

Emphasizing Requirement Elicitation Process for Electronic Payment Secured System using VORD Methodology - A Practical Approach

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Abstract- In any software development requirements analysis will take place after feasibility study where we are exploring the requirement by requirement engineering process, the process of finding out, analyzing, documenting and checking the services and constraints is called requirements engineering. Kotonya and Sommerville proposed VORD methodology which is well suited to facilitate the requirement elicitation process, and it's based on assumption and the viewpoints of individual stake holders, by using VORD methodology we can find out the requirement and their concern services which can be form as templates and system models, VORD methodology is partially valid for requirement engineering process for e-commerce, e banking and other web based application, this paper suits the requirement elicitation process of Electronic Payment Secured System (EPSS) by using VORD methodology.

Keywords: Requirement Engineering, VORD Methodology, Requirement Elicitation, Electronic Payment Secured System (EPSS).

1. Introduction

In today's world let's discuss about the software development in the light of frequent changes in the business, technology and over all need of the software industry. Changes is the natural phenomena and in the area of software engineering changes is one of the major challenge, we can reduce the percentage of changes by doing the refinement of requirement engineering using the VORD methodology which helps to find out the hidden requirement from the all stakeholders, in this paper, I tried to combined the requirement elicitation process and the security system for Electronic payment Secured System (EPSS). As per my review up to now the VORD methodology has been not implemented in any Electronic payment system. VORD methodology is the well structured method which includes Viewpoint identification, Viewpoint structuring, Viewpoint system documentation and Viewpoint mapping.

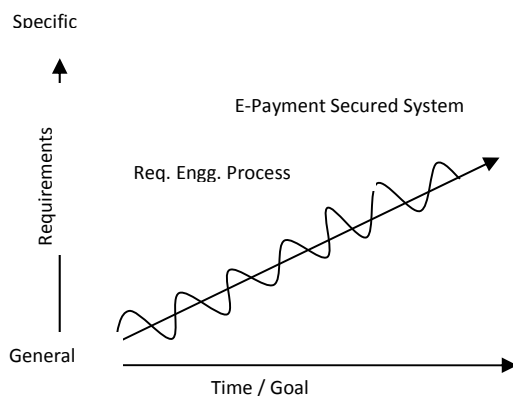


Fig 1: Time & process graph

1.1 EPSS Analysis

Requirement engineering process can be covered by using VORD method. The VORD methodology discovers initial requirement and ends with detailed system modeling, Electronic payment system is not the new thing in the today's world, and it's successful implemented in most of the E-Commerce application but this paper focused on the requirement engineering part of EPSS, where the requirements will be discovered from the stake holders, every stake holders having his own view towards the system as per the need of individual stake holder he or she wants the exact service whatever he wants, but the whole system is not limited to a particular stakeholder, VORD methodology will help to identify different viewpoints and discovers the all initial requirements and finally produce the concern services and details system modeling.

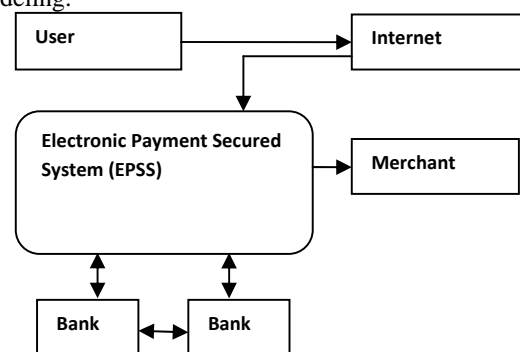


Fig 2: EPSS Context diagram

EPSS is the centralized system where the user' and merchant both will rely for secured transaction. the user will send request for online transaction via internet to the EPSS and data will be encrypted and send to the concern bank for transaction, after validation all the records of the user, the requested amount will be credited to the merchant account and decryption will be done on both the ends (bank & merchant), the technique and algorithm for encryption and decryption will be decided at the time of implementation.

2. VORD Method as a Road Map

To provide quality software where the changes in initial deployment of the software can be reduced is the main goal of this paper, ultimately as a developer we need to satisfy our client including stake holders of the product. This method focused on viewpoint of stakeholders, First

stage of VORD methodology is identifying the viewpoint which helps to extract the requirement of the Electronic

Payment Secured System and the output of the VORD methodology is templates and system model.

3 Viewpoint in EPSS

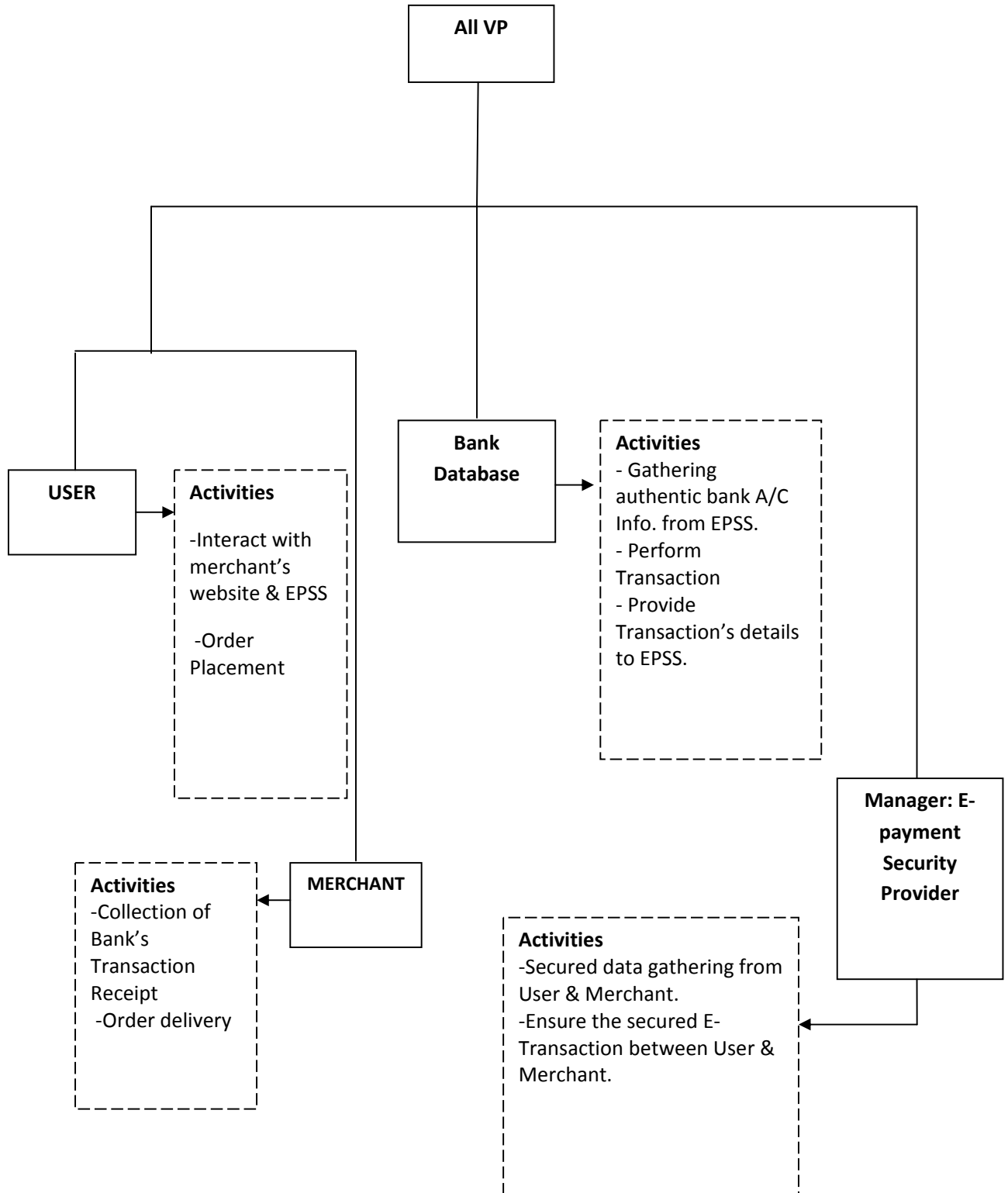


Fig 3: Viewpoints Hierarchy

3.1 USER

A user is someone who purchases the products online by using EPSS; EPSS is placed as third party service provider where the user has to rely for financial transaction.

Viewpoint Name	User
Attributes	User Name, User ID, Password, Gender, shipping Address, Country, Bank A/C Info. , Order date, Expected receiving date.
Description	A user is someone who is interested in purchasing the products by electronic means and paying through EPSS.
Events	<ul style="list-style-type: none"> - Logging in Merchant website - Searching of brands - Choose Products - Selection of EPSS as payment
gateway	<ul style="list-style-type: none"> - Selection of Payment Mode - Order placement - Received acknowledgment along with order's reference number.
Services	<ul style="list-style-type: none"> -Order Placement -Online Payment - Issuance of reference number

Fig 4: User viewpoint template

3.3 Bank database

Bank database maintained the account related information of user and merchant and provide transaction between user and merchant banks and interacting direct with the EPSS.

Viewpoint Name	Bank Database
Attributes	Bank Name, Bank Code, Branch Code, User Name, User Password, User A/C Info.
Description	A Bank database used for settlement of money transaction between merchants and user's bank.
Events	<ul style="list-style-type: none"> - Gathering bank A/C details for User and Merchants. - Getting Transaction's detail - Confirmation of order's transaction from user - Settlement of money transaction/ inter-banks money transactions - Providing the receipt.
Services	<ul style="list-style-type: none"> - Gathering bank A/Cs' and Transaction's details - Money Transactions - Receipt Generation

Fig 6: Bank database viewpoint template

3.2 Merchant

A merchant is an organization providing ecommerce platform to the users where the user can purchase items online and ultimately merchant will get paid by user for the purchased item via EPSS.

Viewpoint Name	Merchant
Attributes	Merchant Name, Merchant ID, Password, Brands, Products, Merchant's Bank A/C Info., order delivery date
Description	A merchant is an organization providing ecommerce platform to the users and facilitating secured e-payment via EPSS.
Events	<ul style="list-style-type: none"> - Website Administration - Verification of order's payment via EPSS - Order delivery - Status modification as delivered to particular order's reference number. - Inform user about order's delivery
Services	<ul style="list-style-type: none"> - View Order - Order's payment confirmation - Order Delivery

Fig 5: Merchant viewpoint template

3.4 Manager: E-payment Security Provider

A person who is working on behalf of EPSS dealing with request of user for online purchasing and collecting information from the user and merchant and also flocking the secure information such as bank account information or credit card information for the transaction between user and merchant bank and provides the receipts to the user and merchant.

Viewpoint Name	Manager: E-Payment Security Provider
Description	A person who manages the security related issues on EPSS
Events	<ul style="list-style-type: none"> - Secure data gathering from User and Merchants over Internet. - Secure transmission of Users' and merchants' details to the bank - Getting the transaction receipt from bank. - Providing the transaction details to User and Merchant.
Services	<ul style="list-style-type: none"> - Secured flock of Transaction's details - Secure transmission of Transaction's details to the bank. - Providing the receipt to User and Merchant

Fig 7: Manager Viewpoint template
E-Payment Security Provider viewpoint template

4 Conclusion and Future work

This paper emphasizes to facilitate the requirement elicitation process by using VORD methodology and done mapping on electronic payment secured system. where done filtration to extract the requirement from the stakeholder and produces basic diagram and templates for each viewpoint which can be extended as system mapping, the aim of this paper is to emphasize the VORD methodology in the light of electronic payment secured system and simplify the requirement elicitation process to fulfill the need requirement of the system, after satisfying the all phases of VORD methodology the template and system maps can be directly implement in any well structured object oriented based programming languages such as Java, J2EE or Microsoft .Net to develop the software system.

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