Next Generation Computer and IT Applications

Proceedings
International Conferences,
NGCIT, CST, IESH, MMHS 2013
September 22 - 24, 2013
Haitian Grand Theatre Hotel Qingdao, China
Auto-Exposure Control Method for a Stereo Camera using Gaussian Sampling .................................................. 140
Hyun-Woo Kim, Soon Kwon, Jung Je-Kyo, JaeWook Ha

Data Fusion with Reduced Calculation for Contextual Inference ................................................................. 146
Donghyok Suh, Jeongbong You

Model Driven Architecture for Mobile Device Services ......................................................................................... 153
Regin Joy Conejar, Haeng-Kon Kim

Component based and Model Driven Development for Mobile Product Line .................................................... 160
Yvette Gelogo, Haeng-Kon Kim

A Sensing System to break away from a Region using Location-Based Services ................................................. 168
Byungkook Jeon, R. Young Chul Kim

API Development for Efficiently Mapping between SEDRIS and Simulation Systems ....................................... 172
Hyun Seung Son, R. Young Chul Kim, In-geol Chun, Jae Ho Jeon, Woo Yeol Kim

Goal Oriented Requirements Extraction with Hybrid Approach Based on both Customer & User Needs ........ 177
Bokyung Park, R. Young Chul Kim, Byungho Park

Empirical Practice of Embedded Software Quality Improvement for managing water resource system based on ISO/IEC 9126 ................................................ 180
Kidu Kim, R. Young Chul Kim

Template Design of Automatic Source Code Generation based on Script Language used in Cloud Robot Compiling Environment ........................................... 184
Woo-Sung Jang, R. Young Chul Kim

Efficient Mobile Business Development based on Business Process Framework ........................................... 188
Chaeyun Seo, R. Young Chul Kim, Jae H. Lee

A Study of the Evolution of Wireless Communications for SCADA Systems .................................................. 192
Minkyu Choi

A Study of the Integration of Hierarchical Mobile Networks for SCADA Systems .......................................... 196
Minkyu Choi, Ronnie D. Caytles
Goal Oriented Requirements Extraction with Hybrid Approach Based on Both Customer & User Needs

Bokyung Park\(^1\), R. Young Chul Kim\(^1\), and Byungho Park\(^2\)

\(^1\) Dept. Of CIC(Computer and Information Communication), Hongik University, Sejong Campus, 339-701, Korea
bpark@mail.hongik.ac.kr, bob@hongik.ac.kr
\(^2\) Dept. Of Software Engineering, Soochunhyang University, Chungnam, 337-745, Korea
sunsonbob@naver.com

Abstract. The previous researches suggested the requirement extraction & prioritization method individually from either the customer or the user needs[1,2]. Those approaches did not only difficult to compare/analyze as to individually reflect requirement, but also hard to exactly develop software product with biasedly reflecting only individually need, that is, even through good requirements satisfied based on either the customer or the user needs. In this paper, we propose integrated use case oriented requirement engineering process for exactly reflecting/priorizing with requirement extraction from both the customer and user needs. To do this, we adapt hybrid approach with requirements extracted from each method[3]. As a case study, we show requirement extractions and prioritization with hybrid approach based on both customer and user needs on the car product management system.

Keywords: Goal Oriented Requirements Extraction, Hybrid Approach, Customer & User Needs, Use Case Point, and Requirement Engineering

1 Introduction

It was very important to extract/analyze requirements for successful development even on the previous software development method. But it should be reworked when identify new requirement or change requirements [1]. The previous researches modified Value-Innovative Requirement Engineering (ViRE) approach to extract good requirements [1,2]. But those approaches did not reflect simultaneously both customer and user needs to identify requirements, and also should execute duplicative procedure because of individually extracting requirements. To solve this problem, we suggests to simultaneously reflect requirements of both customer and user needs.

With our process, we exactly reflect requirements based on both sides. This Paper is organized as follows: Chapter 2 mentions Integrated Use Case Oriented Requirements Process. Finally, in chapter 3 conclusion future work will be described.
2 Integrated Use Case Oriented Requirements Process

In this process, we can extract both requirements from the customer & user needs, and also consist of seven steps such as Customer requirement extraction, Use case prioritization based on Use Case point, Full requirements, Analyzing correlation, Analyzing Matrix, Requirement Prioritization, and Hybrid approach. In this paper, we limit to describe just hybrid approach of step 7. To do this Integrated Use Case Oriented Requirements Engineering Process, we should have redefined a scope of Hybrid approach [3].

Fig. 1. Integrated Use Case Oriented Requirements Engineering Process.

Hybrid approach has different scope values as to each requirement from the customer or the user needs. To integrate both requirements, we should redefine the scope of Hybrid approach. In next step, we re-establish threshold value of extracted use cases. Therefore, they have different threshold value on the different scopes. These values show dot line in figure 2. Based on the changed threshold values, we re-arrange use cases, and decide Elimination, Reduce, Raise, and Create (ERRC) which are value decision method for reclaiming Blue Ocean when analyzing requirements on Value-Innovative Requirements Engineering (ViRE). After deciding ERRC, we re-arrange use cases through being in conference with stakeholders. On this process, we finally decide ERRC. In this paper, our proposed method simultaneously can analyze and compare the difference between the customer and the user needs, which easily apply these requirements on developing software product.

When individually extracting requirements from either customer or user needs, we should duplicate to proceed from step 3 to step 7 like figure 1. But our Integrated Use Case Oriented Requirements Process does not necessary to duplicate this procedure.

It shows extracting use cases (such as UC3, UC17, UC20) as the dark circles on customer requirements, and also use cases (UC10, UC16) as the white circle on user preference requirements. The dark arrow includes this particular use case into "Crease" area, which means to add use cases (such as UC10, UC16, UC3, UC17, UC20) to the product. The dot arrow means to decrease the function of use case, which include this use case (such as UC6, UC8, UC14) into into "Eliminate" area.
3 Conclusion

The previous researches suggested the requirement extraction & prioritization method individually from either the customer or the user needs. Those approaches did not only difficult to compare/analyze as to individually reflect requirement, but also hard to exactly develop software product with biasedly reflecting only individually need. Our Integrated Use Case Oriented Requirements Process does not necessary to duplicate this procedure.

Acknowledgments. This work was supported by the IT R&D Program of MKE/KEIT [10035708, "The Development of CPS(Cyber-Physical Systems) Core Technologies for High Confidential Autonomic Control Software"]

References

Advanced Science and Technology Letters

The ASTL series is committed to the publication of proceedings of Advanced Science and Technology. Its objectives is to publish original research in various areas of Science and Technology. This will provide good chances for academic and industry professionals to discuss recent progress in areas of Science and Technology.

Research papers were strictly peer-reviewed by program committees to make sure that the papers accepted were high quality and relevant to the current and future issues and trends in Science and Technology.

The scope of ASTL includes the entire area of science and technology from the current and future trends. The Language of publication is English. The Authors have to sign the SERSC ASTL copyright transfer form.

ISSN 2287-1233

ASTL

SERSC