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Implementations Towards Semantic Retrieval of Trademarks using Conceptual Similarity Approach

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ABSTRACT: The trademarks are used to distinguish your business goods or services. A trademark can be expressed in the form of symbols, logo, titles, etc. So, there is a need to secure them. This system deciphers the hypothetical similarities among the trademarks. Here the trademark retrieval algorithm is used. It uses natural language processing techniques and the sources of external knowledge to retrieve the trademark expressed in the form of lexical ontology. The system uses the text documents which can be conceptually similarized. The system will be used for text trademark suggestion and also for logo comparison by using histogram algorithm.

KEYWORDS: conceptual similarity, infringement trademark, trademark retrieval, similarity of trademark.network lifetime

I. INTRODUCTION

The trademarks are used to distinguish business services and goods. So, now each year number of trademarks registered and used in marketplace. But IP crime takes place which creates harm to economy of business or company. That is trademark violation which create that hegemony to serious financial issue in business or service. That's why understanding of trademark infringement is most important which is a type of IP crime that involve number of fraud cases. For avoiding fraud cases, it becomes necessary to analyse the trademark similarity, which is nothing but conceptual similarity. The system proposed deciphers the hypothetical similarities among the trademarks for that purpose. The system underlays embedded technology and it is based on text retrieval. But, this approach is used for trademark retrieval algorithm. It removes stopward and stemming and analyse trademark query which user has entered. It measures the accuracy of algorithm to use different domains which gathers different data. With the help of conceptual similarity, it retrieves the trademark. If the trademark is having some similarity then it gives some suggestion to update the given trademark.

II. RELATED WORK

The paper by [1] F. M. Anuar, et al. author proposed to retrieve text trademark on the basis of conceptual similarity. The system provide simple and easy to understand trademark retrieval system. The system motivates conceptual similarity to make them more accurate and more secure. To make system capable of retrieving the conceptual similarity of trademarks. It uses feature extraction, hash indexing and distance computation. The paper by [2] H. Qi, et al. author introduced substance point of an exclusive figure and the point used to search nook pixel from it. The experimental result concludes that the trademark image retrieval based on shape feature performs better and gives satisfactory results. The paper by [3] L. Sbattella and R. Tedesco author proposed a fact and ideal for substance and listing information from main data. It uses conceptual level and lexical level for describing the main information. It provides good precision, which compares to regular search engine that is simple and well powerful system. A comparison with classic search engine shows that the proposed approach is effective in providing better accuracy. The ordinary goal of such methodologies is to extract ordered information from natural language documents. The paper by [4] M.-Y. Pai, et al. author proposed the various data reflow systems use search information as user input data, but it seems hard and complicated semantic mechanism. To address this problem they developed a semantic-based content mapping mechanism for an information 8 retrieval system. It has semantic advantages and good flow of the listing as the increasing precision and fast searching. The paper by [5] F. M. Anuar, et al. author focused on main fact by proposing a notation flow of the different procedure, to main at reflow the same trademarks. Trademarks are proprietary words and images with high reputational value. The focus on this significant feature by proposing a conceptual model of the

contrast process, aimed at retrieving conceptual semantic by data similarity of trademarks. The proposed model employs natural language processing and semantic technology to compute the conceptual similarity between trademarks. The model employs natural language processing techniques, knowledge sources and a lexical ontology to compute conceptual similarity between textual trademarks.
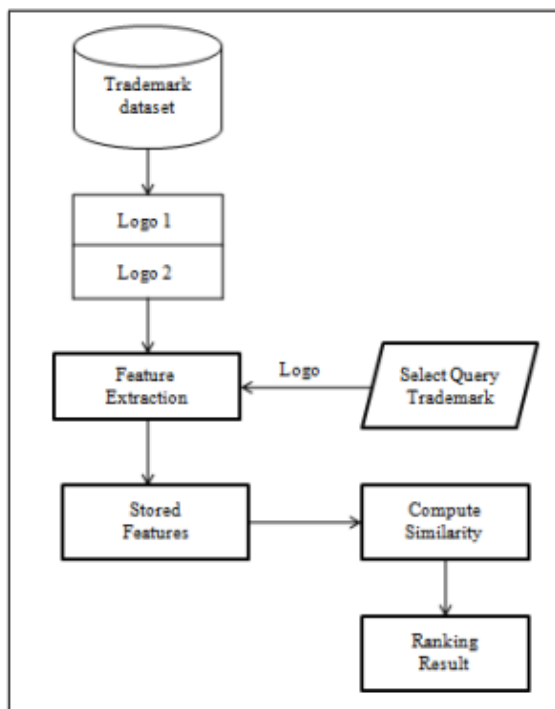
III. PROPOSED SYSTEM

A) System Architecture:

The proposed system is used to retrieve of trademark hypothetical similarity, which should be more accurate and more secure against thetrademark infringement. Also the system is competent of retrieving the conceptual similarity of trademarks and manage the conventional data retrievalsystem. The proposed model can then be unified into own system that considers the other two phases of similarity i.e sight and phonetic and will thenprocedure a more extensive trademark comparison. The system used to proportion trademarks for conceptual similarity. Finding for conceptually sametrademarks is a text retrieval problem. The system defines the nearly stringmatching which is used for text.

1) Text Trademark Retrieval System
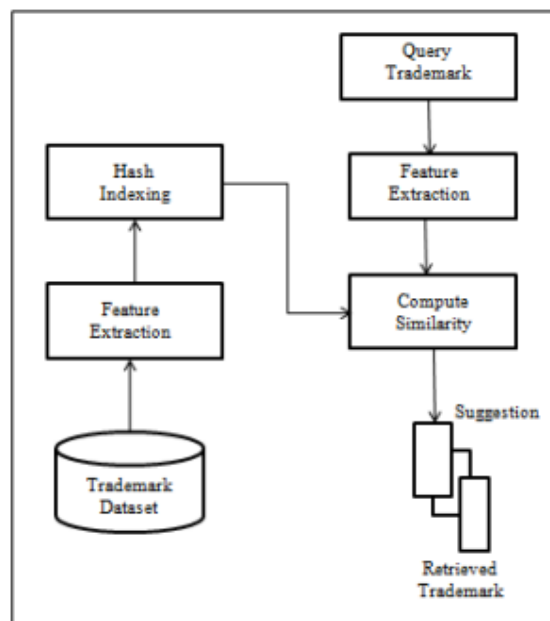
The analysis of the trademarks is needed to comprehend the main ofconceptual similarities coming from different factors. The hash indexingaccepts the token key and the synonymous key for pre-processing. It usesthe indexing in that key and create a new trademark for the user, whichis similar to user requirement trademark. The feature extraction definesthe token and synonyms. A trademark reflow technique using the proposedretrieval algorithm is evolving, and the algorithm is tested on conceptualsimilarity. The retrieval trademark list is stored in database for next futuretrademark use in the next trademark retrieval concepts. To remove theextra required time is the need of procedure. The factors are listed usinga hashing technique. The hash indexing takes the trademark as the keyindex. Through a trademark retrieval process user can enter a text whichhe wants to trademark. If trademark already exists in the system, then itsent to trademark matching and return the similar documents to the user.If the trademark doesn't exist in the system, then the trademark is stored inthe database. The return document is sent to user which is used for lexical resource and apply the hash indexing to that trademark for creating a newtrademark to get the user.

2) Logo Trademark Retrieval System

The logo comparison is the challenging task for the proposed system. So, it uses a histogram algorithm for logo comparison. In this systemfirst select the query trademark, logo and compare with whatever logo retrieved from the dataset. First feature extraction will complete with logo.Then apply histogram .Retrieval of logo follows the same steps, but result clustering is appliedbecause more than one logo is retrieved from dataset. Then these resultsare stored in the codebook and compute histogram for that logo. Finally ,compute similarity between a selected query trademark, logo and retrievallogos from dataset. These computations shows the ranking results of logos.That shows the similarity between the logos.

B. Modules

      The Trademark Retrieval system is divided into five module

      1) Load the trademark database : In this module resized trademark logois loaded with index and text trademark.

      2) Feature extraction : In this module extract features of text trademark.

      3)Hash Indexing: It enhance the speed of retrieval system and use mapping function.

      4)Text trademark similarity computation : Retrieved text trademarksimilarity.

      5)Logo comparison: Retrieve logo similarity with correlation analysis.

C. Algorithm

      In general, the Retrieval algorithm consists of three main steps:

      Step 1: Feature Extraction

      Step 2: Hash Indexing

      Step 3: Trademark Distance Computation

1) Retrieval Algorithm}

      Algorithmic description of retrieving trademark query and of the whole system can be done as follows.

      Input: Trademark for similarity.

      Output: Conceptual similarity of trademark.

      1. Define token set ft of a trademark

2. Define synonyms set fs corresponding to the token set
3. Define a list of unique tokens which extracted from the database
4. for each trademark in the database ,

5. do (extract ft ,extract fs)
6. for each token in ft
7. if (token does not exit in ft)
8. insert token into ft

2)Logo Comparison Steps}

For retrieval of logo use Histogram algorithm. Semantic Retrieval of Trademark is based on rotation invariant local features.

Input: Trademark for Query image/logo.

Output: Ranked images.

Step 1: Select or browse the query image.

Step 2: Prepocessing technique is used on query image and database logos.

Step 3: Extract the rotation invariant features using formula,

Step 4: Store all features as multidimensional vector.

vector multi = new vector ();

multi.Add(Rm);

Step 5: Histogram is computed and normalized for each trademark image with color and texture basis.

Step 6: store result in data structure.

Step 7: Extract query image features with histogram computation.

Step 8: Repeat step 6.

Step 9: calculate the similarity of query image and i-th image from database.

Step 10: Display ranked targeted images according to the output of step 9.

IV. RESULTS

The results are generated on the basis of the Conceptual similarity approach.The goal of this system is to retrieve similarity of trademark. The systemload the trademark database which is shown in below figure.
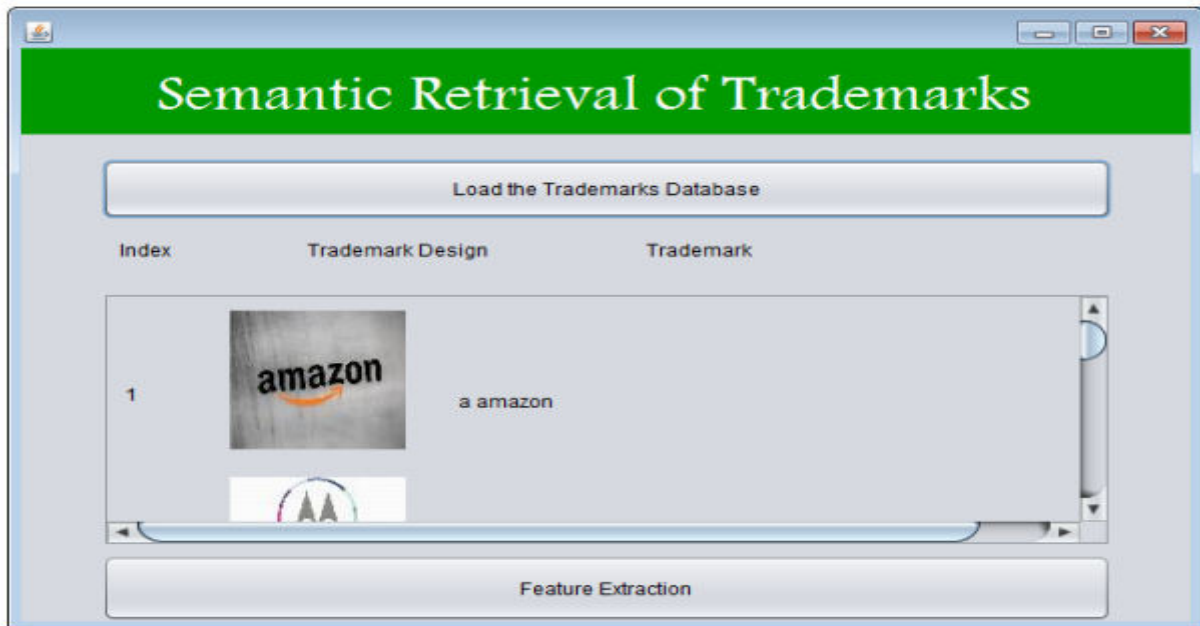
Load the trademark Database

Extract the features of text trademark. It removes stopward for generating token sets. The synonyms set are generated with the help of wordnet dictionary.
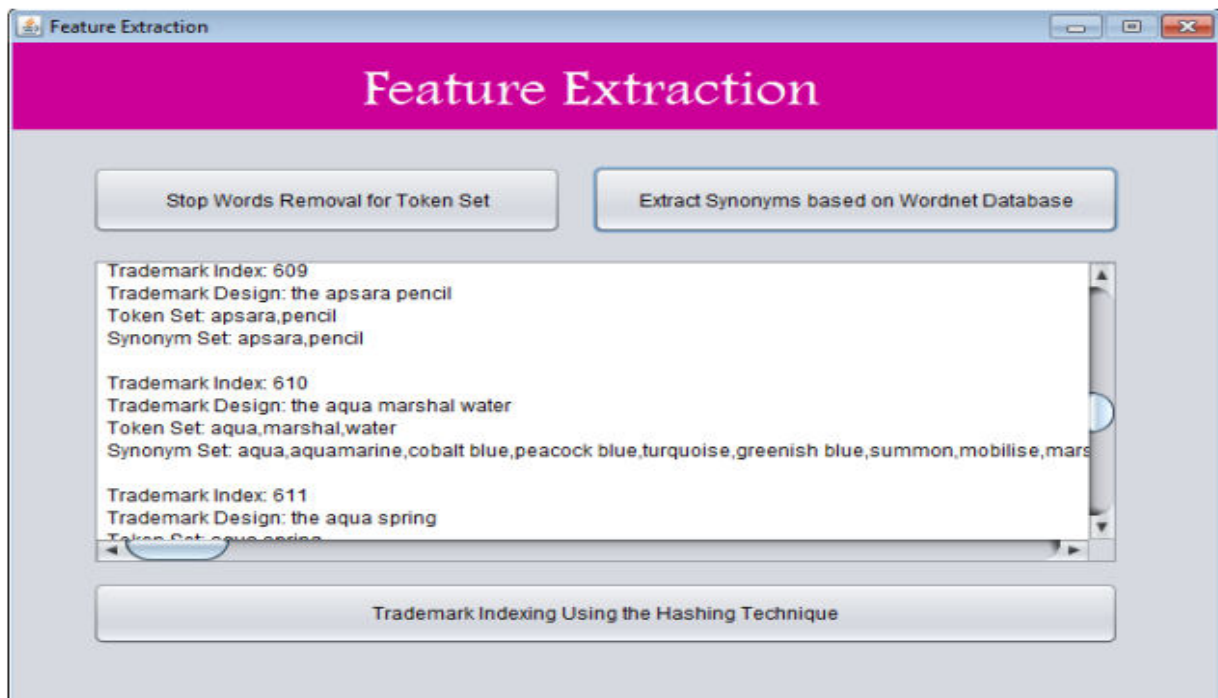
Extract features of text trademark

The token set and synonym set are then stored to hash indexing. The hash indexing takes the trademark as the key index.It is then mapped to a list of trademark features from the database using a mapping function.
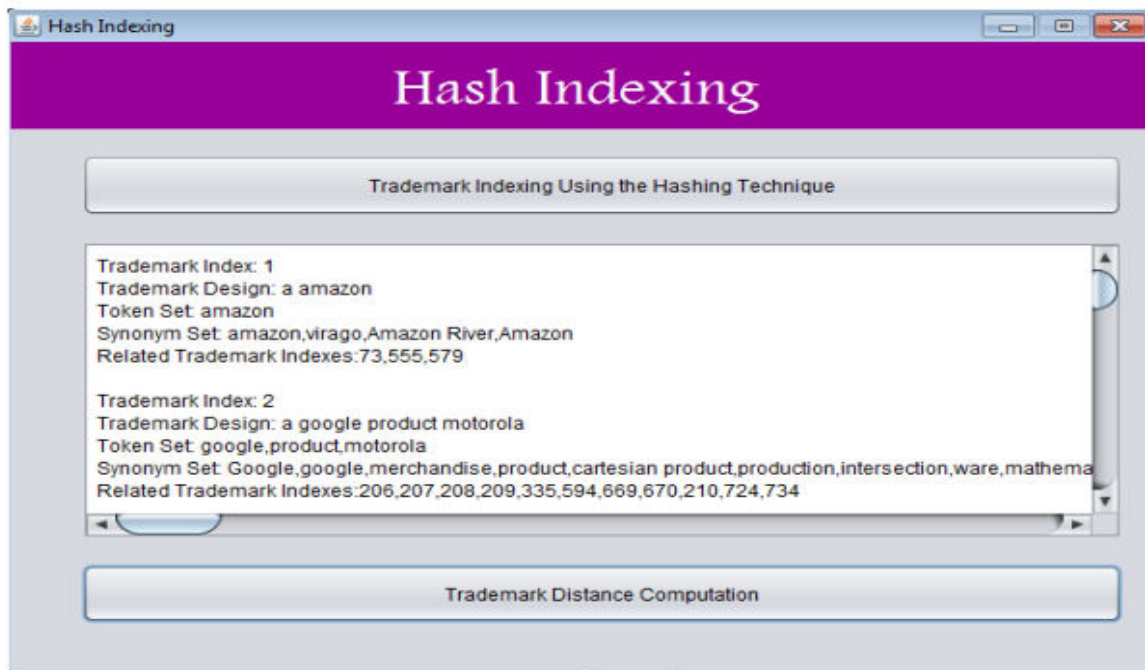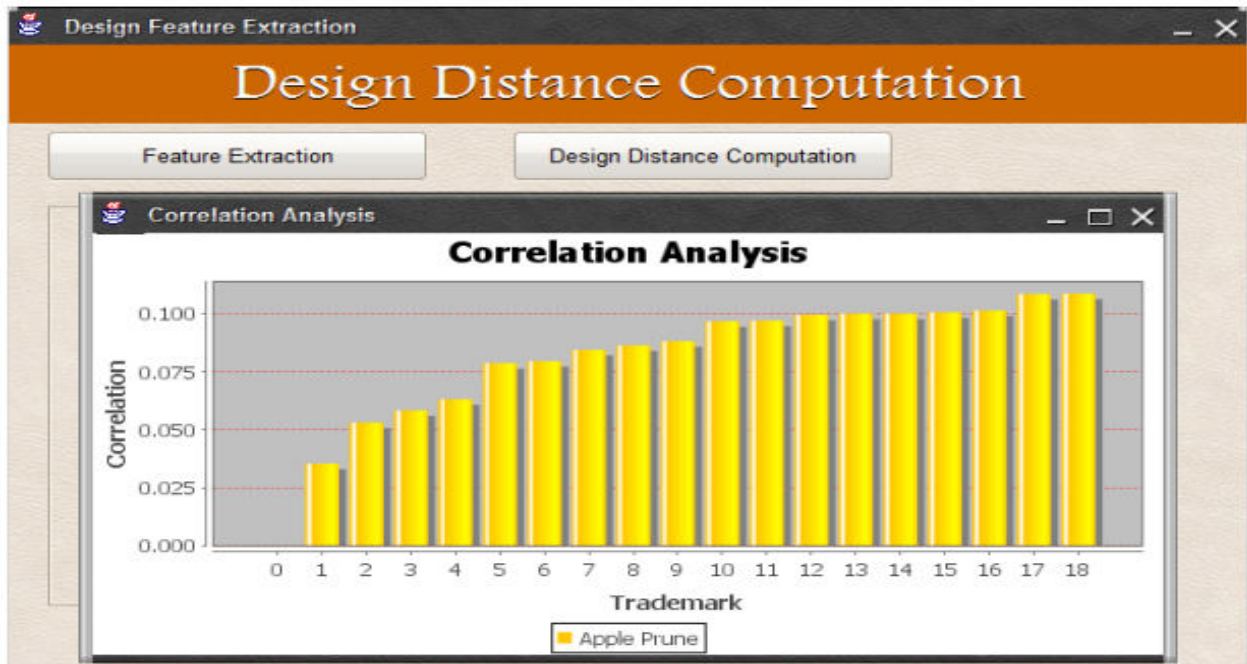
Hash indexing of text trademark

The distance computation is based on the similarity concept. The similarity equation compute similarity between text trademark query Q, and text trademark from database.
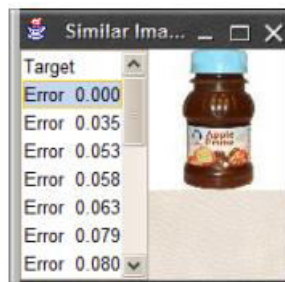

Retrieve text trademark similarity

Logo comparison with correlation analysis

Finally the ranked logo's are retrieved with correlation values.

Retrieve logo similarity with correlation value

V. CONCLUSION AND FUTURE WORK

The work is motivated by data similarities increasing of fraud cases, where information retrieval system do not handle this particular issue and trademark similarity. The advantages and limitations of each data similarity of retrieval algorithm are described. The system work, conceptual similarities among trademarks like equal or relevant semantic implant. The desire of a hypothetical model of retrieval trademark depends on hypothetical similarity. The main model language processing technology, data paths and lexical resources are used to calculate hypothetical similarity between different trademarks. The system gives some suggestion to user if the entered trademark query is similar to in trademark database and also gives logo comparison ranking results.

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