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### **RESEARCH ARTICLE**

# Smart Medicine and Physical Health System Using IoT

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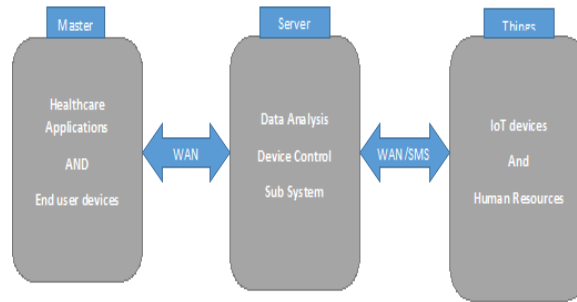
#### **ABSTRACT:**

The Internet of Things (IoT) provides an efficient and new life to the healthcare field. It also has a rapid development of many fields. But the more important are real in the field of Medical. One of the better way the doctors are capable to certainly and quickly right to use the relevant patient information's and including the patient medical history. Through the Internet of Things, tremendously improves the quality of information and the patient care in the Medical field. So, Internet of Things offers an actual platform to interconnect the all the resources. An ontology based automating design methodology for smart medicine and physical health system using IoT. Ontology aids computers in additionally understanding the symptoms and medical resources. So, Ontology helps to create a rehabilitation strategy and reconfigure medical resources according to patient's specific requirements rapidly and repeatedly.

Keywords: Ontology, Internet of Things (IoT), smart recovery, Resources optimizations.

#### **I. INTRODUCTION:**

Internet of Things (IoT) devices can be mostly used to facilitate distant health monitoring and emergency healthcare systems. At the present we are facing many challenges in the real world, which have to deal realistically. By the use of IoT challenges are rehabilitate, which consumes more time, resources and manpower. In the recent years the rehabilitation of Internet resources has become popular and also development of the smart applications like smart home. Compared to the traditional system, the smart rehabilitation is aiming at providing an effective treatment, sufficient interaction and quick reconfiguration to making the determined use of the medical resources according to the patient's particular requirements probable. Internet of Things is the primary technology for interconnecting all the medical resources of the rehabilitation systems. Also to combine the Networking technologies that enables a wide range of applications, devices or things to interact and communicate among themselves.



**Fig.1 Internet of Things**

Internet of Things (IoT) has many forms of applications including healthcare and industrial systems. So, healthcare systems mainly using the interconnected devices to create an IoT network enthusiastic to assessment, automatically detecting the situation and monitors the patients, where the medical interferences are mandatory. So, IoT alone can form an information network that interconnects hospitals, peoples, healthcare devices, home environment and other workstations.

## II. IMPLEMENTATION AND RELATED WORKS:

Implementation of the Internet of Things is flexible and accessible results to allowing the healthcare applications to serve patients with better treatment, also done with the remote patient monitoring and effective medical data handling. There are some of different characteristics are needed to implement the healthcare service in the Environment.

### 1) Ontology Evaluation:

In this part inputs are converted into function in which patients symptoms are analysed, diseases are located, and all the information's are put into the remote database. When the patient first enters the hospitals, the physical characteristics of the diseases will be primarily determined by the doctor.

The determined functions are divided into the classes and sub classes. Classes are represents the patients basic information and subclasses are represents detailed diseases information.

### 2) Global Ontology Comparison:

In this evaluated ontology compared to the globally stored diseases ontology on the base of the knowledge base system. Global ontology contains the two forms of ontology, these are disease ontology and resource ontology. Disease ontology contains the patient basic and medical information and resource ontology covers medical resources such that doctors, medical devices, etc.

### 3) Similarity Calculations:

Input the inquiry content of the symptom manually. Compare the input symptom with all the global disease ontology in the knowledge base. Perform similarity matching of the symptoms automatically for similarity matching. Automate the selection of the most similar case in the knowledge base. It is easy to find out what kinds of devices are needed for the corresponding symptoms and rehabilitation strategies through the ontology.

### 4) Design Optimization:

The final phase of smart design process in which the procedure, methods, scopes, and duration of all of the separate actions. Parameter optimization is essential to make assured that the particulars come across the requirements from structure. Automatic designs help to build a system where a new patient could be quickly diagnosed, corresponding help strategy can soon be worked out, and associated medical properties can be distributed in a short time. With ontology ensuring the well-ordered knowledge structure.

### III. PROPOSED SYSTEM:

In Proposed system an Ontology based automating design methodology for smart medicine and physical health system using IoT. Additionally to understand the symptoms and the medical assets by the use of an Ontology. And also an Ontology supports to create a rehabilitation strategy and also to reconfigure the medical assets based on the specific requirements of the patients habitually and rapidly. So, based on the objectives IoT aims to interconnect all the resources and easily provide an immediate information interaction. major role in this system is to applying the Ontology for the creation of rehabilitation strategy and to build the subsystem analysys for collabroration of the patients informations or identity. The basic idea of IoT is the pervasive presence of things and objects that are interconnected and are able to cooperate with each other to reach a common goal. IoT extents a set of technologies that supports a extensive range of things to interact and interconnect among themselves using networking technologies. Two important features, including the quick construction of rehabilitation system and the easy sharing of domain knowledge, make the system unique and perform excellent, as IoT.ontology have played a significant role in the process. It aims to interconnect all the resources and provide immediate information interaction.

For the implementation of the proposed system must be have the some of the different form of the sections shown in Fig.2. First one is the Human machine interaction and second one is multidisciplinary optimizations which is formed in the many opeartions on the system architecture. And third one is manging the applications by the database and class mapping in the knoeledge base. The Human machine interaction can be achived by the base of the resources and human, like doctors, nurse and patients are the human realted resoureces and devices such the RFID, ambulance, medical resources are the interact to the human resources. Second, Multidisciplinary optimizations which is used to perform the design of the automated design mehodology and the major role in the system architecture, because it creates the all strategy of the system and also to provide the prescription to patient automatically. Third, Managing applications is used to manage all the resources and the patients records also. the patients records also maintained by classes and sub classes as explained in implemenatation. In application management also persorms the design collabroration, information and application integration based on the database and the knowledge base in the system.

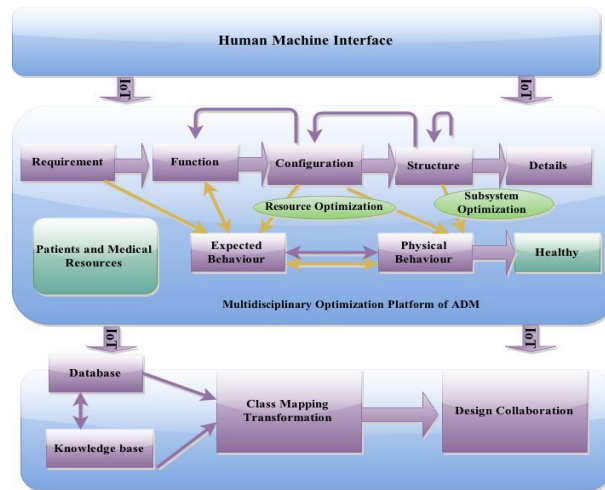
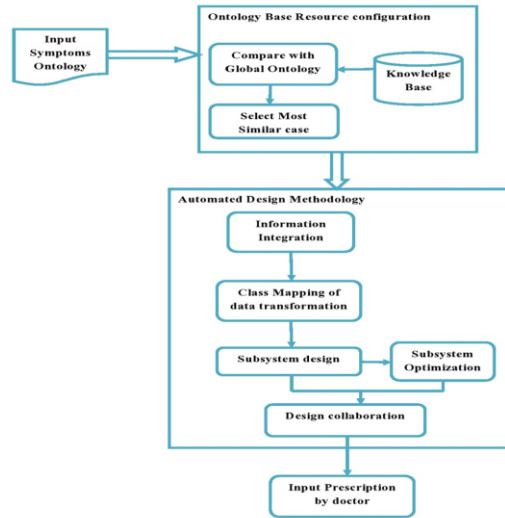


Fig.2 System Architecture

#### Generation of automated design:

The generation of the automate design method should be have some of the stages explained in the implementation and related works. When the patient or doctors inputs the symptoms of the diseases, it can be compared to the global ontology based on knowledge base and select their most similar case in the knowledge base. After the automated design methodology mapping to classes and sub classes of the already stored patients records.

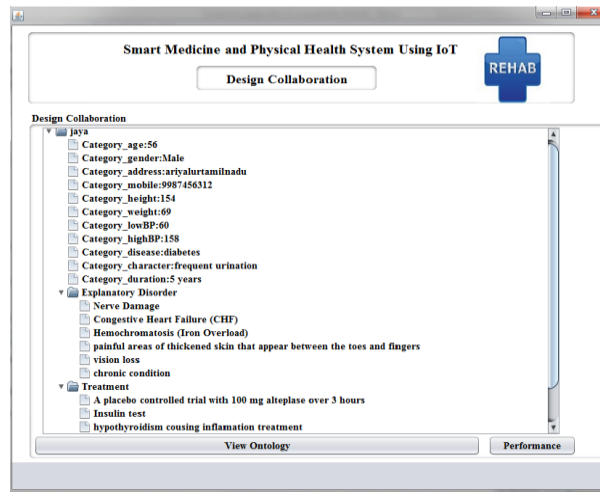


**Fig.3 Process of generating automated design method**

And subsystem can optimize that the patient’s records based on their diseases and basic information. Finally design collaboration can take major role in the design scheme to provide the prescription to the patient after verification of the doctors. By using this system can be effective to the medical and healthcare systems.

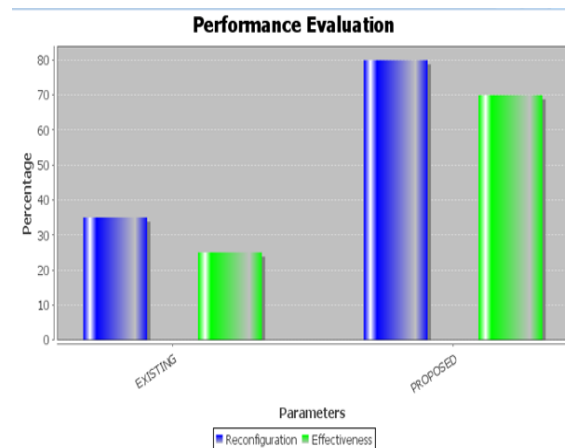
**IV. RESULTS AND DISCUSSION:**

The Proposed architecture of IoT based physical health system that can be integrated to the some rehabilitation strategy by collecting the patient basic information’s and symptoms and also manages the medical history. System determines that proper reconfiguration of the Medical resources can develop the performance of the system and also surely opportuneness to the patients.



**Fig.4 Efficient Prescription for the patient**

The utilization of the medical resources must be used properly. Based on the design of system is effective and can help to the smart medicine system by generating the prescription. By invoking the RFID to interconnection of the all the resources and interact with the server during the reconfiguration of the patients medical resources and to provide solutions quickly. The performance of this can be increased to more efficient when compare to the existing system shown in fig.5.



**Fig.5 Performance Evaluation**

By evaluating the performance of the smart system has been evaluating the reconfiguration and the effectiveness of producing the patient treatment prescription.

## V. CONCLUSION:

We realized IoT is the universal occurrence of things and objects that are intersected and are capable to work together with each other to extent a common goal. IoT extends a set of technologies that enable a wide range of things to act together and communicate among themselves using networking knowledge. A rehabilitation system is developed using IoT-based technologies, SOA methods, and multidisciplinary optimization methods. Ontology places the base for disease diagnosis and resource distribution. In proposed, an ontology-based automating design methodology for smart medicine and physical health system using IoT technology. This system must be both effective and efficient for the information sharing. Two important features, including the quick construction of restoration system and the easy allotment of domain knowledge, which should make the system as distinctive and perform admirable, as IoT and ontology have played a important role in the method.

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