Developing a Cloud Based Health Care Model For Patient Tracking Using WSN

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Abstract- *Wireless sensor networks are of signifying research area, because of its specific features and applications. WSN are used in various fields which includes military, environmental, home and other commercial applications. The enhancement of embedded computer and sensor technology, Wireless Sensor Networks (WSN), which integrates with hundreds and thousands of sensor nodes, enabled with sensing and relaying the collected information. This paper presents use of wireless sensor networks in the field of health care.*

Keywords- cloud wireless sensor networks, cloud WSN, Cloud based health care application, wsn health application, cloud based health

I. INTRODUCTION

Wireless sensor networks (WSN) represent smart environments, integrates thousands of sensors are deployed at different locations operating in various ways [1]. Wireless sensor network (WSN) is capable of sensing, processing and communicating which helps of command node to observe and react according to the condition in a particular environment like military [2]. .WSN protocols have self-organizing capability and another unique interesting feature of WSN's is sensing nodes cooperate with each other. Wireless Sensor nodes (WSN) have an in-built processor; raw data can be processed before transmission. These features enable wide range of applications of WSN's ranging from military, [3] event detection and vehicular telemetric .This paper enhanced the research issues in the field of health care, using WSNs.

RFID: Radio-Frequency Identification is the use of radio waves to read and capture information stored on a tag attached to an object. A tag can be read from up to several feet away and does not need to be within direct line-of-sight of the reader to be tracked[5][6].

What is RFID Tag: RFID tagging is an ID system that uses small radio frequency identification devices for identification and tracking purposes. An RFID tagging system includes the tag itself, a read/write device, and a host system application for data collection, processing, and transmission.

RFID methods: utilize radio waves to accomplish this. At a simple level, RFID systems consist of three components: an RFID tag or smart label, an RFID reader, and an antenna. RFID tags contain an integrated circuit and an antenna, which is used to transmit data to the RFID reader (also called an interrogator).

RFID Without Power: The signal is necessary to wake or activate the tag and is transmitted through the antenna. The signal itself is a form of energy that can be used to power the tag[7]. The transponder is the part of the RFID tag that converts that radio frequency into usable power, as well as sends and receives messages.

How does RFID tag work: As the name implies, passive tags wait for a signal from an RFID reader. [8]The reader sends energy to an antenna which converts that energy into an RF wave that is sent into the read zone. Once the tag is read within the read zone, the RFID tag's internal antenna draws in energy from the RF waves.

RFID Reader: A radio frequency identification reader (RFID reader) is a device used to gather information from an RFID tag, which is used to track individual objects. Radio waves are used to transfer data from the tag to a reader[9][10].

Cloud Computing: Cloud computing is the pool of resources , notion of cloud computing started from the realization of the fact that instead of investing in infrastructure, businesses may find it useful to rent the infrastructure and sometimes the needed software to run their applications. One major advantage of cloud computing is its scalable access to computing resources. With cloud computing developers do not need large capital outlays in hardware to deploy their service for internet applications and services. Keeping the noble benefit of cloud computing, the idea of Vehicular Cloud (V-Cloud) comes into focus [4]

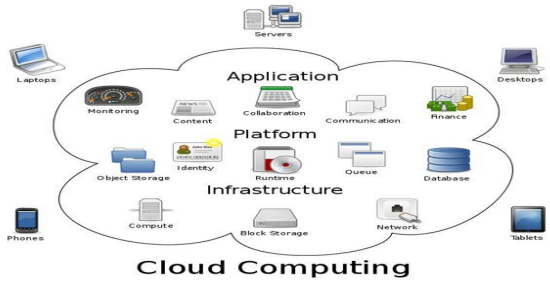

Fig 1: Cloud computing

II. PROPOSED MODEL

Health care governance as a service is a cloud based technology that integrated with wireless sensor networks to develop safety parameters in the field of health care system. The key important features are; establishing Health Care Governance as a service (HCGaaS) Initially country based health care cloud (HCGaaS) is established. Every citizen of the country use to get enabled with HCGaaS, unique RFID chip is issued to every Health care cloud user. Every hospital in the country linked with HCGaaS and data base will be maintained.

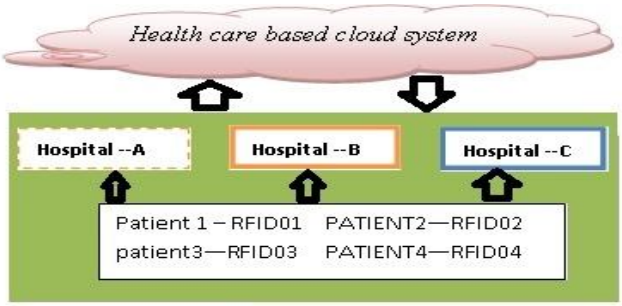

Fig:2(HCGaaS)

Working Procedure of (HCGaaS) Heath Care Governance as a Service:

- **HCGaaS** is a application for developing secure data of every patient.
- The above figure indicates that health care governance as a service; in this all the patients are integrated with unique (Radio frequency identification) RFID CHIP, the chip is inserted at upper laver of the skin.
- Every hospital in the country is integrated with (HCGaaS) cloud Database. For example: if patient "1" reaches to Hospital"A" the treatment and complete information will be updated to **HCGaaS** by hospital "A" likewise same scenario will be followed by Hospital"B & C..etc"
- RFID reader will read the information of RFID CHIP. For example: if patient"1" reaches to the hospital"B" the doctor uses RFID reader to get previous information of Patient"1" for better diagnosis.

III. CONCLUSION

In this paper we enhanced the cloud based health care system integrating with wireless sensor networks, by developing this features it will be helpful to doctors for treatment purpose without patient knowledge. So much research has to be done on this work to develop better features.

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