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## Accessing Information of Emergency Medical Services through Internet of Things

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**Abstract**— *IoT is the advanced technology which is use in daily life. IoT make easy to connect different smart devices with each other by using the internet. IOT is given the ability to computer system to run application program from different vendors. So in this paper we are accessing the data based on IoT technology for emergency medical services. The fast development of Internet of Thing.*

**Keywords**— *Resource Model, Decision support system (DSS), Emergency medical service.*

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### I. INTRODUCTION

Accessing the data for medical services is the most challenging tasks in the day to day life. With the help of cloud environment today the medical data can be easily shared and accessed at any place at anywhere in the world. Even though the data can be accessed via online services immediately most of the time it does not support for diagnostic ate where many data needs to be accessed very sharply in a short extension of time. In the past large numbers of researches have been conducted in IoT technology to get data without any obstruction and universal access to process data in the very short mode.

The most advancement in the technology are the GPS (Global Positioning System) and RFID (Radio frequency Identification). Now a day's all the ambulances operated widely in different parts are working on the GPS principles only. Also the additional RFID is connected to every ambulance and hence it is used to locate the ambulance very quickly. The medical field is widely developed and all the ambulances are GPS connected. All the patients and the doctors using their ID which is used for identification. All the medicines used in the hospital are bar-code scanned for verification. the medical instruments and instruments use RFID tags for exact location identification.

Efforts to make a national health information infrastructure and supporting data task must address the needs of clinical research. Clinical research is patient tending research operated with human. Clinical finding comprise checkout of the mechanisms of human sickness, therapeutic interference, clinical trials, development of new technologies, epidemiology, behavioral studies, and outcomes and health services research. The large scope of clinical research, link with the mode of technology has produce raising amounts of data. it is important to describe that clinical research includes many other types of research including observational and consequence research as well as atomic and biology research.

### II. BASIC CONCEPT

#### 1. Internet Of things:

IoT is one of the most important and sharply advanced technologies in the day to day life. The development in the technology shows that comfort of use for the real time story. This technology is mainly used in the medical servicing such that healthcare monitoring, medication checking etc. This technology is very useful in accessing the very critical medical data easily via online services which helps the doctor to make the decisions very fast and also reduces the cost of accessing the information.

## **2. CLOUD:**

Cloud computing means storing and accessing data and programs over the Internet instead of your computer's hard drive. Cloud is a general term for the delivery of hosted services over the internet. *Cloud* computing relies on shared resources rather than local servers or devices to handle applications.

## **3. Decision support system (DSS):**

As emergency events have the features of information uncertainty, emergency decision support systems (DSSs) are expected to be configured dynamically depending on the development of the events and the status of the resources to be used.

A decision support system is a computer based information system that supports business or organizational decision making activities, sorting or choosing from among alternatives. DSSs serve the management, operations, and planning levels of an organization and help people make decisions about problems that may be rapidly changing and not easily specified in advance.

## **4. Emergency medical services(EMS):**

Emergency medical services also known as ambulance services are a type of emergency service dedicated to providing out-of-hospital acute medical care, transport to definitive care, and other medical transport to patients with illnesses and injuries which prevent the patient from transporting themselves. Emergency medical services may also be locally known as a ambulance services a first aid squad, FAST squad, emergency squad, rescue squad, ambulance squad, ambulance service, ambulance corps or life squad. The goal of most emergency medical services is to either provide treatment to those in need of urgent medical care, with the goal of satisfactorily treating the presenting conditions, or arranging for timely removal of the patient to the next point of definitive care. This is most likely an emergency department at a hospital. The term emergency medical service evolved to reflect a change from a simple system of ambulances providing only transport, to a system in which preliminary medical care is given on scene and during transport. In some developing regions, the term is not used, or may be used inaccurately, since the service in question does not provide treatment to the patients, but only the provision of transport to the point of care.

## **5. Ubiquitous data accessing:**

Internet of Things (IoT) is an emerging technology that is expected to discover new drugs and medical treatments. Its flexibility, adaptability, affinity, cost shrinkage, and high speed up features have high potential to lift the efficiency and quality of healthcare. Though, it is also important to understand specific risks related to security and privacy that this technology brings. This paper focuses on a Healthcare information system based on Ubiquitous Data Accessing (UDA) method. In particular, security and privacy challenges are identified in the proposed UDA-based healthcare information system. Moreover, a functional infrastructure plan is provided to demonstrate the integration between the proposed application architecture with the Internet of Things and cloud infrastructure.

III.Related Work

Sr. No.	Paper Name	Published year	Author	Advantages	Disadvantages
1.	<i>Operations Research (OR) in Service Industries: A Comprehensive Review</i>	2013	Yiting Xing, Ling Li, Zhuming Bi, Marzena Wilamowska-Korsak,	<i>The share of gross domestic product from the service industry reflects the competitiveness of a nation; the service industry in the USA accounts for around 80% of its gross domestic product, and it has been increasing gradually</i>	<i>The limitations of existing studies and the demanding ORs in the service have been drawn from our summaries and observations from a comprehensive review in this field</i>
2.	<i>A system framework of security management in enterprise systems</i>	2013	F. Wang, B. Ge, L. Zhang, Y. Chen, Y. Xin, and X. Li	<i>Proposes a dynamic security strategy that is about authorizing user ID and roles dynamically and conducting real-time mapping via agent or proxy technologies</i>	<i>Systematic framework that is based on the Secure Sockets Layer Virtual Private Network (SSL-VPN) for improving security management.</i>
3.	<i>Toward Ubiquitous Healthcare Services With a Novel Efficient Cloud Platform</i>	2013	C. He X. Fan Y. Li	<i>In this paper architecture of the private cloud platform associated with the technologies such as load balance and cloud storage</i>	<i>The issues about high concurrent requests in ubiquitous healthcare service and dispose of tasks.</i>
4.	<i>An improved tree approach for the reliability analysis of supply chain collaborative network</i>	2012	C. Lam and W. Ip	<i>Degree of reliability in the collaborative network can increase the competitiveness and performance of an entire supply chain</i>	<i>Improved spanning tree algorithm and present a case study of a supply chain used in lamp production to illustrate the application of the proposed approach.</i>
5.	<i>A real-time data Distribution service for cyber-physical systems</i>	2012	W. Kang K.Kapitanova	<i>In this paper novel information-centric approach for timely, secure real-time data services in Cyber-physical systems.</i>	<i>Enhance the efficiency of sensing, while improving timeliness and security</i>

#### IV. SYSTEM ARCHITECTURE

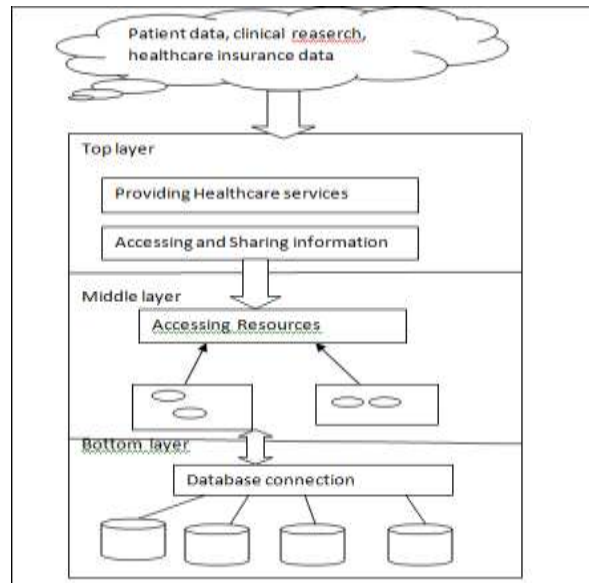


Fig1: System architecture of Emergency Medical Services.

This is the architecture of data management system which provides three layers and cloud which is having a large amount of data. Above top layer, it contains all data for e.g. patient data, clinic data, health insurance data, doctors data.

The first layer is a Top layer which contains the information about services & accessing and sharing the information of clinic and healthcare services by doctors. Business layer explains the logic of business activities and controls the data accessing. It sends the request of data accessing through the interface by Restful Web services to the resource management layer.

The second layer is a Middle layer which involves controls over these sources. It includes the controls on resources which resources have to be shared or which not. Resource layer is the key component for data accessing control in heterogeneous data application environment. The required data might be stored in different tenant databases and different formats. In resource layer, data are declared as resources, so that the resource control mechanism is capable of facilitating, retrieving, and accessing. Resource accessing control mechanism interprets user's request of data accessing and convert that to tasks of resource retrieving from multitenant.

The last layer is a Bottom layer which contains multi-holder databases and that are distributed databases which provide the databases connection. Database connecting layer fetches data from shared and isolated databases. Databases in different hospitals in the cloud platform should be isolated because of the organization information policy and patient privacy. Meanwhile, during healthcare servicing, with increasing demands of sharing data conveniently and efficiently, shared databases are designed to store common data definition for data accessing.

#### V. SYSTEM FLOW

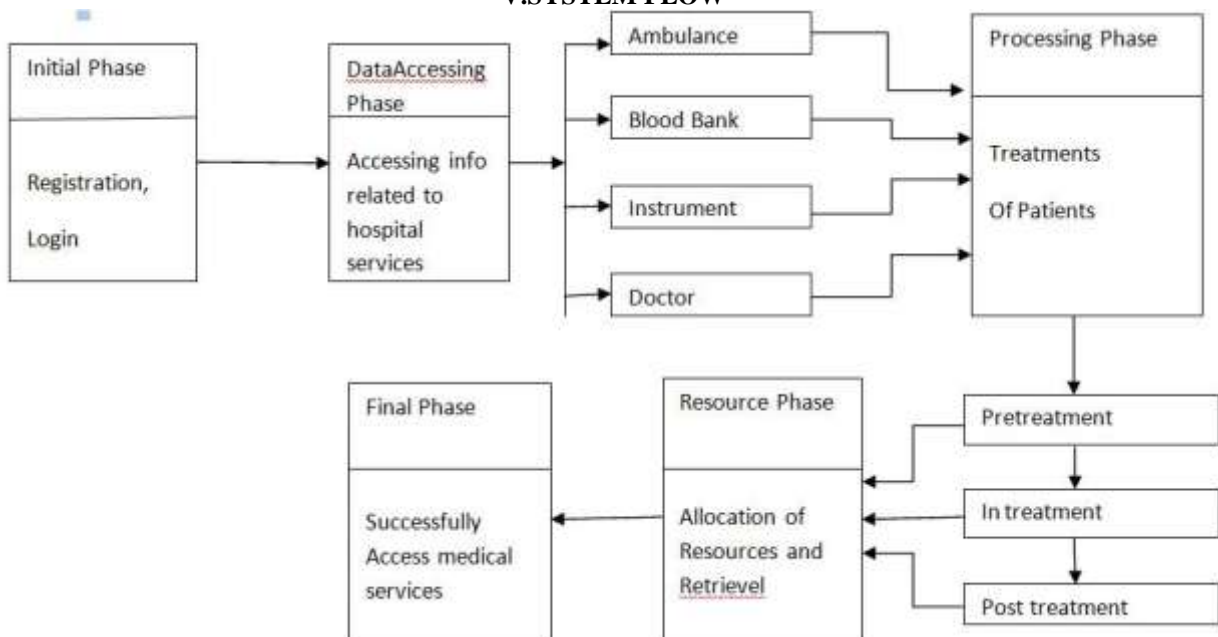


Fig2: System Flow.

**1) Initial Phase:**

The initial phase is the first stage of system flow. In initial phase user done with the registration process. After registration user must have complete with login process for accessing medical services. If you register, do not forget your password or your user name. If you are prone to forgetting these, make sure you enter your email address as part of signing up, so you can have a new password sent to you if you forget your current one. Only registered users are allowed to access medical services. Logging out of a computer when leaving it is a common security practice, preventing unauthorized users from tampering with it. There are also people who choose to have a password-protected screensaver set to activate after some period of inactivity, requiring the user to re-enter his or her login credentials to unlock the screensaver and gain access to the system. There can be different methods of logging in that may be via image, fingerprints, eye scan, password (oral or textual input), etc.

**2) Data Accessing Phase:**

The second phase is Data accessing phase where we can access data related to hospital services. The user can access data of Ambulance, Instruments, Blood Bank, Operation rooms, Doctors. A data access layer (DAL) in computer software, is a **layer** of a computer program which provides simplified access to data stored in persistent storage of some kind, such as an entity-relational database.

**3) Processing Phase:**

The third phase is processing phase in this phase actual treatment process is shown. There are three parts for the treatment which are Pre-treatment, In-treatment & Post-treatment.

Healthcare service is a dynamic process that mainly includes pretreatment processing, in-treatment processing, and post-treatment processing, as shown in Fig.

In healthcare servicing activities include not only within hospitals but also out of hospitals such as medicine and equipment supplying and insurance document processing. Diverse departments and different kinds of patients, professional staff, physicians, and doctors are involved in the entire healthcare serving process. Doctors need to access patient data to know medicine-taking history, and these kinds of data can be stored in a distributed manner. It may also be needed to access data from the equipment to know busy/free working status and the location to obtain data.

**4) Resource Phase:**

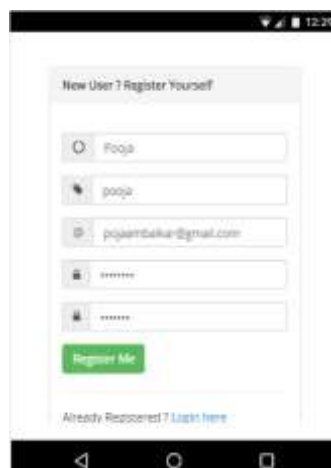
Forth phase is resource phase in this phase resource is allocated to the user for e.g. allocating ambulance, allocation of the blood bank, etc..., after that retrieving resource. The resource control mechanism facilitates the resource accessing request to be sent to database location and the database processing the request.

**5) Final Phase:**

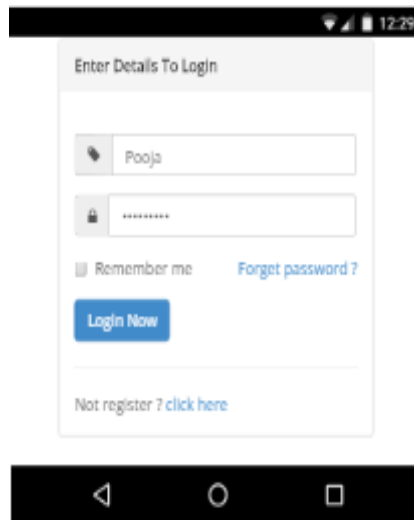
The fifth phase is the last phase of system flow. In this user successfully access all medial services.

## VI. IMPLEMENTATION

**Step 1:** First step is registration stage. The user must have to register for further procedure. It will give username and password.



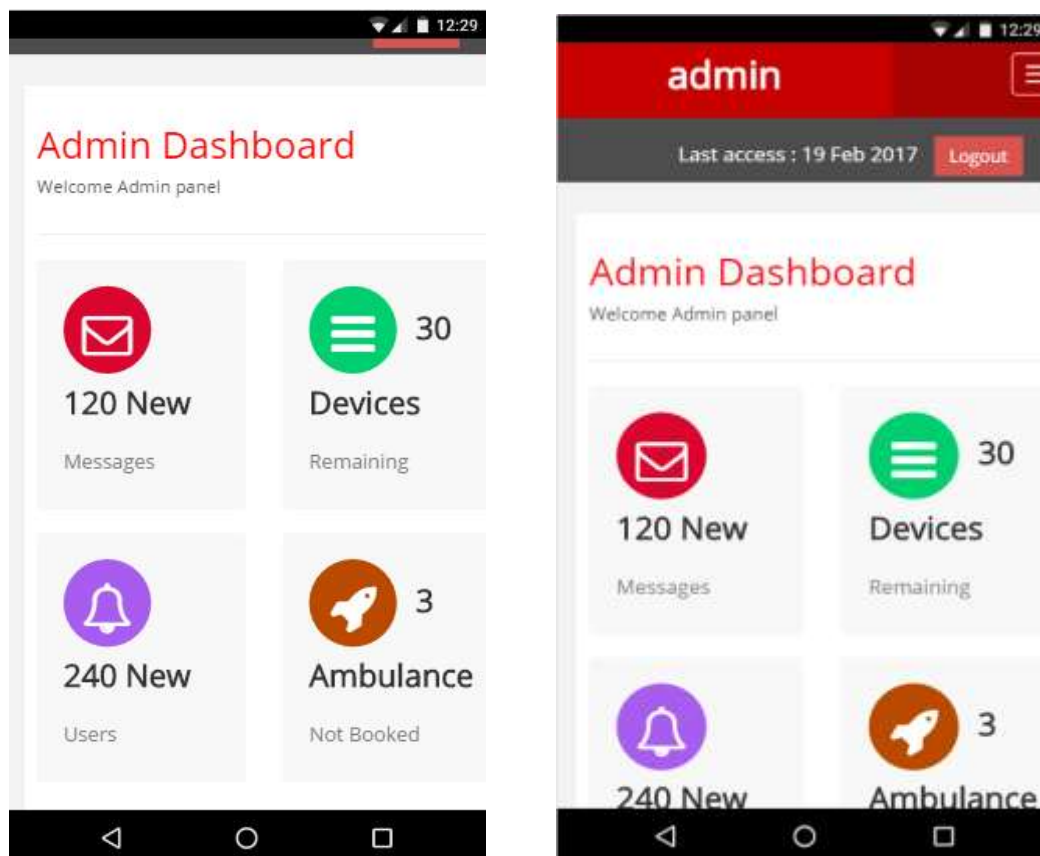
**Step 2:** Second step is for accessing medical services users have to login.



**Step 3:** In a Third step, it shows a list of services which we can access through this system.



**Step 4:** Fourth step is admin dashboard in this admin have all priorities to handle all the information regarding allocating and de-allocating all the devices.



**Step 5:** In this step there are list of devices which are available in particular hospital.



### CONCLUSION

The evaluation in IT the medical services are changing .In hospitals their doctors ,nurses as well as patients are using smart devices. By using smart devices medical information can be access. Here security is important thing. In this paper we are presenting medical significantly. It is useful for both patient and doctors. It delivering clinical information of patient at point of care to physicians in critical to increase the quality of healthcare services. In this paper we proposed medical services information based on patient status in hospital environment. Doctors can also access information through smart devices or mobile phones. Medical information is access dynamically.

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