

Cloud-Based Patient Health Record Tracking Web Development

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Abstract: *In the financial year 2021 there were 4.3 billion outpatient consultations in the sector of doctor consultation and pharma prescription respectively. Outpatient consultations for diagnostic (OPD) test prescription stand at 1.5 billion in the same financial year. In the 1960s, Larry Weed, an American physician, researcher, educator, and entrepreneur, developed the Problem Oriented Medical Record. With this, Weed introduced the idea of electronically recording and maintaining patient data. Weed may be identified as the person who invented electronic health records themselves. This information provided on elationhealth.com by Anthony Pappas on 28th January, 2020. This paper gives an idea about current healthcare system in India. Having preview about previous projects on current primary health care system. Some information describes about global work done on Electronic Medical Records generated with cloud-based system. This database is effectual to mankind to store, share, and manage the data.*

Keywords: EMR (Electronic Medical Record), HER (Electronic Health Record), HTML (Hyper Text Markup Language), CSS (Cascading Style Sheet), JS (JAVA Script).

I. INTRODUCTION

Based on 2018 record frequently visiting primary care physician in India raised by 20% than previous year [Times Of India]. From April to May 2018 percentage of people's visiting hospitals more than 3 times is 22%. There are four main categories of biomedical waste: Infectious, Hazardous, Radioactive, General.

In General Waste this includes paper, plastic, liquid, etc which is used in regular life. but it effects on major scale. In general waste significant role was played by papers and plastic products. Traditionally, paper is the primary way to generate report. The currently used paper is insufficient and ineffective and contains high maintenance cost.

Comparatively Electronic Based Health Record system is very user friendly. Computer Based Medical Record was invented in 1990 by institute of medicine. Standard framework for EMR designed by government of India in September 2013 and published EMR standards [1].

II. INDIAN HEALTHCARE SYSTEM

India is an average middle-income country with a life's duration of 69.99 years at birth and having population 1.38 billion. Only 2.1 per cent of total Indian GDP is spent on healthcare system and its related fields. Indian population increased by 160 million people from 2011 to 2020 which is approximately 13.25 percentage. In compare with GDP, it only increases by 0.39 percentage.

India has a 43,486 in total of private hospitals. Those private hospitals equipped with 1.18 million beds, 59,264 ICUs, and 29,641 ventilators. on the contrary there are 25,778 hospitals are available in public or government sector. It equipped with 713,986 beds, 35,700 ICUs, and 17,500 Ventilators. **Total private infrastructure acquired for nearly 62% of all of**

2.1 India's Healthcare Infrastructure[2].

India is top-tier in the number of road accident deaths beyond the worldwide. Overall accident cases all over India was 4,37,396 were reported during 2019. In 2018 number of cases in road accident is 4,45,514. Road accident cases decreased in 2019 in compare with 2018 cases[3].

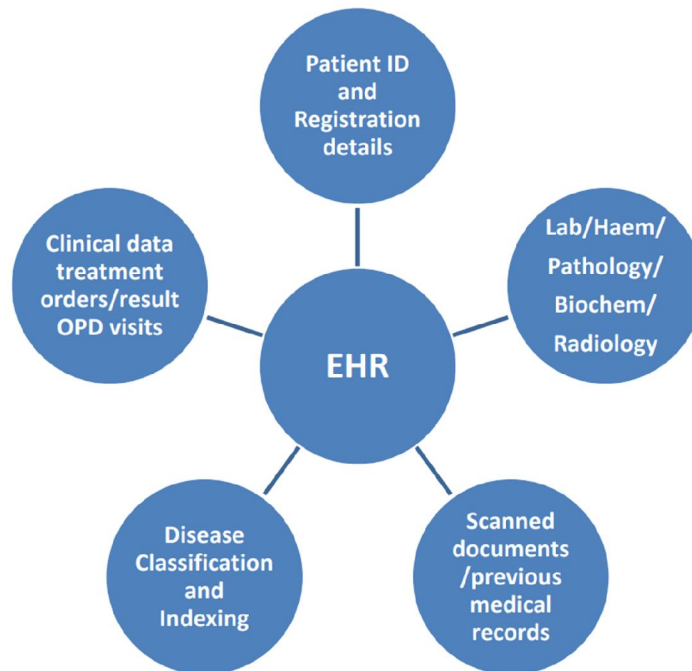
Nowadays government is work on healthcare department, Indian government is started to provide all citizens can get free of cost inpatient care and outpatient care. For low-income people, the government recently launched the tax-financed National Health Protection Schemes like Ayushman Bharat-Pradhan Mantri Jan Arogya Yojana, or PM-JAY, which permit them to also get cashless secondary and tertiary care at private facilities.

By Government of India introduced a standard maintenance uniform system for EHR (Electronic Health Record) or EMR (Electronic Medical Record). Board of experts establish to develop Electronic Medical Record standards for implementation of EMR system all over country. These standards first introduced in 2013, now recently in 2016 they introduced with addition and improved standards which is suitable for Indian healthcare system. This standard was finalised and approved by the govt. of India. All described information with respect to Electronic Health Record (EHR) Standards – 2016, Electronic Health Record (EHR) Standards – 2013 is available on nhp.gov.in.

III. RELATED WORK

EMR containing real time, unique, reduction in medication error and it is done for each and every patient individually and generate data for her or his like medical record, medical examination, diagnosis, laboratory result, allergies, etc in digital format. In cloud based Electronic Medical Record this all-generated data is stored securely on cloud database.

The records or information about medical records of his or her is uploaded electronically on EMR/EHR sites by healthcare providers. In figure 1 A Simple Medical Health Record System is shown below (World Health Organization and Regional Office for the Western Pacific 2006). This figure shows us in some detailed form which blocks are included in EMR/EHR system.



Source: EHR: A Manual for Developing Countries by WHO

In this project we are using web development for EMR system. For generating EMR/HER system based on web development we used several languages like HTML. HTML (Hyper Text Markup Language), it is standard markup language which is used to design web pages. HTML describes standard structure of web page. This is used for making document design and this design is displayed on web browser.

HTML can be assisted by some technologies like CSS (Cascading Style Sheet). In this project we are using CSS to gives a proper structure and good flow to our site. It can be controlled by scripting languages such as JavaScript.

For this project we are using “Brackets” it is an open-source coder. It helps us to make web browsing site with great support of scripting language as we mentioned earlier. Brackets text editor provides good experience while working on front-end part. Any other files, extension is easy to apply on the site without any issue.

In this website, our initial page is home page which are mainly divided into three sections. First is header section, In header section we include header of the site. Second is menu section this section contents are home, sign-in, contact, about. In last section we add google map for quick search of nearby hospital. Second web page is sign in page where we provide access for both doctors as well as patients. By sign in doctors can access the patient’s data like their previous treatments, reports, etc. doctor’s will also add new patients on site. Other side through patient’s login, patient can search hospitals via city name. also, patient applied for consultation through their email id. Currently present sites in the market based on EMR are just work for their selective hospitals. But this site will work globally.

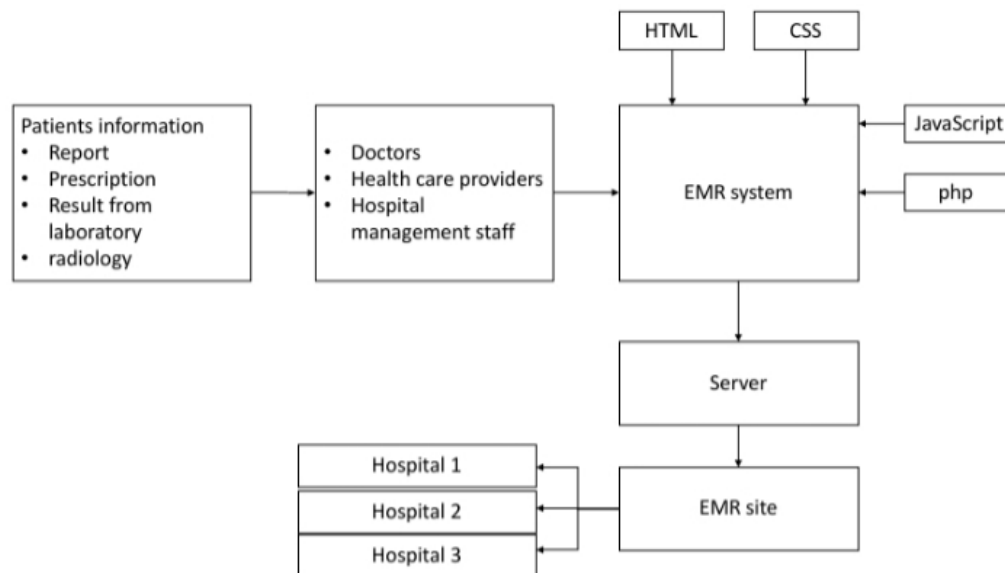


Figure 2: Block Diagram

With the help of block diagram, we get good idea of global EMR system by using web development and their technologies. For this project we are using cloud server over traditional server.

- Benefits of cloud sever: 1] Cost effective
2] Increased security
3] Backup and disaster recovery, etc.

IV. DATABASE

For cloud database purpose we are using “Airtable” platform. Airtable provides user free experience on their base system where we can add different types of database views. It is a very cost effective and secured base. We can add also different types of fields like mail, date, single select, multi-select, etc; there is one of the useful field’s is “formula” field, with the help of formula field you can add conditions to the field. By using form view we can perform multiple tasks, where we download or upload files easily. Airtable provides their mini extension technology for additional features. Airtable provide multiple hosting feature also. For those reasons we are decided to use airtable as a database of our project.

V. CONCLUSION

Computer-based patient records and the systems in which they function are becoming an essential technology for health care in part because the information management challenges faced by health care professionals are increasing day by day. Technological progress makes it possible for EHR systems to provide total, cost-effective access to more complete, accurate patient care data and to offer improved performance and enhanced functions that can be used to meet those information management challenges.

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