that any of the information provided herein is prior art or relevant to the presently claimed invention, or that any publication specifically or implicitly referenced is prior art.

[0002] A number of different types of an effective customer engagement that are known in the prior art. For example, the following patents are provided for their supportive teachings and are all incorporated by reference.

[0003] US20100179930A1:- METHOD AND SYSTEM FOR DEVELOPING PREDICTIONS FROM DISPARATE DATA SOURCES USING INTELLIGENT PROCESSING - Provided herein is a platform for prediction based on extraction of features and observations collected from a large number of disparate data sources that uses machine

learning to reinforce quality of collection, prediction and action based on those predictions.

[0004] US20110208585A1:- SYSTEMS AND METHODS FOR MEASUREMENT OF ENGAGEMENT - Exemplary systems and methods for measurement of engagement are provided. In various embodiments, a method coprises receiving business objectives of a web site or online publisher on a server, tracking user frequency and user activities for a predetermine time, computing and ranking engagement scores with the web site based on the tracked user frequency as a function of user action categories for the predetermined time and business objectives, the user action categories being associated with the user activities, segmenting users based the engagement scores, and directing an advertisement to a user of at least one user segment.

[0005] US9092801B2:- CUSTOMER JOURNEY PREDICTION AND RESOLUTION - Customer journey prediction and resolution is accomplished via a predictive model in which each user is mapped onto all available user journey information corresponding to a specific business. The predictive model is analyzed to understand the characteristics, preferences, and lowest effort resolution for the user related to the services that are subscribed to by the user. The predictive model is analyzed to predict the service or collection of services for each user. Embodiments interact with, provide and receive information from, and react to and/or deliver action to the customer across channels and across services. All customer and system behavior, data, and action is tracked and coordinated and leveraged for continuous feedback and performance improvement.

[0006] US8868448B2:- SYSTEMS AND METHODS TO FACILITATE SELLING OF PRODUCTS AND SERVICES - The present invention provides systems and methods for selling goods and services on in conjunction with the Internet. The system receives session information on a customer's website session from the enterprise's website and may also receive customer information on the customer from the enterprise's system. The system

determines from the received information, based on the interaction between matching rules created using the system by the enterprise and the system's matching engine, whether the customer is a candidate for assistance from a sales associate. The system creates and indexes information on available sales associates and their performance, selling capabilities and product expertise. The system further matches the customer with at least one sales associate, ideally the most appropriate sales associate, based on the customer, session, and sales profile associate information, and facilitates communication between the sales associate and the customer.

[0007] US20170006135A1:- SYSTEMS, METHODS, AND DEVICES FOR AN ENTERPRISE INTERNET-OF-THINGS APPLICATION DEVELOPMENT PLATFORM - Systems, methods, and devices for a cyberphysical (IoT) software application development platform based upon a model driven architecture and derivative IoT SaaS applications are disclosed herein. The system may include concentrators to receive and forward time-series data from sensors or smart devices. The system may include message decoders to receive messages comprising the time-series data and storing the messages on message queues. The system may include a persistence component to store the time-series data in a key-value store and store the relational data in a relational database. The system may include a data services component to implement a type layer over data stores. The system may also include a processing component to access and process data in the data stores via the type layer, the processing component comprising a batch processing component and an iterative processing component.

[0008] US9645994B2:- METHODS AND SYSTEMS FOR AUTOMATIC ANALYSIS OF CONVERSATIONS BETWEEN CUSTOMER CARE AGENTS AND CUSTOMERS - The technical solution under the present disclosure automatically analyzes conversations between users by receiving a training dataset having a text sequence including

sentences of a conversation between the users; extracting feature(s) from the training dataset based on features; providing equation(s) for a plurality of tasks, the equation(s) being a mathematical function for calculating value of a parameter for each of the tasks based on the extracted feature; determining value of the parameter for tasks by processing the equation(s); assigning label(s) to each of the sentences based on the determined value of the parameter, a first label being selected from a plurality of first labels, and a second label being selected from a number of second labels; and storing and maintaining with the database a pre-defined value of the parameter, first labels, conversations, second labels, a test dataset, equation(s), and pre-defined features.

[0009] US20130282594A1:- SYSTEM AND METHOD FOR PROVIDING A SOCIAL CUSTOMER CARE SYSTEM - The present invention relates to social customer service and support systems integrated with social media and social networks. More particularly, the invention provides a social customer care platform system to allow customer care functions, and in particular to allow customer service agents to identify, prioritize, match and triage customer support requests that may arise through a social network and may be serviced using a social network. It manages and tracks a high-volume of customer interactions and provides for monitoring of Internet social network posts relevant to a business's products or services along with the ability to capture, monitor, filter, make sense of and respond to, in near real-time, tens of thousands of social interactions. It comprises role specific user-interface and functionality for social customer service and support environments, automated prioritization and matching for increased agent productivity, and an automated enterprise workflow to align social media support with existing business processes.

[0010] US8666844B2:- INTELLIGENT PERFORMANCE-BASED PRODUCT RECOMMENDATION SYSTEM - Systems and methods of utilizing communications networks and multivariate analysis to predict or recommend optimal products from a

predefined population of commercially available products are disclosed. The recommendations are based on intelligence contained in processing elements and subjective and/or objective product information received from consumers or input to the systems as part of their initial setup. The output of the systems comprise sets of products that they predict the consumer will prefer and/or perform well for the problem or concern identified by the consumer. The performance and preference predictions are a function of consumer problems and product responsiveness patterns. Objective product information is generally obtained with diagnostic instruments. Data measured with the diagnostic instruments may be communicated to the data processing portions of the invention via the Internet. The outputs of the data processing portion of the system may be presented to consumers via the Internet as well.

[0011] The above information is presented as background information only to assist with an understanding of the present disclosure. determination has been made, no assertion is made, and as to whether any of the above might be applicable as prior art regarding the present invention.

OBJECTIVE OF THE INVENTION

[0012] Customer engagement is becoming increasingly important to businesses in today's digital era. Therefore, businesses have to look for ways to better engage their customers. Traditional marketing techniques can no longer keep up with the rapid changes in trends and consumer behavior. This is where machine learning techniques come into play. By leveraging the power of machine learning techniques, businesses can leverage an "effective customer engagement system" to better engage their customers and drive sales.

[0013] A machine learning-based customer engagement system uses an automated process to create profiles of customers based on their interests, preferences, demographics, and behaviors. Analysis of this data helps businesses better understand their customers and create

highly customized responses to engage them in the digital world.

[0014] For example, a business may use machine learning algorithms to analyze digital footprints, emotional imprints, and other customer data to develop customer engagement solutions, such as segmented marketing campaigns, personalized product recommendations, or automated digital conversations. Moreover, machine learning technology can also help businesses identify opportunities for customer engagement.

[0015] For instance, machine learning algorithms can be used to study customer behavior on various channels, such as websites, mobile apps, and social media, to detect patterns of interactions and to create targeted campaigns for customers who are likely to be positively influenced by those campaigns. Additionally, machine learning technology can be used to leverage predictive analytics to anticipate customer needs and interests, allowing businesses to preemptively offer customers the right products and services.

[0016] An effective customer engagement system is also important in driving customer loyalty. Machine learning algorithms can be used to analyze customer feedback, complaints, and reviews to uncover new opportunities for business improvement. Additionally, machine learning algorithms can be used to deliver tailored messages to customers based on their preferences and past interactions with the brand. This can help to foster a more trusting relationship between the customer and the business, leading to increased customer loyalty and higher engagement rates.

[0017] These together with other object of the invention, along with the various features of novelty which characterize the invention, are pointed out with particularity in the disclosure. For a better understanding of the invention, its operating advantages and the specific object attained by its uses, reference should be had to the accompanying figures and descriptive matter in which there are illustrated preferred embodiments of the invention.

SUMMARY OF THE INVENTION

[0018] In the view of the foregoing disadvantages inherent in the known types of an effective customer engagement now present in the prior art, the present invention provides an improved one. As such, the general purpose of the present invention, which will be described subsequently in greater detail, is to provide a new and improved system to implement a system to support the which has all the advantages of the prior art and none of the disadvantages.

[0019] The power of machine learning can help businesses develop an effective customer engagement system that not only drives sales but also increases customer loyalty. By leveraging the power of machine learning technology, businesses can analyze customer behavior and deliver tailored messages to customers to help build long-term relationships. Additionally, machine learning algorithms can be used to uncover potential opportunities for improvement in customer service and drive customer loyalty.

[0020] Ultimately, an effective customer engagement system built with machine learning techniques can help businesses stay one step ahead of the competition and increase their bottom line. The explosive growth and ever-evolving capabilities of machine learning have allowed businesses to reach customers in incredible ways. By leveraging the power of machine learning and smart marketing systems, businesses can create an effective customer engagement strategy that will improve the overall customer experience and maximize customer lifetime value.

[0021] Machine learning techniques can be used to better understand customer intent and behavior. By leveraging natural language processing (NLP), machine learning models can be trained to identify trends in customer conversations, including common words and phrases used as well as locations of customer interactions.

[0022] This will allow businesses to identify customers' needs and adjust their marketing

strategies accordingly. Advanced analytics can also be used to create models that anticipate customers' future behavior based on their past behaviors. Once businesses have an understanding of customer behavior and needs, they can leverage the power of predictive analytics to optimize their marketing strategies to best reach the desired customers.

[0023] Using predictive analytics, businesses can accurately target their existing customer base and understand their preferences. This allows businesses to tailor their marketing strategy to target the right customers at the right time with the right message. Finally, by leveraging the power of deep learning, businesses can build intelligent marketing automation that can improve customer engagement. With deep learning, businesses can deploy marketing campaigns that are constantly learning and improving.

[0024] This can help them to increase customer engagement, as campaigns will be better able to reach customers in a timely and efficient manner. Machine learning and smart marketing systems are powerful tools that can be used to improve customer engagement. By leveraging the power of machine learning to better understand customer intent and behaviors, predictive analytics to optimize marketing strategies, and deep learning to automate marketing campaigns, businesses are able to create an effective customer engagement strategy that will result in improved customer experience and increased customer lifetime value.

[0025] These together with other summary of the invention, along with the various features of novelty which characterize the invention, are pointed out with particularity in the disclosure. For a better understanding of the invention, its operating advantages and the specific summary attained by its uses, reference should be had to the accompanying figures and descriptive matter in which there are illustrated preferred embodiments of the invention.

DETAILED DESCRIPTION OF THE INVENTION

[0026] In the following detailed description, reference is made to the accompanying figures

which form a part hereof, and in which is shown by way of illustration specific embodiments in which the invention may be practiced. These embodiments are described in sufficient detail to enable those skilled in the art to practice the invention, and it is to be understood that the embodiments may be combined, or that other embodiments may be utilized and that structural and logical.

[0027] While the present invention is described herein by way of example using several embodiments and illustrative figures, those skilled in the art will recognize that the invention is neither intended to be limited to the embodiments of figures or drawings described, nor intended to represent the scale of the various components.

[0028] Further, some components that may form a part of the invention may not be illustrated in certain figures, for ease of illustration, and such omissions do not limit the embodiments outlined in any way. It should be understood that the figures and detailed description thereto are not intended to limit the invention to the particular form disclosed, but on the contrary, the invention covers all modification/s, equivalents and alternatives falling within the spirit and scope of the present invention as defined by the appended claims. The headings are used for organizational purposes only and are not meant to limit the scope of the description or claims.

[0029] In recent years, the application of machine learning (ML) in customer engagement has gained significant traction. This new AI-driven technology provides businesses with unprecedented insight into customer behavior and preferences, allowing them to better understand and respond to customer needs. As such, it can be an effective tool for optimizing customer engagement and providing a personalized service. One way to leverage ML in customer engagement is through the adoption of a smart marketing system.

[0030] A smart marketing system can be used to auto-segment customers based on their past behavior and preferences, allowing businesses to target the right customers with the right

message. This ensures that each customer receives a personalized marketing message that is tailored to their specific needs. Furthermore, ML can be used to predict customer responses to marketing campaigns in order to identify areas of improvement.

[0031] This allows businesses to refine their messaging for greater effectiveness. Additionally, ML can automate the process of data collection, analysis and response in order to reduce operational costs associated with customer engagement. In conclusion, the implementation of a smart marketing system using ML can provide businesses with greater insight into customer engagement, allowing them to optimize their strategies and better respond to customer needs. By leveraging ML, businesses can reduce operational costs associated with customer engagement and ensure that each customer receives a personalized service.

[0032] The use of machine learning techniques in customer engagement is becoming increasingly popular in the marketing world. With advances in artificial intelligence, marketers are now able to deploy sophisticated algorithms to assess customer behavior, engage in personalized conversations with customers, and provide accurate and personalized recommendations. Machine learning and smart marketing systems can be used to build an effective customer engagement system.

[0033] The system should be designed to recognize customer needs and preferences, offer personalized content and recommendations, and provide feedback and insights in real-time. The system should be designed to analyze customer behavior and recognize customer preferences. This analysis can be used to create categories of customers, based on their buying behavior, and to create distinct customer segments. By segmenting customers, marketers can send personalized messages and offers that are relevant to each customer segment.

[0034] By analyzing customer behavior, the system can also provide insights into customer

behavior, such as what product or service they are most likely to purchase, and when they are likely to purchase it. This data can be used to create customized campaigns and offers that are tailored to each customer's needs and preferences. The system should also be able to provide feedback and insights in real-time. It should be able to monitor customer engagement and provide feedback on customer interactions.

[0035] A successful customer engagement using machine learning technique smart marketing system requires the set of advanced technologies and marketing strategies for a comprehensive automation of customer engagement. The first step to successful customer engagement is to acquire the customer's data. The customer's data includes customer demographics, preferences, interests, behavioral patterns, past transactions, and so on.

[0036] This data helps to assess customer needs and preferences. By using machine learning algorithms and artificial intelligence, marketers can then develop predictive models that can accurately predict customer behaviors and preferences. The next step towards successful customer engagement is to set up a tailored marketing strategy. To do this, businesses should leverage the data they have collected on the customer and use it to determine their customer segmentation and customer journey.

[0037] The customer segments should be identified and segmented according to their demographics, interests, and other traits. The customer journey should be tailored to best meet their needs. With this knowledge, marketers will have an idea of what kind of promotional messages and offers to send to different customer segments. They can use these messages to encourage customers to visit their business, make purchases, receive loyalty rewards, and more. Finally, the business should implement customer engagement tools such as chatbots, customer service bots, and conversational commerce systems.

[0038] These tools will enable businesses to gain feedback from customers, answer customer queries, and help them resolve any customer-related issues. Implementing automated

customer engagement tools allows businesses to offer customers a better experience, build relationships, and increase customer retention rate. By using the machine learning technique smart marketing system, a business can strategically manage customer engagement in an effective manner.

[0039] This will enable businesses to gain valuable customer insights, which allows them to create tailored marketing campaigns, increase sales, and maintain customer loyalty. Furthermore, the advanced customer engagement tools allow businesses to stay connected with their customers and establish relationships with them in order to offer them better customer service.

[0040] In the current age of technology, customer engagement has become an important part of any business's strategy. Many businesses are now turning to machine learning techniques for smart customer engagement campaigns. Machine learning techniques allow companies to gain insight into customer behavior and create personalized customer experiences. Smart marketing systems harness the power of machine learning to develop strategies and create engaging content that speaks to the customer.

[0041] In the context of customer engagement, machine learning can be used to identify customer profiles and preferences, understand user behavior, and respond to customer requests. With the insights gained from machine learning, marketing campaigns can be tailored to each customer's specific needs. Smart marketing systems can leverage this data to come up with promotions and special offers that customers may find attractive.

[0042] The use of machine learning techniques for customer engagement creates an efficient and cost effective way for businesses to target their customers. These techniques allow for the customization of content and experiences for users, turning marketing efforts into a data driven engagement process. Smart marketing systems can leverage machine learning to learn from customer interactions, providing them with data-driven solutions to meet their

engagement needs.

[0043] For example, e-commerce websites can use machine learning to gain insights into purchase behavior. They can then use this data to create targeted emails and promotions targeted towards customers based on their past purchases. By creating meaningful experiences, customers may be more likely to buy from the website and come back in the future. The proposed innovation model has shown in the following fig.1

[0044] The use of machine learning techniques for customer engagement provides businesses with an opportunity to give customers personalized experiences. By leveraging customer behavior data and machine learning, companies can create engaging content and tailor their

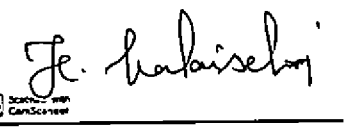
experiences to individual customers. Smart marketing systems provide the platform to implement these strategies, resulting in higher customer engagement, satisfaction, and loyalty.

[0045] An effective customer engagement using machine learning technique smart marketing system can be implemented in a variety of ways. Machine learning can be used to create a personalized customer experience. This system can be used to analyze customer data and create personalized content, targeted campaigns and offers, and customized product recommendations. First, machine learning can be used to identify customer preferences.

[0046] Through the use of algorithms, machine learning can be used to gather data about customer behavior and preferences, including purchase history and product reviews. This data can be used to create personalized content such as emails and targeted campaigns. Second, machine learning can be used to create targeted campaigns. By analyzing customer data, the system can identify groups of customers who have similar interests and preferences.

[0047] By targeting them with tailored campaigns, the system can increase customer engagement and loyalty. Third, machine learning can be used to create personalized product recommendations. By analyzing customer data and product reviews, the system can identify products which are likely to be of interest to the customer. It can then create personalized recommendations, which can be displayed to the customer in the form of ads or product suggestions. Finally, machine learning can be used to create automated customer service. The system can analyze customer data and identify customer queries and issues.

Dated this 09th April 2023

Signature: 

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