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A Novel Approach for Online Automotive Remarketing using Edge Rank

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Abstract
It is observed that most of the social networking websites have more user responsiveness and affinity towards the respective websites. Facebook which created a milestone in social networking by attracting people towards it, with the inclusion of a ranking algorithm called Edge Rank algorithm. The proposed system includes the Edge Rank algorithm, which is observed to be the efficient methodology to increase the user responsiveness. It is a feasible idea to have a website to reach people across globe. Online automotive remarketing being a trending approach towards online automobiles tradingis a medium for the people to lease the vehicles. Any website which is hosted on internet mainly focus on monetary concerns. In order to get the income through a website, the user interaction and the response plays a major role. The user will be attached to the website only if the content in the website matches with the liking of the user. We have implemented this system in an organizational level of intra-net and gained very good user responsiveness from the same. This system can be an effective solution to the problem of monetization of the online automotive remarketing process.

Keywords— Automotive Remarketing; Edge Rank; Monetization; Content Ranking; Facebook

Introduction

Automotive Re-Marketing Tool is the tool used for managing the transactions related to Car Remarketing process. Following are the list of some of the important features in Automotive Re-Marketing Tool application. The tool includes three basic concepts of remarketing, selling all the vehicles in stock, selling all the vehicles in stock as soon as possible and Selling all the vehicles in stock at the best performance [1]. It is observed that the existing systems are restricted to either manual or in a local area network. The main causes for these limitations are the issues with licensing, citizenship and the observable hindrance in the user responsiveness with the remarketer. In this paper we have discussed about gaining the user attention towards these online automotive remarketing tools.

The user responsiveness with the system is the major criterion to be dependent upon for gaining the profit and fame for the tool. The user attachment with the system gives the user responsiveness. Each and every user in this world will be having his own liking and taste of options. It is an usual tendency of a user to like a content on a webpage which will be liked or chosen by many other individuals. Even in some cases for example, while we buy something from online shopping websites, we look at the rating of a product or we look at the featured products which will have high user reviews and views. In this perspective of increasing the user responsiveness with the system and also to encourage the process of online automotive remarketing in developing countries like India, we have included the Facebook ranking algorithm Edge rank in order to gain the user responsiveness in the system. In the further sections of the paper we have discussed the remarketing process and the Edge rank methodology being employed in the stated tool.

Definition

Automotive Re-marketing process is the re-marketing methodology used with respect to the vehicle leasing domain. It is an efficient methodology employed in order to increase the economic condition and to provide employment opportunities. This process when deployed on the web platform requires an efficient algorithm to rank the vehicle posts as per the liking of each and every user of the system. In order to rank the vehicles as per the liking of every individual user, the inclusion of the Edge rank algorithm will be the feasible option.

Edge rank is basically a Facebook based ranking algorithm which is used to rank the posts as per the interest of the user [2]. It is a challenging part to take each and every individual into the consideration while arranging the posted contents [3]. In order to overcome this challenge, Edge rank gives a value called edge rank value. The edge rank value will be given for each and every post as per the user relation with the post. Edge rank algorithm includes three different factors, namely, user affinity, edge weight and decay parameter [4] [5]. More details about the same will be discussed in further sections.

A. User Affinity Score

In an e-commerce application or a online trading website, the main factor which will be considered will be the user interaction with the system. User feedback and user interaction will be considered as a major factor for the income in any organizational level. According to the analytics, even a click by an individual user is considered. One of the ways to track user affinity is to include a counter, which will increment as the user views increase. But an efficient methodology to do the same is to include the user affinity score factor, where in which the redundant clicks by the user is tracked and filtered based on certain factors.

The user affinity score refers to the score which is assigned based on the attachment of a user to the content in the system. The user affinity score increases as and when the user clicks the content. While tracking and recording these clicks the redundant click by the same user or to avoid robotic clicks, the filtering is done for the number of clicks received on a particular content in the system.

B. Edge Weight

The edge weight refers to the value which is assigned to each and every action on the web-site. The action can be lease, rent or just viewing content on the website.

Each of the actions on the website will be given with the value according to the weightage of the action. In simple words it means the lease or rent action will be having more weightage as an edge and given with the priority factor of one. The next position will be given to the sharing of the automobile information in the social networking sites from our system. As per the priority the third place for the edge weight assignment can be given to the 'Add to Interest' action in the system. In this case, the third priority is given to add to interest alone without the actual lease or rent because, the adding of an automobile or the content to the interest factor, will determine that the content is favorable for the user but may or may not be affordable to the user at that particular instance of time. The fourth place as a edge weight factor is given to the rating or liking of the content posted in the system. Last but not the least the priority should be given to the view of the post.

C. Time Decay Parameter

The time decay parameter usually refers to the value given to a content based on the time period of existence of the content on the website. In this parameter the posted date of the content will be compared with the current system date. If in case, the posted date and current date areone and the same, then the time decay value is set to one, or else the number of days elapsed is calculated.

System Framework

We have proposed a model (Fig. 1) which takes the vehicle information as the input. The vehicle information here refers to the vehicle records which will be added to the system by the remarketer. The next step will to track the user interaction with the system. This step can be carried out by calculating the user affinity score, edge weight and the time decay parameter.

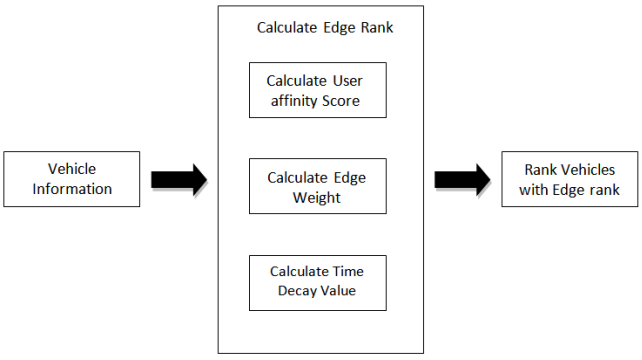

Fig. 1. System Framework

Methodology

In this section we have stated the methodology of ranking the automobile information in the system using the Edge Rank algorithm. As we have already discussed about edge rank it majorly includes the calculation of user affinity score, edge weight, time-decay parameter and finally the edge rank value. As per stated in some of the sources, the formula for the edge rank algorithm [5] is as mentioned below,

$$Edge\ Rank\ (e) = \sum_{Edges\ e} u_e w_e d_e$$

Where $u_e$refers to the user affinity score of the edge e, w_e refers to the weight of the edge e and $d_e$refers to the time decay value or the parameter. Hence the value of edge rank is obtained by the summation of the products of user affinity score, edge weight and time decay parameter. This edge rank value will be unique to each of the automobile record in the system. The edge rank value is the major determinant factor for the displaying of the automobiles in the system. This value will be sorted and thus according to this value the vehicles will be displayed to the customers. Thus the customer's most liking vehicle will be displayed first and others in their respective order.

Applicationsof Edge Rank

Edge rank algorithm can be used a subcomponent with most of the e-commerce websites. The major use of the edge rank algorithm is to rank the content in the website based on the user affinity towards the content in the website. Some of the major applications of the edge rank algorithm are as stated below,

1. In social networking websites.
2. In online trading websites like online shopping websites.
3. In review related websites, where the reviews should be ranked based on the number of user affinity towards the review.
4. As a sub-component with any related tools.
5. Edge rank can be used across different domains.

Results

In this section we have discussed with the experimental results, in an organizations level local area network. The system was included with the efficient Edge rank algorithm to rank the automobiles in the system. In the figure (Fig. 2) the initial stage of displaying of the automobiles without the Edge ranking is shown. This show the display of the automobiles fetched from the database. Here the normal fetching and displaying of the automobiles in the system will be like stagnant water in a pond, i. e. without any score for user responsiveness.

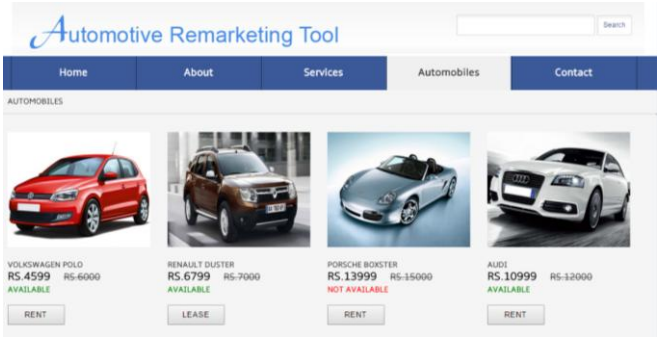

Fig. 2. Result without Edge Rank

As stated earlier, in order to increase the user responsiveness in the system, we have included the Edge rank algorithm [2] [4] [5]. The figure (Fig. 3) it is observed that the automobiles are displayed according to the Edge rank value which will be calculated as per the methodology stated earlier in the section of system framework.

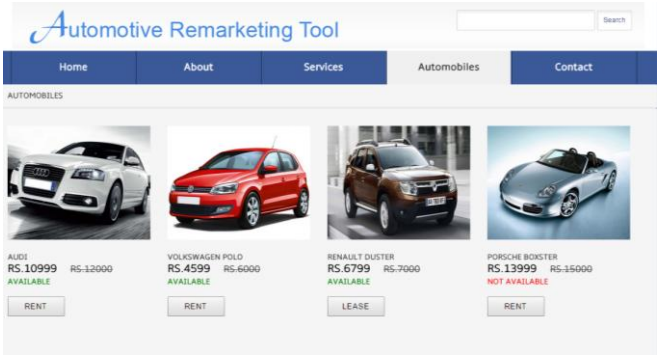

Fig. 3. Result with Edge rank inclusion

In the above stated result (Fig. 3), it is observed that the automobiles in the system are displayed as per the edge rank values for respective automobiles. The first displayed vehicle will be the most liked, most viewed and most traded vehicle in the system, where in which it is displayed based on the Edge rank value calculated for it. It is observed that there was a very good improvement in the user responsiveness with the system.

Conclusion

User responsiveness is a major factor in determining the market value of an e-commerce application or an online e-commerce tool. User response, action and the feedback given to the system will be a valuable resource and even an indirect way as a source of income towards the organizations. The main medium to reach people across globe is through a website or an online e-commerce tool. Currently there is a lack of the automotive remarketers and the methodology of practicing the remarketing should be encouraged in the developing countries like India. The economy of the country will be increased by this methodology. In order to increase the monetary concerns by increasing user responsiveness towards the website, we have included an efficient algorithm called Edge rank.

It is observed that people will be attracted to a website or content in the website only if they like those contents or if the content is being liked by many other people. It is a common tendency of people to lease or rent the automobile which has got good reviews by other users, which is in the top list and which is a new automobile in the market. We have observed in a small organizational level that the user responsiveness was increased as and when the automobiles were displayed on the website as per user's liking or user's affinity. Hence the inclusion of edge rank algorithm will be beneficial to rank the automobiles based on the user affinity, the type of transaction user has done with the content in the system and based on the time decay parameter related with the content.

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