

Multiple Trust Model in Online Transaction by Trusted Third Party

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Abstract— the information fortune and the connectivity are provided by the universe of E-commerce over an enormous distance at all time. In an open and distributed environment the buyers or providers will not act in a mutually understood or agreed manner by which the incomplete practices and fraudulent activities happen. So in any online transaction the security and trust are two important factors that are to be considered. In Ecommerce markets the above mentioned problems are criticized as the most important barriers. In order to improve these barriers a trust based third party mechanism is successfully adopted as a self-regulatory system to improve the buyer and seller trust. The online transactions are made very easy now days by E-commerce technologies. Built integrity belief approach (BIB), Support Vector Mechanic approach (SVM) and Random Number Generation approach (RNG) are the three approaches which are mainly used in this paper for online trust management. The seller and the buyer communication will be handled through the trusted third party. Apart from this a coupon based approach is introduced as an advancement in this paper for providing discount schemes which is helpful in attracting the customer who purchase beyond the threshold level fixed by the seller. Moreover a product review study is integrated in order to reduce the scam reviews in online transactions.

Keyword - Review analysis, Support Vector Machine, Belief Algorithm, Third party trust, E-coupon generation, Random Generation Number

I. INTRODUCTION

In the impersonal internet environment [1] the online dealers will express a large amount of stronger rough intentions because the online frauds will have the declining possibilities like “self disbelieved statements” and “self interest seeking”. The issues of security and the trust will be raised due to the unknown relationship between the customer and the merchant. A matter of trust will be involved here since the customer will not be sure that whether they will receive the same goods that he or she orders. According to the merchant view a risk is taken by him by sending the goods and waiting for the payments that to be done from the customer. A term of misbehaviour occur when the seller sends the goods or product or information to the customer first and the customer not paying the money after receiving the goods or else when the customer already transacted the money for a product but seller doesn't provides the goods on time. In order to overcome the several questions raised about fairness [2] belief propagation algorithm is designed for the evaluation of reputation and trust management systems. In the occurrence of stopping sets [4], [3], [5] by the inspired previous work on iterative decoding of error-control codes a new algorithm [6] is proposed for the reputation systems which is also known to be ITRM. This provides the advantage for the reputation and trust management using iterative algorithm. The content “product” is used as the virtual term in the remaining paper. There is no replace of product between the buyers and the real sellers and the algorithm provides all the details about the product between the variable nodes and the factor nodes in the graph. This algorithm runs in the central authority. Without knowing the meaning of the random it is not possible to appreciate the random number generator. The random phenomenon can be studied for accomplishing the well formed meaning of randomness like a dice roll and exploring the research about the qualities which makes a dice roll random. The die should lie on all possible values to be random. The dice are landed on all numbers in an equal way which is guaranteed by the dice manufacturer in the third scenario. A random number sequence is normally accepted and basically defined as that every number is free of the before number and the sequence of random number is equally distributed among every possible values. Any system creating the sequence of the random as the one just defined is the definition of the random number generator. To detect the fraud, a behaviour based approach by support vector machines is used. The categorization of problems in noisy and complex domains is solved in a successful manner by the SVM (Support Vector Machine) which is a dynamic research area. In the area of machine learning the SVM plays a major role because of its excellent performance in the large area of learning problems like classification of face detection and web pages and recognition of hand written digit. In SVM applications there is less fitting problem.

II. BACKGROUND

User having the same interest is found by the hybrid methods of the description of items and user profiles. Predictions are made with the collaborative filtering. Consecutively combined CF and CBF possibility are considered in this work which is to be the methodology of traditional hybrid [7]. In order to eliminate the drawbacks, the hybrid recommender system attempts to combine the different techniques. There are several ways to unite different filtering systems. To establish the same users for the collaborative recommendation the content analysis based user profiles are maintained by means of Fab [8] and their profiles are directly compared. The enhanced recommendations are provided by combining the training data and content data by a learning system known to be Ripper machine learning system which was trained by Basu et al. [9]. The process in which the opinion of the other people [10] is considered for evaluating the information is known to be the Collaborative Filtering (CF). The collection of the taste information from several other users is helpful for making the predictions about users. A particular product is suggested to the customer by means of neighbors preferring that product is done by the nearest-neighbor algorithm which is working by the collaborative filtering (CF). A detailed description of CF system is given. The customer-item matrixes are as follows like customer purchase history, customer preferences. An ordinary way to figure out the Pearson correlation is that customers are ranked by their comparison measures in link to the target customer which is determined using the Pearson correlation coefficient. The majority of maximum ranked customers are chosen to be the nearby neighbors of customer. The nearby neighbors determine the peak recommended products at last. The collaboration of information source, multiple agents, view points etc are involved for filtering the patterns or information in Collaborative Filtering. New users with similar characteristics are discovered by constructing a data base which works in Collaborative Filters. The matter of curiosity to neighbors is provided to the innovative user. The fresh items are compared with the profile and recommendations are made when the items are formed during the construction of user profile. There is an assumption by the CF (Collaborative Filtering) that similar taste people will rate things similarly [12]. Content information are little difficult to get for several domains like music and movies. The information that is accessed has limited recommenders due to the issue of standard. The overspecialization is one of the draw back in the content-based filtering approaches since only the items that match the features of content are alone recommended by the user profile. A synergy is obtained by the hybrid recommenders system in general because they are used to combine the multiple recommendation techniques together. The combination of CBF and CF system are the main focus of our work even though there are several recommendation approaches that are possible to unite like Content-based, Knowledge-based Recommender, Collaborative and Demographic. There will be a security for quality transaction, product and deposit payment since third party is involved in this paper and trust is built with them. For online transaction three algorithms are proposed.

III. OVERVIEW OF MULTIPLE TRUST MODELS

There is a particular account in which transacted money is deposited and controlled by the service provider. Once the merchant begins to transfer the money it will be obtained by the service provider and he will hold the funds for a lengthy time till any disagreement on the transaction is occurred. A transaction for online purchase between the third party services is proposed in this paper. Three algorithm are proposed and they are 1) As per to the buyer and selling power both the buyer and seller have to pay a warning deposit as a term of surety to TPA. 2) As per the selling cost the seller have to update the products to the trusted management. 3) Once the user buys a product the user have to record the product and have to obtain the transaction id so that the third party will verify the transaction id and the details of the product which user bought that is updated in the server and at last will be validated by the third party. The promised items are rated on the basis of the feedback values and will find the potential items. Only two scans of database is enough for generating the item sets effectively. The transaction can be made effective by introducing the Discount Schemes that is Coupon based will motivate the buyers. If any of the two parties misbehaved the money will be drawn from their deposits and will be given to one of the party as compensation. In order to reduce the misbehaviour the E-coupon is generated among protected OTP.

A. Product Transaction Based On Third Party with Review Analysis and E-Coupon Generation

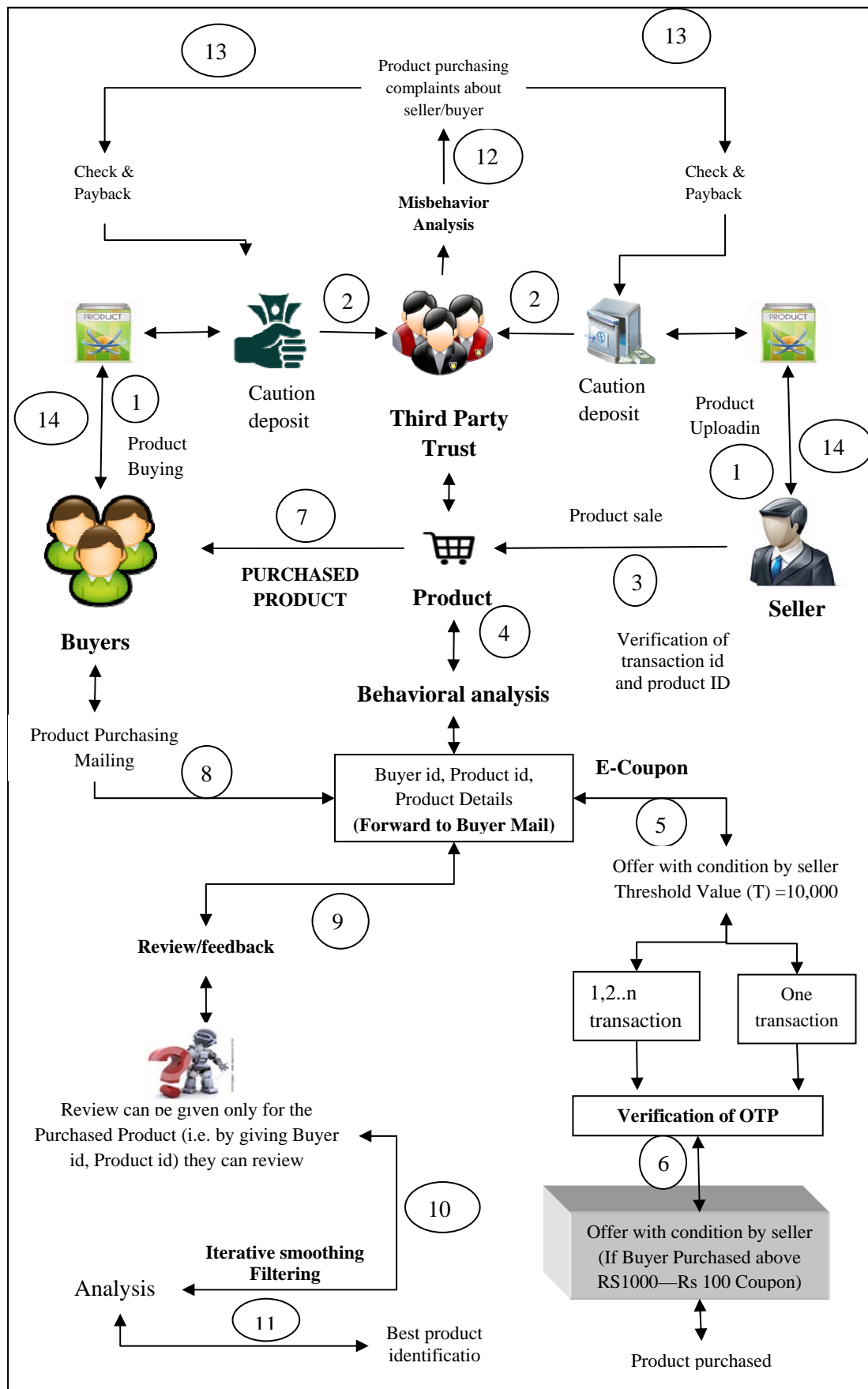


Fig 1 Product Transaction Based On Third Party with Review Analysis and E-Coupon Generation

IV. PROPOSED ALGORITHMS AND TECHNIQUE PROCESS

A. *Belief propagation*

The belief propagation algorithm is proposed in the evaluation and design of the reputation management system and trust. The reputation management difficulty is been approached which is been analysed as inference problems that is described as computing minor likelihood distributions from many variables those are difficult universal functions. The computation of the marginal probability is observed to be the computationally excessive for the major reputation systems. Hence to compute the insignificant probability distributions, the belief propagation algorithm is utilized professionally in linear complexity. The factor graph is additionally used by means in which the mixture of the simpler local functions is featured by the global functions on which each depends on the subset of variables.

B. *Third Party Trustees registration and TP-Service process*

An online service is the place where the concept of the proposed third party is displayed and it is very strong and fast in the development phase of online services. The application consists of the registration process of trustee at the first page and user can fill all their details on the client side. Then by means of a particular user name and a password the user can able to login. The updated items will be displayed in the product list. Then the user will select the items that he/she wants and will add the items in the cart. Hence all the items that are selected will be displayed in the cart. Then the required items will be purchased and thus the activities are performed. The trusted third party is designed to ensure the details about the buyer and the seller.

C. *Support Vector Machine technique with E-coupon generation process*

After the successful verification of the product ID and the transaction ID given to the user with the product information only the user recommendations will be accepted. Feedbacks are processed by the use of SVM. The results that are produced are the possible respect to the examples which are in the learning phase. The input and the output pair is the basic form in which an example is written and here input is considered to be the dataset and the output is considered that how it should be catalogued. This name is normally derived from calculation of the error based on the complete results in the test and this consequently will measure the excellence of the system. The process gives the details, that only the valid person can give the product. These details will be very helpful for the new user to do the online transaction among the seller and buyer and hence maintained properly.

D. *Random Generation Number with Product transaction*

The pseudorandom number generators will be the software random number generators since the deterministic program output will not be a random. We will depart the understanding of the "pseudo" requirement and just talk about random number generators (RNGs). Though the RNG output is not truly random, the RNG will have the capability of doing a very good job in producing the number sequence which may be for several reason. The entire user information will be monitored and stored by the server in their database and will be verified whenever required. Each user action is updated in the database by the server. The application will be accessed once server verifies each user. A purchasing decision will be made by the buyer at this point. Availability and price are the two factors on which the ultimate decision is based.

V. TRANSACTION PROCESS AND ANALYSIS OF FEEDBACK REVIEW RESULT

A feedback is the information which is sent to the individual or a group (entity) about prior behaviour in a managerial context and hence the entity will adjust the future and the current behaviour to achieve the preferred result. The process in which the consequence or output of an action is 'return' (fed-back) to modify the next action. The occurrence of feedback will happen when the environment reacts to the behaviour or action. For the purpose of one time transaction or login session the OTP (one-time password) is valid. Several shortcomings linked with the static (traditional) password are avoided by the OTP but one of the disadvantages is the OTP password is complicated for the humans to memorize. Hence it requires extra skill to work. The new user can purchase a product easily by the process of sending a verification code to their mobile and then by accepting the feedback.

A. *Product Review Analysis*

The user can purchase the product which is having the feedback. In order to work out the user-user connection, the user ratings and the user profiles information is integrated in this approach. The feature-based information of users is obtained from the user profiles whereas the atomic-item-based rating information from the user ratings. The atomic-item-based rating is replaced by the feature-based profiles of user in the Fab system. The concept loses the information but it helps in improving the sparsity. Both kind of information is used in this approach and they are feature based and those based on the individual rating.

VI. EXPERIMENT AND RESULTS

New methods are introduced in the paper for the online transactions and the secure payment is done in the third party services. Hence the previous methods are compared in order to reduce to overcome the unauthorized problems. The transaction made by third party will have a secure payment service. Further new methods are also implemented for analysing the product review and to make the purchase easier for the user. The interest of the user which relies on preference on the items and the needs of the information is indicated by the user profiles from the fundamental process of the e-commerce of spot transactions. The service provider will control a particular account in which the money that is transacted will be deposited. The service provider will hold the finance for a long time incase any disagreement happens over the transaction. Figure 1 shows the details of general third party service that is producing the quality transaction with implementation time in the online service graph.

A. Comparison Between The Execution Time For Existing And Proposed System

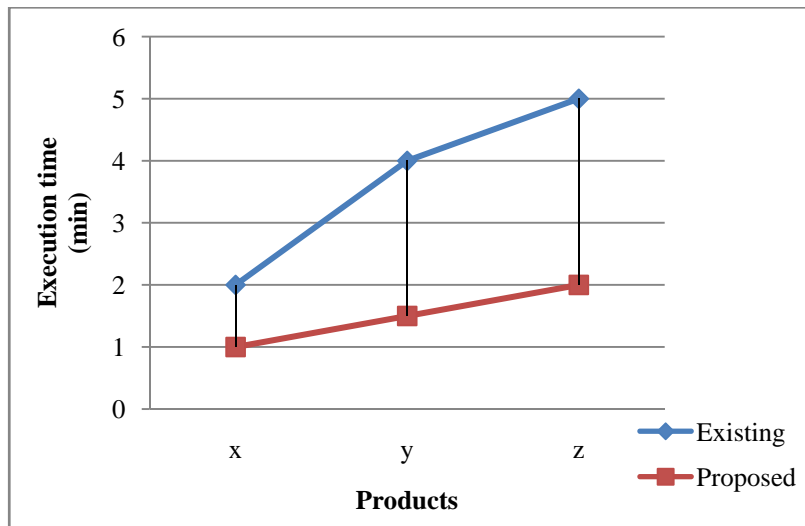


Fig 2 Comparison Between The Execution Time For Existing And Proposed System

In Figure 2 the chart compare the existing and proposed time duration for product transaction. The main concept of this paper is the buying and selling and maintaining the online trust by different techniques like RNG, Belief and SVM and the online transaction that is based on the third party services. The review analysis of the user product and the feedback ranking are the things which are added additional in our paper.

B. Comparison of Accuracy and Error Rate

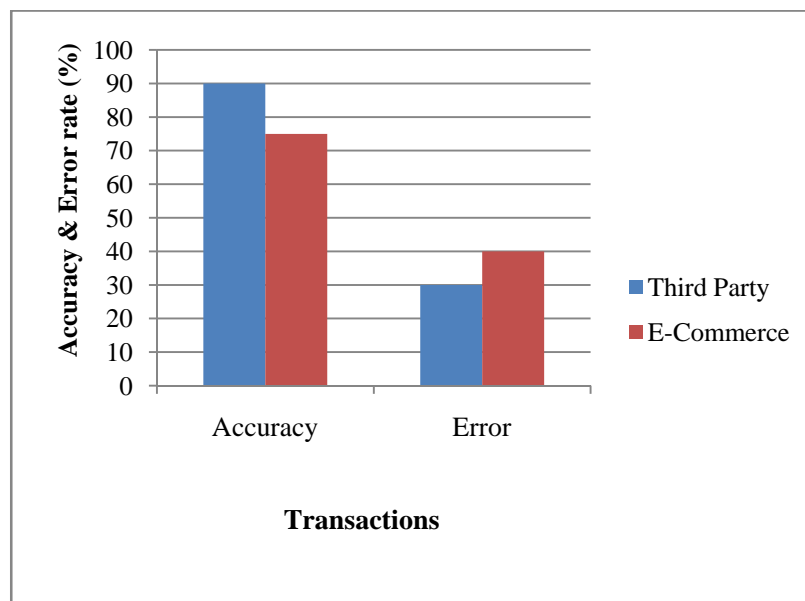


Fig 3 Comparison of Accuracy and Error Rate between Existing and Proposed Approach

Figure 3 describes the accuracy and error rate comparison with the existing E-commerce approach and Proposed Third party approach. It determines the transactions result between third party and E-commerce in terms of accuracy and error rate in percentage and shows that our proposed work is better.

C. Comparison of Efficiency between Existing and Proposed Approach

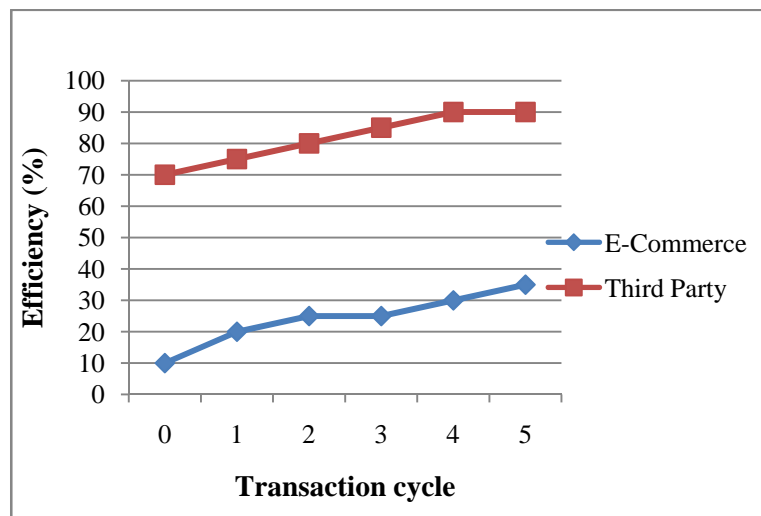


Figure 4 Comparison of the Efficiency between Existing and Proposed Approach

Figure 4 presents the comparison of existing E-commerce approach and Proposed Third party approach in terms of efficiency and our proposed approach shows better efficiency when compared to the existing methodologies.

VII. CONCLUSION

The spot transaction among the payment and the product is the representation of this paper. Through the trading platform the buyer and the seller will purchase the information and release the product supply. Then by the means of the matching mechanism platform the matching is delivered and received and at last two parties complete the product transaction and the goods with the help of the third party support. The analysis of product review which is additionally developed in our paper is E-coupon generation for attracting the user in the online transaction. Thus the paper helps in analyzing the review details and the quality of the product and the payment process problems are solved. Thus the online transaction will be secured and will be easily processed and finally the transaction of product is based on the third party service. The transaction between the product and the payment is done by the T-P. The misbehavior and the behavior analysis is considered by this transaction. SVM and RGN are used for a few new implementations like feedback review analysis and E-coupon which are included under behavioral analysis. Thus quality product can be purchased and additional analysis of product review is done and third party service is trusted based on the online transaction which is finally proposed. Finally the transaction results in the good product. Hence in future an enhanced technique should be developed to secure the third parties that are trusted in the online transaction.

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