The Enrichment Methods Viewpoint Oriented Requirements Definition (VORD) With The Capability Model Integration (CMMI) And Proto Personas Methods For Needs Analysis

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Abstract. Software needs begins with a statement of the need for the parties involved in the system. Needs a description of the statements coming from the client, user, or stakeholder. Some of the activities that must be done to get a system needs so that produce a specification document that be the benchmark for the developers in the development of a system, including: requirements elicitation, requirements analysis and negotiation, documentation requirements, requirements validation. One method that can be applied to requirements engineering is a Viewpoint Oriented Requirement Definition (VORD) method. VORD is one method used to define the need to approach the viewpoint system users. The results of the analysis of this VORD method produce the required specification with the help of a tool, that is VORD tool, the VORD method is still too general, so need some method to support the VORD methods, including: proto personas methods and a CMMI approach. This method is very helpful for independent software developers to build a better system, and the result can be a documentation for developers and consumers.

Keyword: Requirement Engineering, VORD Method, Proto Personas, CMMI, Requirement Specification

1. Introduction

Software development begins with a statement about the need for the parties involved in the system. Description needs statement from the client, users or stakeholders that determine the features needed in a system. The need not only to describe the needs of users, but also standards organizations, government and industry. It is often overlooked by the developers in terms of attention to the quality of a system to be built. Some of the developers are still less attention to documents related to the system to be built, and this will result in a system needs to be not optimal.

Needs a system can be analyzed by several methods, one can use methods Viewpoint Oriented Requirement Definition (Vord). Vord is one method to analyze the needs of the system by using...
viewpoint. A method angle approach was developed to assist in the specification of the interaction of the system. Vord focused on the external entities that interact with the system [5,12,13]. Vord method still too general, that takes an approach that can help Vord method approach that aims to increase the maturity of the organization by providing guidance on improving the process of developing a product and service. This approach is called with the Capability Maturity Model Integration (CMMI) for Development. CMMI consists of practical things which refers to the maintenance and development activity [2,4,.]. Vord is part method rather than the process of software engineering, or collectively, the Requirement Engineering (RE). Requirement Engineering is the leading phase of software engineering processes, in which software requirements from users and customers is collected, understood and defined. The results of this phase of the engineering requirements documented in the requirement specification. Requirements Specification contains a mutual agreement about the problems that want to be solved between developers and customers, and is the starting point towards the next process design software (Sommerville, 2003)[1,6,9,13,16]. To get data about problems and solutions desired by consumers, then need a tool that can map out the problems and the solution, the tool i.e. Proto Personas. Proto Personas are an a method for obtaining and ensuring harmony between the user and the analysis to the needs of the system. In making an analysis, first make a sketch on an analytical paper, then the assumptions of people put in a related paper that has been . From these assumptions will be studied and analyzed [8]. The results of the analysis can be described using Use Case diagrams. A picture of the Use Case Diagram reflects the functional system requirements that must be met in accordance with the mutual agreement between the developers and consumers [8]

The research focuses on enriching the Vord method is used as a method to analyze the needs of the system which was seen from the external entity. The most important thing from this research is how to get the data and next do the mapping of the data obtained. The results of the mapping, then becomes a documentation about the needs of the system that is built or called the Requirement Specification.

2. Methodology

In this study there are several stages to the needs of the system, including:
1. The use of methods, Proto Personas are to support of the VORD methods, particularly to obtain information about the needs of the users on the system. The Proto Personas format can bee seen in Figure 1.

2. Use case, helping to represent the interaction between actors in the system to the needs of the function of any type of actor.
3. The method of VORD, this method to analyze the needs of the users of the system with how to determine the viewpoint and then explain the viewpoint needs into the table service and point of view. VORD method of requirement analysis can be seen in Figure 2.

![Figure 2. VORD Method of Requirement Analysis.](image)

4. CMMI, is an approach that practices presents detailed activity that is already standard, especially in software development. Stages of research can be seen in Figure 3.

![Figure 3. Stages Of Research Methods](image)

3. **Materials**

   Use the tools in the form of software or hardware on this research aim to ease in applying the methods used in this study, some of the tools used in this research are: Google Form, the use of the facilities of google form for applying the method, the results of personas proto google form this will be data that contains about consumer problems and solutions desired by consumers. Mysql, use Mysql in this research as a database. ASP.NET, basically VORD has had its own data processing as a tool that has been mapped from proto personas, but researchers more made their own software to make it easier in terms of modifying if there is a change. The output of this tool generates the VORD documentation system requirements of the projects examined. The purpose of the Diagram, the use of this diagram is to illustrate the needs of system functions and describe the flow of system usage by the user. Diagrams are used, among others, use case diagrams and sequence diagram.

4. **Results**

   The results of the needs analysis system on this research in the show in the form of pictures, among them: viewpoint template and viewpoint service templates, use case diagrams. This result was obtained on the basis of the methods applicable to the method of assisted with some of the VORD and other support methods:
5. Discussion

Requirements Engineering (RE) is the leading phase of software engineering processes, in which software requirements (needs) of users and customers is collected, understood and defined. The results of this phase of the engineering requirements documented in the requirement specification. Requirements Specification contains a mutual agreement about the problems that want to be solved between developers and customers. This process is very important in the development of the system, because it can know the problem of consumer solutions and desired by consumers. To generate a good documentation also need tools that can help map out the results of consumer needs the power to fine tune and VORD methods with CMMI approach, proto personas and use case diagrams.

6. Conclusion

VORD is a method of identifying the needs of the system software using the system user point of view, while CMMI is a process improvement method that consists of detailed practices thus providing elements of a process that is more effective. CMMI is a model approach that is able to assess the ability and maturity in developing software systems. VORD and CMMI can be mapped into the CMMI framework because the VORD in identifying system requirements still are too general. In the VORD is not yet there are steps detailed work identifying needs. It is therefore necessary the CMMI framework can assist in identifying the need clearly. Mapping the VORD into CMMI is done by combining each stage in the VORD into existing practices in CMMI process area, particularly for its development. The results of this mapping in the form requirement specified that the results obtained from the implementation method into the VORD and VORD tool.

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