

## EMR using RFID Technology

Saad Jamadar<sup>1</sup>, Viraj Jadhav<sup>2</sup>, Panthilraj Patil<sup>3</sup>, Naresh Kamble<sup>4</sup>

<sup>1,2,3</sup>Students in Dept. of Computer Science and Engineering, Sanjay Ghodawat Polytechnic, Maharashtra, India

<sup>4</sup>Lecturer in Dept. of Computer Science and Engineering, Sanjay Ghodawat Polytechnic, Maharashtra, India

\*\*\*

**Abstract** -The aim of our proposed project is to introduce a rfid (radio frequency identification) based system for patients' identification and observation. The type of system we propose is intentional to reduce mistakes in medical field and to improve the patient's complete safety and optimize the quality of medical services in hospitals. By using the rfid technology the patients can be easily identified, so the risk of managing wrong medicament in case of an emergency will be highly minimized. This can reduce time which is used for manual paperwork in hospital. In our system rfid technology is integrated with emr. Previous medical history can be easily available using emr with which they can be accessed by healthcare professionals. If the ability to exchange records between direct emr systems were perfected it would facilitate the co-ordination of health care delivery in non-affiliated health care facilities. In addition, data from an electronic system can be used anonymously for statistical reporting in matters such as quality improvement resource management and public health communicable disease surveillance. Another aspect of this system is that each and every report/record can be analyzed easily. A high-level security is used to avoid anonymous entry to system.

**Key Words:** EMR, RFID

### 1. INTRODUCTION

Radio frequency identification (rfid) it is a rapid developing technology that uses radio waves for data gather and transfer. Currently rfid technology is being used in supply chain management to track goods in warehouses. Rfid improves cost-saving measures and improve efficiency in a range of enterprises. In last decade its use and benefits have been found in the healthcare sector. Rfid has the ability to capture data automatically without human intervention. Compared to barcode scanning rfid do not require any line-of-sight for readers to gather information from tags. Rfid system typically consists of a tag, a reader and a database software application or EMR. Tag can be active or passive. An active tag has its own energy source while a passive tag uses the transponder reader as its energy source. The transponder reader uses radio frequency signals to obtain data from the tag including the identification values information encrypted in the tag and its location. Data collected from the transponder reader is then sent through a network to a database installed on a server. Users can then retrieve the data from database using an application installed on the server.

### 2. Existing System

The current system in medical field has a lot of manual paper job. To maintain the records of patients and retrieve them manually is a not efficient task. With the increase in data, it will become a massive task to maintain the data of patients. Requires large quantities of file cabinets, which are huge and require quite a lot of space, which can be used for storing records of previous details. The retrieval of records of previously registered patients will be a difficult task. Lack of security for the records, anyone access the records of your system. If someone want to check the details of the available doctors the previous system does not provide any necessary detail of this type. Around the world, all are converting the billions of pages of paper records associated with patients to electronic documents that can accessed electronically. Passive radio frequency identification technology is an option for tracking physical documents, so it could also be viable for tracking older records not worth converting to images. RFID Technology is being used to track the original files of patient in case as a backup.

### 3. Proposed System

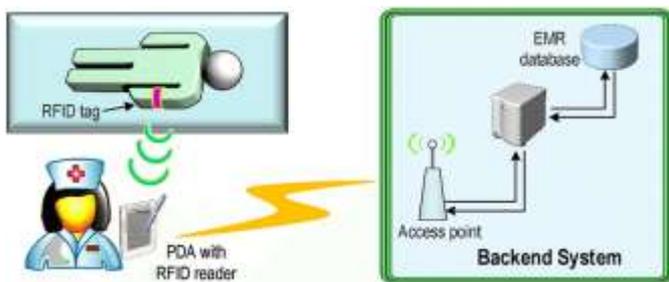
The purposed type of system is to make available patient's vital details available easily with risk free. By making patient's analysis digitized along with providing as much as details to doctors This Technology of emr can be used in emergency care in order to identify patients and to achieve real time information. The access to medical information is authorized by an electronic memory-based chip (RFID tag) or Card, allows patient information storage. We show Basic purpose of RFID architecture and data model which is designed for Collecting and Presenting medical significant information to the emergency care Doctors. Also, in this model we show the benefits of using emr technology against paper files.

#### 3.1. Advantages of Proposed System

1. The space saving benefit of a digital records environment.
2. Faster care and decision-making responses from assigned medical professionals.
3. The ability to quickly transfer patient data from one department to the next is a huge asset
4. Advanced e-Prescribing and clinical documentation capabilities

#### 4. Objective

Today's Medical Field's aim is in increasing the quality and efficiency of patient identification and monitoring procedures. There are lot of paperwork needed to fill by the hospital which reduce efficiency. Many health problems occur to due important patients' vital information is not present, The Emr will solve the above-mentioned problem which can provide instant information to doctors which can help them easily. The next step beyond the EMR is to connect and provide medical information to primary care physicians, medical and surgery specialists, anesthesiologists, nurses, assisted-living staff, patients themselves, patient's family and so on. By Integrating RFID Technology to EMR it again helps to increase the accuracy of patient identification and monitor patient's health.



**Fig -1:** Overview of System

#### 5. CONCLUSION

The aim of our project is to increase the efficiency of medical services by using emr and rfid technology. By this technology the vital patient's information can be easily accessed whenever needed. This can help the patient in an emergency case. Which can help medical Professionals to make fast decision which can help to improve patient's health or to improve medical service Efficiency. Emr can help in providing all the previous information of patient. By Integrating RFID tag / Card to Emr it can help in patients Identification which can reduce the medical mistakes.

#### REFERENCES

- [1] Arabe K (2002) , "The State of RFID: Move Over Bar Codes. Industrial Market Trends.
- [2] Paul RN <http://www.instructables.com/id/Access-ControlUsing-RFIDRC522-and-Atmega32-MCU/>.
- [3] Aguilar A (2007) "A Patient Identification System using RFID and IEEE 802.11 Wireless Networks, Master of Science Thesis Stockholm, Sweden.
- [4] A. Lahtela, "A short overview of the RFID technology in healthcare," in 4th International Conference on Systems and Networks Communications, 2009, pp. 165-169
- [5] B. S. Ashar and A. Ferriter, "Radiofrequency Identification Technology in Health Care: Benefits and Potential Risks," The Journal of American Medical Association (JAMA), vol. 298, pp. 2305-2307, 200
- [6] I. K. Mun, A. B. Kantrowitz, P. W. Carmel, K. P. Mason, and D. W. Engels, "Active RFID system augmented with 2D barcode for asset management in a hospital setting," in IEEE International Conference on RFID, 2007, pp. 205-211.
- [7] B. Chowdhury and R. Khosla, "RFID-based Hospital Real-time Patient Management System," in 6th IEEE International Conference on Computer and Information Science (ICIS), 2007.
- [8] M. McGee, "Health-care I.T. has a new face," in Information Week. vol. 988:16, 2004