A Hybrid Approach for Performing Accurate prediction of products using comments in social media

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ABSTRACT

Today many distinct products exists along with the configuration. Technology is advancing as well, proposed system deals with promoter system based on KNN clustering techniques. KNN along with filtering mechanism is introduced as a base mechanism to predict most likely products to be promoted through the promoter system. Simulation results indicates that the C-KNN(Content based K nearest neighbour technique is better than individual approaches of KNN and content based filtering.

KEYWORDS

Configuration, Promoter system, KNN, C-KNN

1. INTRODUCTION

Promoter system is technological advancement which helps the users to take decision which is optimal or best one. The system being studied helps user to form decision about electronic products. For doing so KNN and content filtering is utilized. Collaboratively it is known as C-KNN. Prediction results produced through the C-KNN shows better result as compared to KNN and content filtering alone.

(1)(2)proposes a KNN technique for detecting heart disease and performing prediction accurately by simplifying parameters. The nearest neighbourhood algorithm is used to identify elements having similar attributes values. These attribute values are grouped together using grouping functions. Grouping function generates certain value which is compared against the threshold value to determine problems. Problems are reflected in the form of deviation. The process is described by considering two points ‘A’ and ‘B’. Let distance(A,B) is the distance between points A and B then

a. distance(A,B)=0 and distance(A,B) >=0 iff A=B

b. distance(A,B)=distance(B,A)
c. distance(A,C)<=distance(A,C)+distance(C,B)

Property 3 is also known as transitive dependency. Distance if close to zero then prediction is accurate otherwise error is recorded. Error calculating metric is applied to determine accuracy of the approach. Accuracy is given as

$$\text{Accuracy}=1-\text{Error\_rate}$$

where Error_rate is given as

$$\text{Error\_rate}=\frac{|X-X_a|}{X_a}$$

Major limitation of KNN is that its performance depends upon value of k. Accuracy is low and further work is required to be done to improve accuracy.

(3,4)Content filtering is used to filter the contents presented to the promoter system. Content filtering is widely used to filter the electronic products. Electronic product considered for evaluation in this case includes cameras Clustering is accomplished through KNN and groups are fetched using content filtering mechanism.

Proposed system utilized the model for prediction as

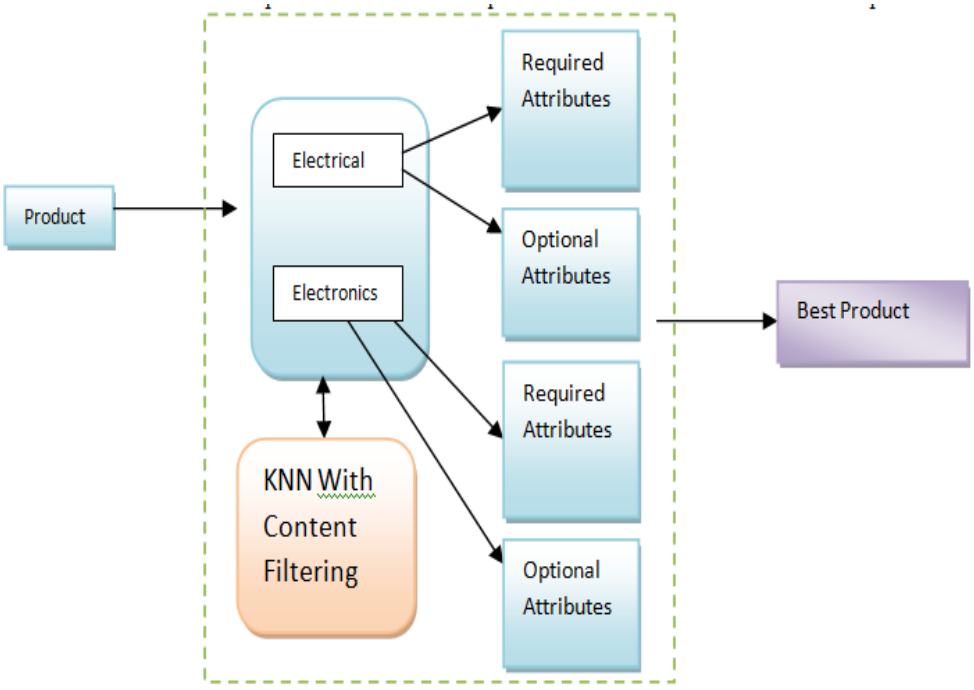


Figure 1: Proposed model for product promotion

Product promotion depends upon attributes and number of likes given by the user to the product. Highly rated or liked product is promoted as first place. The existing work is described in the next section.

2. BACKGROUND

Highest rated products are those that consume relatively less energy. These products fall into the category of products. The pollution is causing the environment to go from bad to worst. Many people are aware of the critical condition related to the environment. For solving the problem Products are used. products have less impact in the corruption of the environment. Legions of work have been done toward this issue. One of the most commonly used mechanisms for solving the problem is promoter system. (5) Promoter system will be the one which takes into account the requirements of the user and produce the result accordingly. Web Based promoter system is one of the commonly used mechanism under this category. The recommendations can be transmitted to the mobile environment also. The preferences of the user will be stored within the database in this case. The products will be fetched and presented according to the preferences stored within the database. The storage space will be required which could be large in nature. (6) there exists large number of applications of the promoter system. The applications will be in the area of multi sites and multi domains. The promoter can be merged with the sites which are commonly used. Today impact of ecommerce websites is huge on the users. So the promoter will be merged along these sites to help user take the decision about the product they choose. The quality and quantity will be target of the above said paper. (7) the promoter system can have number of phases associated with it. The word to mouth communication will be discontinued when the promoter system comes into existence. The preferences of the user will serve as the constraints which must be satisfied in order for the product to come under the category of recommended. Hence fully automated system will be formed taking into consideration the user requirements. (8) the promoter system will utilize the mechanism of filtering in order to decide which products must be favoured. Major work in concern to promoter system is formation of the algorithms which can be used for deciding whether the product should be recommended or not. The algorithms will utilize either content filtering or collaborative filtering. The promoter system which takes the views of the user is considered best one. Hence collaborative filtering is generally considered better as compared to content based filtering. However, this is not true always. In some situations content based filtering is required. The situations in which similar products are to be located then content based filtering will be used. (9) the mobile

environment is the common area now days in which promoter is utilized. The most common are is the multimedia retrieval. The promoter under that situation will be used in order to provide the user with the multimedia according to the preferences set by the user. The K-Nearest Neighbour algorithm will be utilized in order to determine the similar product. The contents which are retrieved is more than one. The contents will be ordered according to the degree of similarity. The highest matched content will be specified at first place and so forth. (10) the promoter system which is considered is dynamic in nature which means that the requirements which are specified within the promoter are continuously changing. The promoter can change the preference order. Some products may be at the top of the list earlier but after some of the reviews the promoter may change the order in which preferences are listed. In this case user reviews play very important role. If the user reviews are negative then the product will down the list and if the user reviews are positive then the product will move up the order. marketing has become an important method for organization to remain in profit and competitive in the market as the public and governments are more concerned about environmental issues. However, most online shopping environments do not consider ness of the products in their promoter systems.

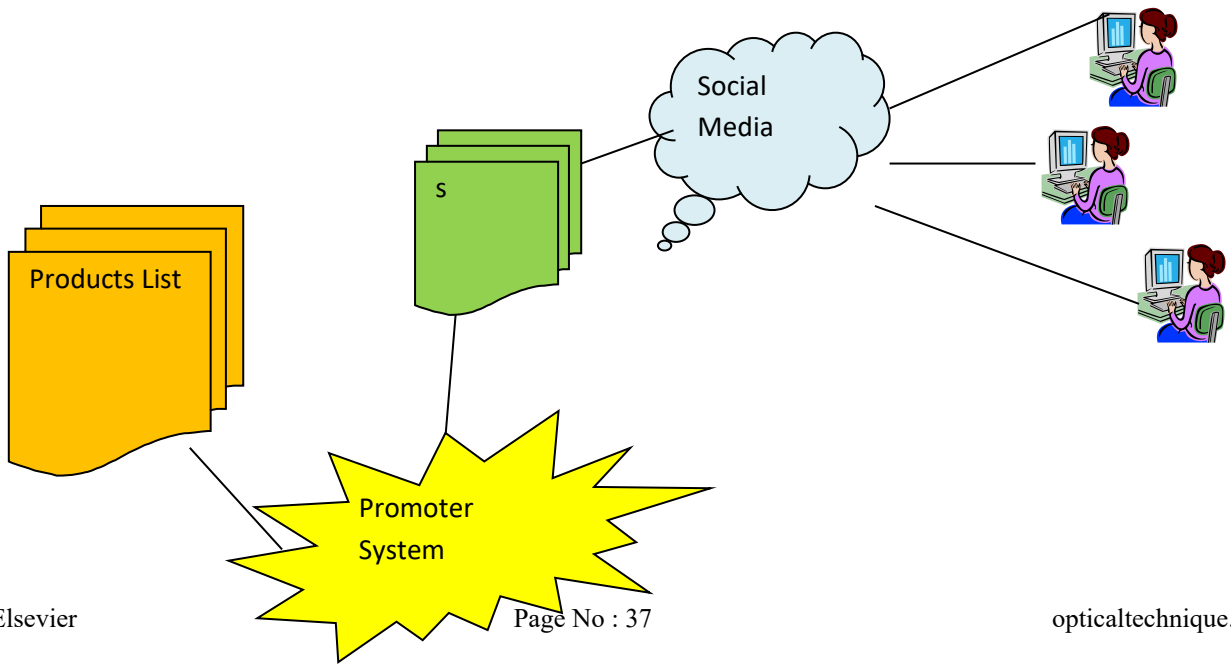
The above said work expects to propose the utilization of advertiser frameworks to improve the shopping procedure and to advance products industrialism basing upon the advantages of advertiser frameworks and a consistence system called foot-in-the-entryway (FITD). In this examination, the engineering of an advertiser framework for shopper hardware is proposed. Clients' basic leadership process is displayed with a versatile fluffy derivation framework where the information factors are the degrees of value, highlight, and ness and yield factors are the evaluated rating information. The design has three kinds of proposal: data sifting, applicant extension, and group suggestion. Specially appointed customization can be connected to tune the suggestion results. The discoveries are accounted for in two sections. The initial segment portrays the possibilities of utilizing advertiser frameworks in showcasing and the promotion of commercialization; the second part depicts the proposed advertiser framework engineering utilizing purchaser hardware as the unique situation. Dialog of the proposed design and examination with different frameworks are likewise incorporated into this part. The proposed design gives a competent stage to customized showcasing by offering clients shopping advices custom-made to their inclinations and for the promotion of industrialism. (11) the promoter system found its application in the area of ecommerce also. The ecommerce portals use the promoter in order to make the user know about the unknown

products. The unknown products could be the one which could be most liked by the users. Environmental issues are common and more and more users are aware about these issues. So, most ecommerce sites have set their attention towards the promotion of the Products.(3) The promoter system will take the decision on the basis of constraints specified. The products satisfying maximum requirement will be promoted using the promoter system. Normally there does not exists the way to verify whether the product is satisfying the user requirements or not but with the help of promoter system this situation will never appears. In order for the requirements to be proper requirement specification document can be prepared. These requirements should be verified against the requirements specified by the user. Once satisfied, these requirements will be added within the Promoter so that comparison and promotion can be made.

3. PROPOSED SYSTEM

In today's environment the idea of establishing business without the use of internet is not possible. More and more users are shifted towards online systems. So companies are also converged toward the online business. Every company in their attempt to establish strong foots required some sort of mechanism which can promote their product. So promoter system comes into existence. (12,13)The promoter system is the filtering system which will detect the preferences of the users. By looking at the preference of the users companies can decide which product to be launched in the market and which is not. So promoter system is the need of the hour. Promoter systems are used for wide variety of applications which includes movies, music, news, life insurance etc.

Promoter using KNN and content filtering mechanism is proposed through this literature. The proposed model is listed as under



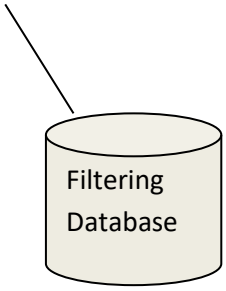


Fig 2 Promoter System for Camera Products

The algorithm for the proposed system is listed as under

Algorithm C-KNN

- Take the input from the Dataset

  $Input_i$=Dataset

  Parameter=”Likes”//Prediction on the basis of Likes from dataset
- Apply filtering mechanism to obtain filtered values in distinct classes

  $Class_i=Filter_{Condition}(Input_i)$
- Apply KNN to group nearest neighbors together

  In k-NN grouping, the yield is a class participation. A question is grouped by a larger part vote of its neighbors, with the protest being doled out to the class most normal among its k closest neighbors (k is a positive number, regularly little). On the off chance that k = 1, then the protest is essentially alloted to the class of that solitary closest neighbor.

  In k-NN relapse, the yield is the property estimation for the question. This esteem is the normal of the estimations of its k closest neighbors.
- Predict Group with most ”Likes”

4. RESULTS AND PERFORMANCE ANALYSIS

Through the implication of C-KNN results are obtained in terms of prediction accuracy. Prediction accuracy is obtained to be high as compared to individual KNN or content filtering.

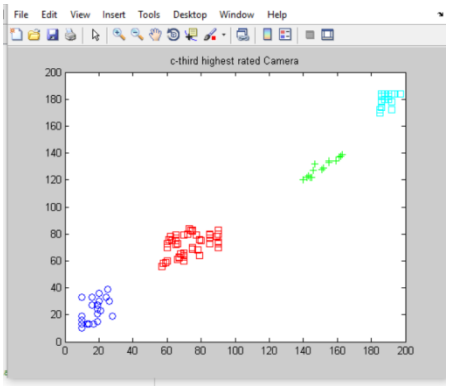


Figure 3: Clustering result

The accuracy is high as compared to individual KNN or content filtering approach.

Approach	Accuracy(%)	Misclassification	Products promoted
KNN	89	11	5
Content Filtering	85	15	4
C-KNN	99	1	10

Table 1: Comparison of existing and proposed approaches

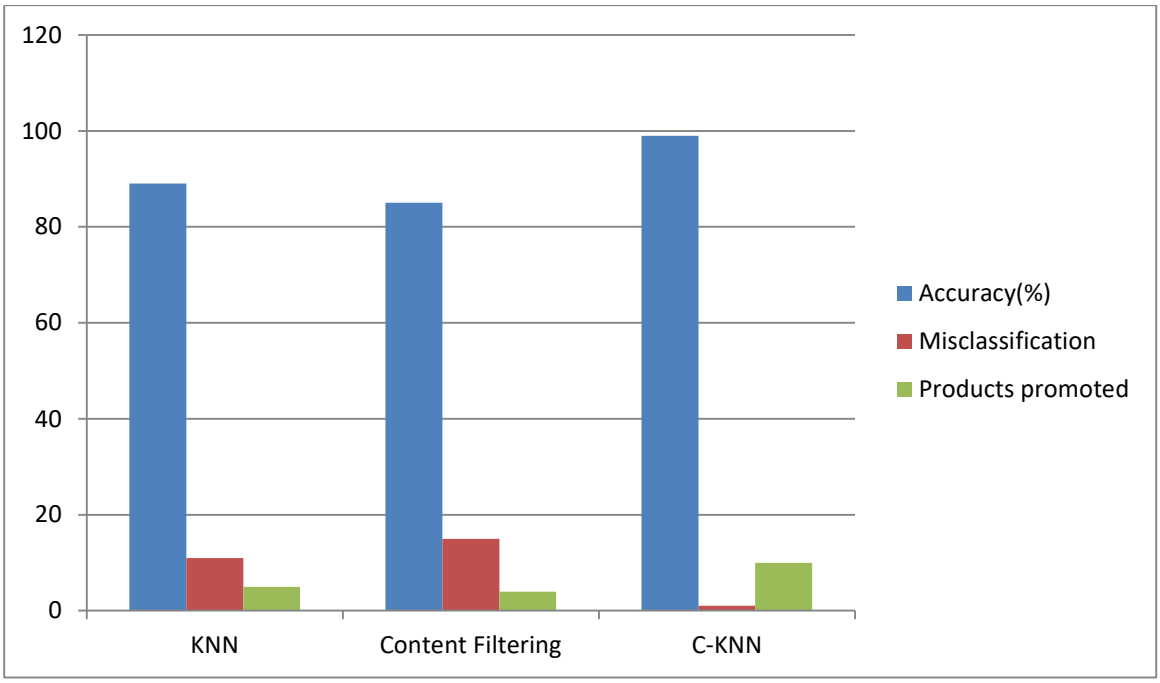


Figure 4: Plot of existing and proposed approach

Results indicates that the proposed system performs better as compared to existing system and hence prove worth of study.

5. CONCLUSION AND FUTURE WORK

Product promotion is critical as, companies seeks profit. This promotion required faslsying information over the internet. In order to promote genuine product proposed system(C-KNN) is utilized. Rating and likes formed over the social media can be used for product promotion. The dataset derived from the internet is used to determine accuracy of the system being used.

The future work may includes K means clustering along with Euclidean distance for determining products for promotion.

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