ABSTRACT

Nowadays, the demand for a context aware pattern keep up in giving reusability solution upon context aware requirements is becoming an attracting and demanding area of research. Usage of requirement patterns reduces the specialists or domain analyst work by large extent and in turn claims the best of it. Requirement patterns for context aware systems are more challenging due to dynamic and ambiguous nature of context data, which is not to a large extent. Significant amount of research is being done on formalizing context aware system using mathematical models. However, only few works have been done on requirement patterns, which are mandatory to derive a complete, consistent and deployable specifications for context data. As a result, two research problems have been focused from the research perspective: (1) To create context pattern from Context Aware Requirements in providing pattern solution on analysis level with a proper methodology. (2) Measuring the quality of the pattern in the context aware environment using the performance evaluation.

The contribution of this research work is to propose new requirement pattern template which has context properties. This new pattern can be named CaRePa (pronounced as Care-Pa) and expanded as context aware requirement patterns. In this research work proposes a methodology for CaRePa which has seven steps evolved by the way of seven patterns. These works demonstrates the formalizing context properties and a methodology with the requirement pattern.

In this thesis, context properties has been concentrated for creating context aware requirement pattern template to pattern research context aware system literature. Further to focus the research problem, empirical study was carried out to investigate the context aware pattern properties and different context aware pattern aspects. Subsequently, the performance and analysis of the study has been performed on the basis of major approaches namely: Statistical and Fuzzy, Ontology and Survey approaches. While studying this, it is impressed upon that there is no existing studies and research about CaRePa. Particularly, a number of studies have concentrated on context aware systems from the requirement analyst point of view on the core of traditional statistical method. As a result this thesis proposes performance evaluation created on fuzzy method using mamdani, centroid and ontology approach with owl-Fuseki-SPARQL which has great potentiality to evaluate the CaRePa with context attributes.
The recommendations of this research emphasize that CaRePa and its methodology have significant impact on context aware requirements. Moreover, performance evaluation provide a vivid picture of the significance of CaRePa template and methodology in context aware system. So, CaRePa research on context aware system can facilitate the requirement analyst to improve the project success in contextual environment.