ON-TO-METHODOLOGY

Ontology Development Methodology

A Dissertation submitted in partial fulfillment of the requirement for the award of degree of

MASTER OF TECHNOLOGY

IN

SOFTWARE ENGINEERING

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This is to certify that dissertation entitled "**On-to-Methodology: Ontology Development Methodology**" has been completed by Magendra Singh in partial fulfillment of the requirement of major project of **Master of Technology** in **Software Engineering**.

This is a record of his work carried out by him under my supervision and support during the academic session 2011 -2012.

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ACKNOWLEDGEMENT

It is distinct pleasure to express my deep sense of gratitude and indebtedness to my learned supervisor **Dr. Daya Gupta, HOD, Department of Computer Engineering, Delhi Technological University**, for her invaluable guidance, encouragement and patient reviews. Her continuous inspiration only has made me complete this dissertation. She kept on boosting me time to time for putting an extra ounce of effort to realize this work.

I would also like to take this opportunity to present my sincere regards to my teacher Dr. Ruchika Malhotra, for encouragement and perpetual motivation and other faculty members of Computer Engineering Department for providing me unconditional and anytime access to the resources and guidance. I would like to thank my friends for their unconditional support and motivation during this work.

Finally, I would thank my parents who bless me & always have been there for me.

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ABSTRACT

For about a decade, ontologies have been known in computer science as explicit specifications of shared conceptualizations. Researchers have written much about the potential benefits of using them, and most of us regard ontologies as central building blocks of the Semantic Web and other semantic systems. There is much work already existent on their definitions, construction and development and their applications. All these literature define the set of activities that concern the ontology development process, the ontology lifecycle, the principles, methods and methodologies for building ontologies and the tool suites and languages that support them.

The construction of ontology can allow users or agents of software/service to arrive at consistent views about organization structure of information with same semantics. However, since domains differ in principles, theories and techniques underlying them, there is no existing methodology that could work as the standard method for ontology construction at the present time.

Unfortunately, still not much quality ontologies have been developed. This implies that the Semantic Web community has yet to build practically useful ontologies for a lot of relevant domains in order to make the Semantic Web a reality. Indeed, several social and technical issues exist that cause problems in development of ontologies.

In this work we provide an overview of what ontology is, describing the current trends, issues and problems in constructing them. We also propose an ontology development methodology *On-to-Methodology* that could be used as a standard model for ontology development tasks across various domains. We have automated the development process by implementing a tool for Ontology design process. We illustrate our methodology by developing Ontology of Bikes. We then compare our methodology with other existing ontology development methodologies.

Table of Contents

CERTIFICATE.....ii

ACKNOWLEDGEMENT.....iii

ABSTRACT.....iv

Table of Contents.....v

List of Figures.....viii

List of Tables.....xi

1. **INTRODUCTION** 1
   1.1 Motivation 2
   1.2 Related Work 3
   1.3 Problem of the Thesis 5
   1.4 Scope of the Thesis 6
   1.5 Thesis Statement and Outline 8

2. **ONTOLOGY DEVELOPMENT METHODOLOGIES** 10
   2.1 METHONTOLOGY 10
      2.1.1 Specification 10
      2.1.2 Knowledge Acquisition 10
      2.1.3 Conceptualization 11
      2.1.4 Integration 12
      2.1.5 Implementation 12
      2.1.6 Evaluation 12
      2.1.7 Documentation 12
   2.2 CommonKADS 13

2.3 Methodology by Farooq et. al. 15
2.3.1 Adaptation at Specification Level 15
2.3.2 Adaptation at Design Level 15
2.4 Methodology by Gaoyun et. al. 16
2.4.1 Clarifying domain 16
2.4.2 Building domain model 16
2.4.2.1 Building physical model of domain 16
2.4.2.2 Building concept model of domain 17
2.4.3 Identifying attributes 17
2.4.4 Layered vocabulary 17
2.4.5 Merging ontology 17
2.4.6 Ontology formalization 18
2.5 MADRE 18
2.6 Semi-automatic Domain Ontology Construction methodology by Dan et. al. 20
2.7 Automatic Ontology Construction Approach by Jia et. al 21
2.8 Concept Feature-based Ontology Construction and Maintenance 22
2.9 A structured ontology construction by using data clustering and pattern tree mining 23
2.9.1 Ontology construction 23
2.9.2 System Architecture 24

3. ON-TO-METHODOLOGY:
PROPOSED METHODOLOGY FOR ONTOLOGY CONSTRUCTION 26
3.1 Process Description of Ontology Methodology 26
3.2 Define Ontology Scope 27
3.3 Knowledge Acquisition 28
3.3.1 Domain Understanding & Knowledge Elicitation 30
3.3.2 Domain Analysis & Compilation 31
3.3.3 Building Conceptual Model of the Knowledge 31
3.3.4 Validation 32

3.3.5 Format of Ontology Specification Document 33
3.4 Design Ontology 36
3.4.1 Design 36
3.4.2 Ontology Design Document 40
3.5 Formalization 41
3.6 Evaluation 42
3.7 Maintenance 43

4. **DISCUSSION** 45
4.1 Scope 47
4.2 Document 1: Format for elicitation of ideas 48
4.3 Document 6: The Conceptual Model of the Knowledge 49
4.4 Ontology Specification Document 63
4.5 Ontology Design Document 68
4.6 Formalization 78

5. **EVALUATION & COMPARISON** 81
5.1 Evaluation 81
5.2 Comparison of Ontology Engineering Methods 86

6. **CONCLUSION & FUTURE WORK** 90

7. **REFERENCES** 91

Appendix A: Documents generated during construction of Ontology of Bikes 94
Appendix B: Ontology Design Document 134

List of Figures

Figure 1: Steps involved in On-To-Methodology 6
Figure 2: Set of Intermediate Representations in the conceptualization phase 11
Figure 3: The CommonKADS suite of models 13
Figure 4: The process of MADRE ontology construction 19
Figure 5: The system framework 20
Figure 6: Concept feature-based ontology construction and maintenance framework 22
Figure 7: Document vector algorithm 24
Figure 8: Concept tree construction algorithm 24
Figure 9: Sequence pattern mining algorithm 25
Figure 10: Ontology construction algorithm 25
Figure 11: On-To-Methodology: Proposed Ontology Construction methodology 27
Figure 12: Various forms generated during different activities 29
Figure 13: Framework for extracting the domain concepts 32
Figure 14: Adding new concept 36
Figure 15: Home screen 38
Figure 16(a): Interface for designing 39
Figure 16(b): Interface for designing 39
Figure 17: Deletion process of single concepts 44
Figure 18: Deletion process of a portion of ontology 44
Figure 19: Workflow of Bikes Ontology development process 46
Figure 20: Property hierarchy 58
Figure 21: Inverse-properties 60
Figure 22: Inverse-property hierarchy 61
Figure 23(a): Employment of our tool for design of Ontology of Bike 68
Figure 23(b): Employment of our tool for design of Ontology of Bike 69
Figure 24: Bikes Ontology structure 73
Figure 25: Sub-Ontology structure of *HeroHondaBikes* 74
Figure 26: Sub-Ontology structure of *BajajBikes* 75
Figure 27: Sub-Ontology structure of *Make* 76

Figure 28: Sub-Ontology structure of *RoyalEnfieldBikes* 77
Figure 29: Class hierarchy for Ontology of Bikes 78
Figure 30: Object Properties for Ontology of Bikes 79
Figure 31: Data Properties for Ontology of Bikes 79
Figure 32(a): Individuals for various Bikes- Hero Honda Karizma(ZMR) 80
Figure 32(b): Individuals for various Bikes- Bajaj Duke200 80
Figure 33(a): Evaluation of competency question 81
Figure 33(b): Evaluation of competency question 82
Figure 34: The output of OntoGraf 83
Figure 35(a): The output of OWLViz 84
Figure 35(b): The output of OWLViz 85
Figure 36: Identified properties 128
Figure 37: Identified property hierarchy 129
Figure 38: Identified inverse-properties 131
Figure 39: Inverse-properties hierarchy 132
Figure 40: Initial Ontology structure 134
Figure 41: Modified Ontology structure 135
Figure 42: Modified Ontology structure 136
Figure 43: Modified Ontology structure 136
Figure 44: Modified Ontology structure 138
Figure 45: Modified Ontology structure 138
Figure 46: Modified Ontology structure 140
Figure 47: Modified Ontology structure 141
Figure 48: Modified Ontology structure 143
Figure 49: Modified Ontology structure 146
Figure 50: Modified Ontology structure 148
Figure 51: Modified Ontology structure 150
Figure 52: Modified Ontology structure 152
Figure 53: Modified Ontology structure 155
Figure 54: Modified Ontology structure 161

Figure 55: Final Ontology structure 169

Figure 56: Sub- Ontology structure of *HeroHondaBikes* 170

Figure 57: Sub- Ontology structure of *BajajBikes* 171

Figure 58: Sub- Ontology structure of *Make* 172

Figure 59: Sub- Ontology structure of *RoyalEnfieldBikes* 173

List of Tables

Table 1 – A comparison of ontology editing tools 42
Table 2 – Domain & Ranges of properties 59
Table 3 – Domain & Ranges of Inverse-properties 62
Table 4 – Final Location map 69
Table 5 – Mapping of concepts between On-To-Methodology & other methodologies 88
Table 6 – Domain & Ranges of identified properties 130
Table 7 – Domain & Ranges of Inverse-properties 133
Table 8 – Initial Location map 134
Table 9 – Modified Location map 135
Table 10 – Modified Location map 136
Table 11 – Modified Location map 137
Table 12 – List of subsequent concepts 137
Table 13 – Modified Location map 138
Table 14 – Modified Location map 139
Table 15 – Modified Location map 140
Table 16 – List of subsequent concepts 141
Table 17 – Modified Location map 142
Table 18 – Modified Location map 144
Table 19 – List of subsequent concepts 144
Table 20 – Modified Location map 147
Table 21 – Modified Location map 148
Table 22 – List of subsequent concepts 149
Table 23 – List of subsequent concepts 150
Table 24 – Modified Location map 153
Table 25 – Modified Location map 155
Table 26 – List of subsequent concepts 156
Table 27 – Modified Location map 161
Table 28 – List of subsequent concepts 163
Table 29 – Final Location map 166