Improving Usability of Semantic Information

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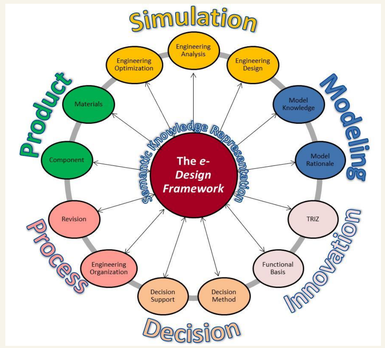
Problem Statement

- The Center for e-Design has created and published a collection of useful ontologies called the e-Design Framework



- **Need:** Front-end interface for an ontology
- **Potential Solution:** An existing open source interface, OntoWiki, but it lacks some usability features
  - Visual representation of the ontology
  - Working search filtering interface

Background

The Center for e-Design develops tools and techniques to improve the engineering design process in a semantic world

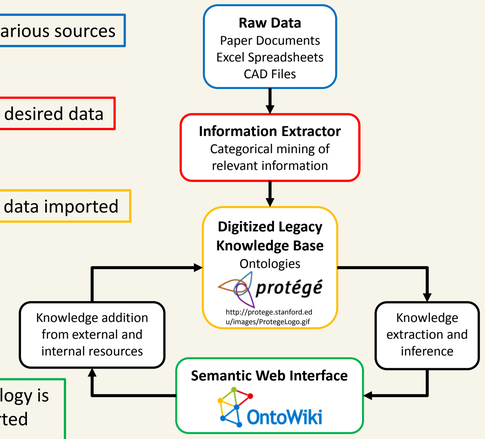
Information is collected from various sources

Software is used to extract the desired data

An ontology is created and the data imported

An ontology is a highly sophisticated information management database with complex reasoning capabilities

Once the structure of the ontology is built and populated, it is imported into an interface



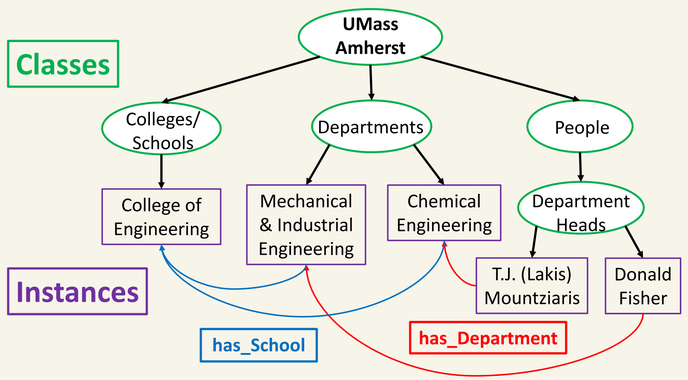
Goals/Accomplishments

- Utilized an existing open source interface, OntoWiki, to provide a front-end to the ontology
- Modified OntoWiki to allow a general user, with little to no prior knowledge of ontologies, to access and browse an ontology
- Created a new feature, navigation hierarchal tree, that displays a visual representation of the ontology
- Modified the existing filter feature on the interface to be able to handle date filtering, and increase the user-friendliness of the filter interface
- Customized the interface's home page to inform users the capabilities of the interface

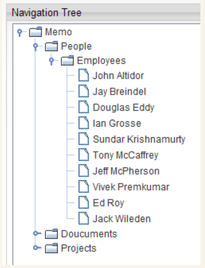
Methods/Purpose

Example Ontology

- Each college at UMass Amherst has many departments
- Each department has their own department head
- The department head has an e-mail and a phone number
- The e-mail and phone number are data type properties of the instance
- The instances are connected by object properties



Navigation Tree



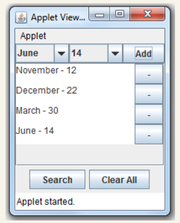
- A visual representation of the ontology model
- Individual instances displayed within class
- Embedded a Java applet into the existing interface
- The Java applet retrieves information from the ontology and creates the tree structure

Percent Completed: 90%
Tasks Remaining: Retrieve the information about the ontology from the model

Filter Extension

- Old filter module lacked functionality and usability
- Created a new interface that will replace the existing filter module
- A simple set of drop down menus
  - First menu is used to choose a set of properties or instances
  - Second menu chooses a specific item
- Embedded Java applet that pulls information from the ontology

Percent Completed: 75%
Tasks Remaining: Embed the applet and retrieve the information about the ontology from the model



Future Work

- Evaluate modified OntoWiki interface with user testing
- Implement new features on the interface to further improve usability
- Deploy the MemoExtractor project using ontologies and OntoWiki at Raytheon

http://udfr.org/ontowiki/extensions/themes/silverblue/images/ontowiki-logo.png

http://www.logostage.com/logos/Raytheon.png

Acknowledgements

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