A Faster Approach for Generic Information Accessing Technique Based on Semantics

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Abstract- **We are writing together again, on information accessing technique based on semantics. It is in continuation of our preceding work. While going through the previous work we found that the approach of the previously suggested model may sometimes not able to meet our expectations in terms of providing quicker response. Therefore we felt that we need to be more specific in terms of finding required information. Hence in this paper we are going to suggest more specific details for the implementation of the semantic based information accessing model.**

*Keywords-----***E-Learning Model, Semantic WEB System or SWS, PPMAS, PA, Ontology, S-DB (Semantic Database), Q-DB (Quick Database), I-DB (Indexed Data)**

I. INTRODUCTION

Internet is full of information. It can serve our day to day requirements in terms of providing information and thus it can also help in shaping our society to meet upcoming challenges. Apart from these another prevalent fact is that time is money. These all facts motivated us to have a fresh look on our previously suggested model and we came to the conclusion that many more inspections are required before practicing the earlier proposed model. In this paper we will take you to a small tour to earlier proposed models to acquire information on the Internet. After this tour we will let you understand that how the proposed suggestion will help the earlier suggested model to perform more quickly along with its logical explanation.

We realized that the model we have suggested should be modified to provide quicker response. Therefore we started studying it very minutely. But before going into the finer details we would first like to introduce you with the motivational factors behind starting it again.

II. MOTIVATIONAL FACTORS FOR GENERIC INFORMATION ACCESSING TECHNIQUE BASED ON SEMANTICS

The world is changing with a great speed. Data is playing an important role in providing the cause for change. These data are nowadays floating on the Internet. These data require to be organized so that collectively it can be used in the formation of required information and finally that information may be utilized for doing some specific task.

Organizing data and getting information requires human intervention, only then gathered information can be analyzed or considered for specific purposes.

We are living in the age of high end computing environment. We are also refining our environment day by day by using our intelligence. Therefore we thought to contribute to some extent from our side and came up with a semantic web model. Our model is basically using the power of DATABSE. By doing so we have tried to induce intelligence to the world of web, regarded as Semantic Web. This will also help in realizing the response in quicker manner with comparison to other suggested models. In our GENERIC INFORMATION ACCESSING MODEL BASED ON SEMANTICS [14] we have shown the way to include existing web resources. But we felt that quicker response may get induced to our proposed architecture. This idea led us to work again in the direction through which our proposed model can be altered for quicker response.

III. RELATED WORKS

We are describing the philosophy of the Semantic Web as it has been described earlier with the web link [2]. As per the description, semantic web is web of data. Generally data are described and controlled by the intended application, but semantic web suggests that the whole web can be treated as the source of data and needs to be shared and reused across application, enterprise, and community boundaries without any discrimination.

Many researchers have contributed towards achieving the sighted goal of the semantic web. This concept can be further fine tuned as per the specific domain.

Usman Wajid, et. al [3] describes the interaction among the agents in protocol based environment. It also investigates the possibility of protocol free interaction for agents to enable flexible operation of agents in changing environments.

Purvis, M., et. al [4] has suggested an approach for modeling protocols for agent interaction better suited for agents of e-business operations. This has been further clarified by the example of commodities trading in the literature.

Yong-Feng Lin,et. al [5] has described the agents are interacting based on the ontological techniques and has been confined to "Foundation of Intelligent and Physical Agents"

(FIPA) protocol. It can initiate the dynamic OWLS services and also improves the management of agent Program.

Peter Brusilovsky, et. al [6] has discussed an architecture that attempts to address both the component-based assembly of adaptive systems and teacher-level reusability.

Tseng, S.-S, et. al [7] has proposed a modular framework that can segment and transform teaching materials into modular learning objects based on the standard named as SCORM. It enables the formation of subject content dynamically as per the profile and portfolio of an individual student.

Ming Qu., et. al [11] has suggested the trusted ontology representation that can be used for semantic web service description, publication, discovery and composition in the distributed and computer-supported cooperative work environment.

Miklos Nagy, et. al [12] has addressed the issues related to mapping of ontology available on the web which requires to be mapped so that proper information can be generated or acquired. They have also proposed a framework to do so base on ontology.

Li Xueyong, et. al [13] have discussed ontology mapping model based experimental data to show its relevance for Semantic Web

Amit Kumar, et. al [14] have proposed a semantic web model which can use the existing web pages and can in treat it as the web resource in the world of Web 3.0

Whatever we have studied till now is based on the assumption that how the model can be designed to acquire data or information based on semantics. But we analyzed that it has been never suggested that how the required information can be acquired with simplicity in terms of identifying the information of interest in least time.

We have gone through the working of few semantic web based web-sites. Orkut.com and facebook.com belong to that category in terms of following the architecture of semantic web. Not only these two but many more sites are following the standards of semantic web.

The possibilities for semantic web are enormous and so are its applications. But still the many researches need to be done for its extension. Role of semantic web may contribute to a great extent in the field of academics. It will definitely speedup the process of development. It will also speedup our research works and finally we will be able realize the power of Semantic Web by having faster growth in each of the directions we can think off.

We have gone through few of the papers suggesting the e-learning model based on the semantic web. These models have only discussed the overall architecture of the semantic web. They are not specific about the knowledge acquisition system for specific domain.

In order to address issues related to knowledge acquisition system we have came with the design of a futuristic model which can serve the requirement of ontology based multi agent e-learning system.

Previously the architecture that we proposed is mainly based on the ontology that will get handled by the parameterized programmed multi agents. In this architecture information by researchers will get organized on the web in ontological manner which has been discussed in section 4.

After discussing the PPMAS working architecture in section 4 we will discuss what changes had been done in earlier proposed architecture so that the existing web resources can be exploited in the favor of knowledge seekers and as well as in the favor of WEB 3.0 or in other word for semantic web.

In section 6 we will finally let you know the what changes is going to be proposed so that our earlier proposed model [14] can be altered for the quicker response.

IV. PPMAS WORKING ARCHITECTURE

PPMAS is completely based on an innovative approach of agent organization and on a clever understanding of the SWS technology. The idea has been generated by studying the different articles focusing on the architecture of SWS by Usman Wajid, et. al [3], Peter Brusilovsky, et. al [6], Neiat, A.G. et. al [8], Yousefipour, A, et. al [9], Jyotishman, et. al [10].
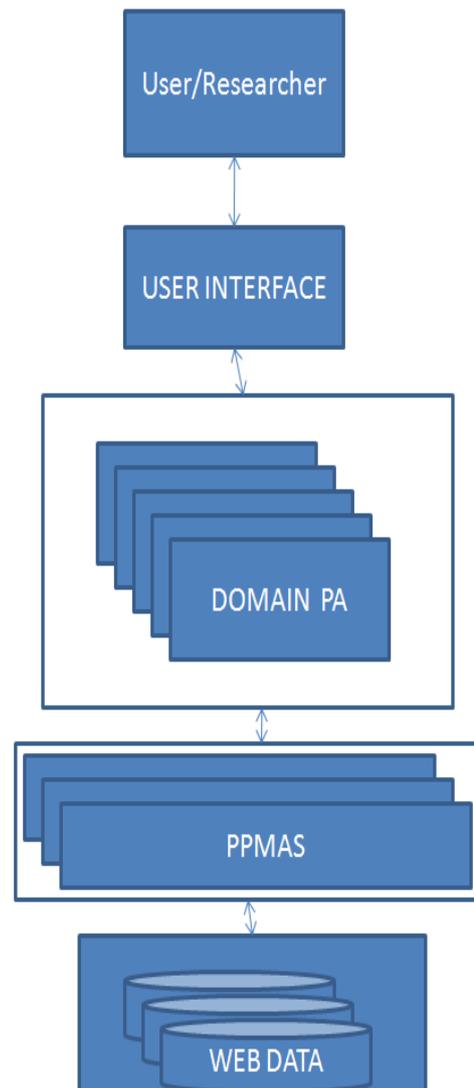

Fig 1: E-Learning System Based On PPMAS

As it has been said earlier that PPMAS architecture revolves around the proper organization of agents and also on an innovative approach through which agent may get designed. This architecture allows the different level of interaction for the users/researchers. In order to make it understand in a better way just go through the following details.

At interface level user will be allowed to specify the domain in which the user is having the interest. For being more specific while searching information the interface will provide a tree like structure for specifying required parameter by using the Programmed Agents or PA for specific domain in which the information or data required to be obtained.

Then these PAs will deliver the acquired data by the users/researchers to PPMAS. PPMAS will analyze these data and will search the required information on the web based on the ontological data associated with the available data/information on the web.

The acquired information will flow back to the user through same channel as the request will get originated from.

As it can be understood from the fig1 that we have proposed PA because it can interact with the user as per the pre required manner as it will get programmed. PPMAS will work independently since it has to search data on the web from different data or information sources parallel. Then obtained data/information will way back to requester through intended PA and will get served to user/researcher through the interface which has been used to generate the data/information request.

V. CHANGES SUGGESTED AT WEB DATA LEVEL AS PER THE EARLIER PROPOSED SOLUTION

While proposing the PPMAS working architecture we have not considered that how we can accommodate the existing web pages in the semantic web environment. Therefore we have gone through many of the techniques explained in many of the documents. But we have not found any appropriate approach for the purpose what we were targeting for. Then the google crawling technique came into our knowledge. After getting the knowledge of crawling we proposed the model as shown in fig 2.

We have suggested GENERIC INFORMATION ACCESSING MODEL BASED ON SEMANTICS [14] for them who wish to contribute in the world of semantic web for catering information or knowledge. They can maintain a database with data containing the records of web pages available through their web server along with respective URIs. These records will also accommodate the keywords regarding the purpose of the URIs. Not only this, it will also hold the information in ontological manner for logical retrieval of information through specified URI. Instead of accessing the web data directly through the specified URIs the PPMAS will first match the requirement through the available database at the server participating in the world of Web2.0 and then it will access the URI suggested through the matched record at the database level. Thus while dreaming for the semantic web as a designer and developer we can allow the data and information from the world of Web2.0 to participate in the world of Web3.0 or Semantic Web.

VI. PROPOSED CHANGES IN THE DOMAIN PA LEVEL

In earlier suggested model we have just proposed the changes at Web Data Layer. We have introduced the I-DB along with Q-DB for including the resources of Web 2.0 in the world of Web 3.0 or in other words in the world of Semantic Web.

This has inspired us to do changes at the Domain PA Layer. In this Layer we have introduced I-DB or Indexed Data in conjunction with Q-DB or Quick Database for faster information retrieval. This database will get used internally by the Domain-PA for having the faster access to the web pages which will be on frequent demand by the user. Therefore Q-DB will store the data as history of semantics which has been already used to serve the information seekers along with the respective web links. The proposed model has been shown in fig 3.
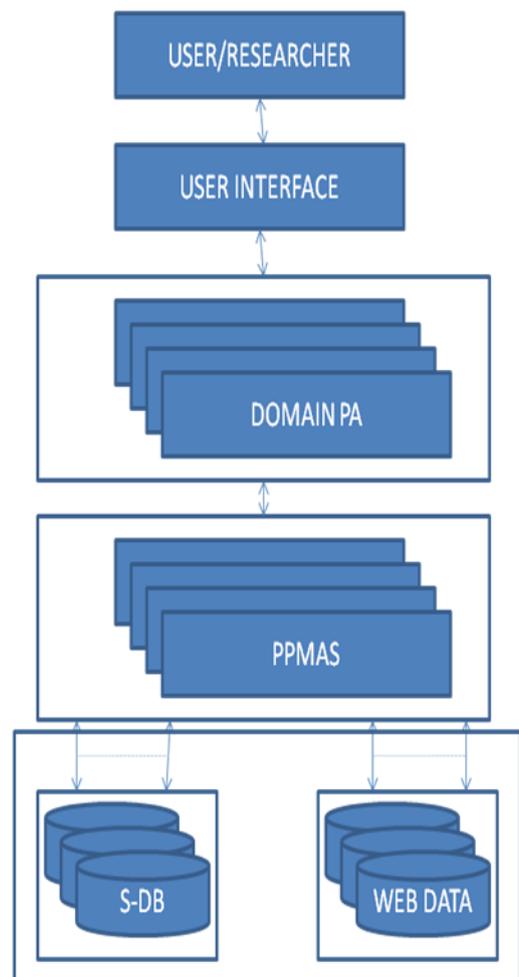

Fig 2: GENERIC INFORMATION ACCESSING MODEL BASED ON SEMANTICS

Instead of passing the request to the PPMAS for acquiring the information as per the user interest Domain PA will first check with the I-DB for providing quicker response. This will be quicker because of the assumption we

are taking that most of time a user or information seeker will use the interface within a specific boundary. Thus even if the same user will approach for the same set of information then Domain PA will consult internally the Q-DB first and may be able come up with the quicker response.

VII. CONCLUSION AND FUTURE SCOPE

We are doing efforts to realize the goals of semantic web by using the concepts and power of Database Applications. The approach we are taking is generic in nature. Hence it can be used in any field, which is based on web. Since all the concepts are based on web, we need to do a great effort to get benefitted through these concepts. Still many modifications may be required at design level.
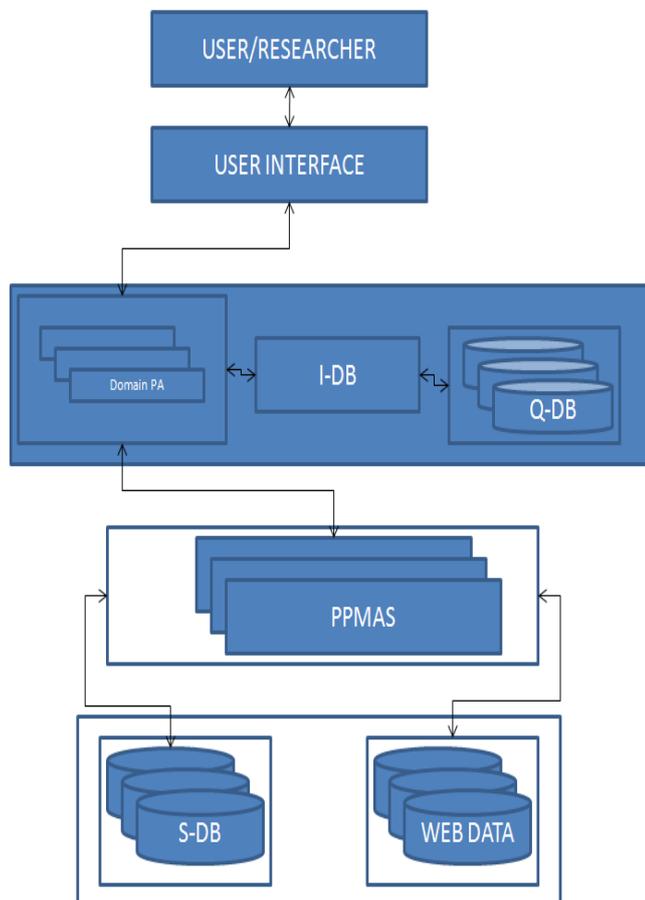

Fig 3: I-Db Based Generic Information Accessing Model Based On Semantics

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