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By: HARKAT Zohra

TOPIC

AachabOnt: an ontology for alternative medicine

Publicly defended: / /2015 before a Jury composed of:

Dr.BRAHIMI.Mahmoud
Dr.L.Belabelouahab-Fernini
.....
.....
.....

University of M'sila
University of M'sila
University of M'sila
University of M'sila
University of M'sila

Supervisor
Supervisor
Chair
Examiner
Examiner

Academic Year: 2014 /2015

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General introduction

Alternative medicine is a fully accepted and integrated form of health care in many areas of the world and has existed since antiquity. It is one of the fastest growing fields in healthcare and is more widely used today than ever before. Millions of people are spending billions of out-of-pocket dollars on alternative medicine therapies. Its widespread use has had impact on users, practitioners and researchers. Its growing influence has been described as a “hidden mainstream in medicine.” This surge has resulted in the need to better understand, from an informatics and public health perspective.

The recent increase in the interest and growth of alternative medicine can be attributed to many reasons including technological, economic, cultural and social trends. Its growth is also fueled by the rising dissatisfaction with the traditional health care and delivery of medicine. Additionally, self-empowerment, personal savings accounts and the Internet are enabling greater access to alternative medicine [1]. Some attribute the growth in alternative medicine to the view that the combination of alternative medicine with conventional medicine is better than conventional medicine alone. Additionally, alternative medicine treatments fill gaps, such as the treatment of chronic pain and other debilitating conditions, in areas where conventional medical practices are not always successful. It is also being used with certain medical conditions that are without a cure or with conditions that have a cure but have significant side effects such as cancer.

Alternative medicine, an assortment of varying health care practices that exist outside the definition or accepted practices of conventional medicine, is increasing. Health care providers need this information to better manage patient-care situations such as plant medical interactions which may result from alternative medicine use.

Access and effective management of medical information have become increasingly important in the practice of medicine today. Computer technology is developing to achieve this goal. This had led to the emergence of a new specialty, medical informatics, the basic science of the use of computers in medicine. In chapter 1, we deal with medical informatics applications like Areas of patient care to which medical informatics has been applied include history taking, medical records, medical database information retrieval, test performance, test result retrieval, decision support, patient monitoring, medical education, quality assurance and utilization review, medical research, and medical office and financial management. It is important that these applications

become integrated with existing medical information systems and that physicians take a leading role in developing and maintaining these systems.

Very importantly, interest in alternative medicine research continues to grow and more studies are funded to establish the evidence base required for alternative medicine integration and acceptance into routine physical care. Despite its fast growth, there are still low levels of understanding regarding the alternative medicine terminology. The purpose of chapter 2 is to provide a better understanding of the definition of alternative medicine, its origins and background, types, users of alternative medicine, and research.

Plants have a long standing history in medicinal purpose since ancient times. Even though there is no formal record to ascertain the first time herbs are used, it is undeniable that humans use herbs as an alternative medicine long before the introduction of modern medicine. We have noticed that the knowledge of herbal medicine is continually lost over the centuries due to lack of a proper system for documenting, conserving, sharing and discovering this knowledge. In chapter 3, we build the AachabOnt ontology that is established to address these immediate needs. This Ontology is developed using semantic technology, which facilitates knowledge representation in RDF formalism and knowledge discovery through reasoning capabilities.

The World Wide Web (WWW) consisting in a large volume of information related with medicinal plants. Search engines are not quite efficient and require excessive manual processing. Therefore search becomes difficult for the ordinary users to find the medicinal uses of herbal plants from the web. And another problem is that the domain experts could not able to map the medicinal uses of herbal plants with the existing standardized medical terms. Mapping the AachabOnt ontology introduces the problem of finding the similarity between the terms and relationships. In chapter 4 we developed a Knowledge framework for the Medicinal Plants to address these issues. Knowledge framework includes the ontology creation, user interface for querying the system. Jena is used to build semantic web applications with the ontology representation of Resource Description Framework (RDF) .SPARQL Protocol and RDF Query Language (SPARQL) is used to retrieve various query patterns. Use The user interface is demonstrated for concepts the mapping with AachabOnt ontology gives more improvement in analyzing the performance of the medicinal plants and their uses, for that after getting Jena to work with java in terminal mode, the next step was to create a web interface representing the

results in a clear manner to the user. Having worked a bit with JSP in the past, it seemed natural to use.

After getting Jena to work with Java in terminal mode, the next step was to create a Dynamic web application representing the results in a clear manner to the user. Having worked a bit with JSP in the past, it seemed natural to use. The AchabMed website also incorporates features like navigation, search, and ontology management to support plant medical effort and automated information extraction.

Chapter 1

Medical informatics applications

Bibliography

General Conclusion

[7] We conceived in this research paper, an AchabOnt ontology that solves the problem of medicinal plants for alternative medicine. This study was not intended to be merely an interesting exercise. Its goal was and remains to provide a basis for the achievement of real, significant improvements in performance. We present medicinal plant knowledge with how collecting information in medical domain is supposed to function. It was conducted using the most important criterion: Terminology.

We tried to solve the problem of terminology by the nearest specific terms in medicine and scientific domain. It requires a profound analysis of the structure and the concepts of medical terminologies. For that, we used an ontology in Phytotherapy that is mainly focused on the representation and (re-)organization of medical terminologies.

In addition, we give the patient the choice to research about specific medicinal plants' information and disease they treat through the AchabMed website interface.

In the future, we want to add to the AchabOnt Ontology the symptoms class which allows the user show the treatment by mentioning symptoms diseases.

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الملخص

عرف في السنين الأخيرة، مجال الطب البديل (طب الأعشاب) تطور واقتبال كبير وذلك لعدة أسباب أهمها القيمة العلاجية العالية والسعر المناسب ولذلك قمنا بتطوير أنطولوجيا تظم معظم المعلومات عن الأعشاب الطبية والأمراض التي تعالجها. تم اتباع طريقة ميتونتولوجي METHONTOLOGY. ونفذت باستعمال برنامج البرتيجي، وأخيرا تم تقييم وتصحيح الأخطاء ب FaCT++ كمحرك استدلال. وحفظ أنطولوجيا أعشاب انتو بلغة RDF. ولإتاحة استخدام أعشاب انتومن قبل المستخدمين، قمنا بتطوير موقع الكتروني يسمح في البحث في انتولوجي جينا وللاستعلام لغة سباركلو بتكنولوجيا jsp .

الكلمات المفتاحية: الطب الأعشاب، أنطولوجيا، ميتونتولوجي، بروتيجي، RDF، جينا، سباركل، JSP .

Résumé

Ces dernières années, ont connu l'essor de la médecine alternative (Phytothérapie) qui est devenue populaire pour plusieurs raisons. En plus de sa valeur thérapeutique, elle est à bon prix. Pour cela, nous avons développé une ontologie qui comprend la plupart des informations sur les plantes médicinales et les maladies qu'elle traite. La méthode utilisée est la METHONTOLOGY. Son implémentation fut à l'aide d'un programme protégé et enfin l'évaluation fut effectuée par FaCT++ comme moteur d'inférence et l'enregistrement de AachabOnt en langage RDF. Pour permettre aux utilisateurs de faire usage de AachabOnt, nous avons développé un site web permettant la recherche dans AachabOnt avec la technologie Jena (java api) et pour la recherche les langages SPARQL et JSP.

Mots clés: Médecine Alternative, ontologie, METHONTOLOGY, Protégé, RDF, Jena, SPARQL, JSP technologie.

ABSTRACT

In recent years, the field of alternative medicine (Phytotherapy) knew a big evolution and became popular for several reasons. In addition to its high therapeutic value, it does not cost much. We have developed an ontology containing the most important information on medicinal plants and the diseases they treat. The method used was METHONTOLOGY. It was implemented by the use of the Protégé program and evaluated by the use of FaCT++ inference engine. The AachabOnt ontology was saved in the RDF language. To allow users utilize the AachabOnt ontology, we have developed a website that allows research through the use of Jena technology and the SPARQL and JSP query languages.

Keywords: alternative medicine, ontology, METHONTOLOGY, Protégé, RDF, Jena, SPARQL, and JSP technology.