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A Survey On Creating Digital Health Ecosystem with Lifewellness Portal Including Hospital and Insurance Company with Cloud Computing and Artificial Intelligence

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ABSTRACT

Nowadays, the development of e-health concept is offering various aspects. In this paper, we present a novel website portal with the help of cloud computing. Manage all medical data through cloud server. This website offers the ergonomic and multi-functions opportunity for an intelligent hospital and insurance company also, based on medical history, through the portal maintain the patient's records, real time treatment monitoring through this portal and for insurance claim to reimbursed for the cost of their medical treatment. Also with the help of AI (virtual) assist can help healthcare providers with a variety of tasks, such as reviewing patient documents, medical notes.

Keywords — E-Healthcare, Artificial Intelligence (AI), Cloud Computing, Patient Medical Data, Insurance Claim, Website Portal, SQL Database, Centralized Health Data.

I. INTRODUCTION

A web-based e-health platform allows users to access healthcare services from anywhere with an internet connection, eliminating the need for physical visits to healthcare facilities. Patients can schedule appointments, communicate with healthcare providers, and access their medical records online at their own convenience. [1] The cloud computing platform provides the infrastructure and services needed to deploy and run the e-healthcare management system. This may include computing resources, storage, networking, and database services. The cloud computing platform should be chosen based on the specific requirements of the e-healthcare management system, such as scalability, security, and compliance. [2] The service-oriented architecture (SOA) provides a framework for developing and deploying the e-healthcare management system as a collection of loosely coupled services. This makes the system more scalable and flexible, and allows for easier integration with other systems. [2] We cover different issues in healthcare as well as in insurance company, in hospitals to treat in accurate way based on the medical history of patient Doctor's easily identify which treatment option that most effective for

specific patient, which can lead to better outcome and higher quality of care using digital health ecosystem with Life Wellness. [3]

This approach can also reduce the risk of adverse reactions and unnecessary treatments, ultimately resulting in cost savings for patients. In chronic conditions, suchas diabetes, sugar, heart disease and COPD etc. by analysing medical data perfect action against that diseases at accurate time are so important to save the patient's life and give's the better treatment to patient. Digitalization with Life Wellness is a promising development in healthcare that has the potential to revolutionize the way we approach chronic diseases management.[4]

Also in our life wellness portal with help of artificial intelligence (AI) powered virtual assistant can help to patients through different tasks such as healthcare related information and support and answer the questions about medications and treatments. Also provides alert system through (AI) for appointment date and nearest locations of hospitals with the help of datasets (CSV) files which include locations of hospitals with address according to city.

In other way insurance claims are used for hospital patients to help them get reimbursed for the cost of their medical treatment. When a patient is admitted to the hospital, they will need to provide their insurance information to the hospital. The hospital will then submit a claim to the insurance company for reimbursement of the patient's expenses. At the time of review the claim and determine whether it is covered under the patient's policy as well as actual patient will suffer from that diseases or not to confirm, he will anonymously check the patient's detailed reports and personally visit to confirm.[5]

Insurance claims can be a complex process, using Life Wellness digital health ecosystem, to confirm the patient diseases related documents and all other reports etc. are helpful to review and reimburse the hospital for the cost of patient's treatment. It is essential for helping at insurance claim process.[6]

Also with the help of (AI) virtual assist those patients not well know about different medical policies also assist for different disease which medical policies is better for it or not and also provide different benefits like nearest insurance agents locations, how to apply for medical claim etc…

E-healthcare delivery with medical history is the use of electronic technologies to deliver healthcare services while also tracking and managing a patient's medical history.[7] Using cloud-based EHRs: Cloud-based EHRs provide healthcare providers with easy access to patient medical records from anywhere. This can help to improve the efficiency of patient care and reduce the need for duplicate tests and procedures[8]. As per this paper sensitive information can be protected using different algorithms of security and stored all data on cloud [9]. The experiments point towards the Genetic Algorithm with Hill Climbing as the best algorithm for this problem.[10]

II. LITERATURE SURVEY

1. A new web-based e-healthcare platform, Noura BACCAR, Ridha BOULAL-LEGUGE, 2014, it will offer different aspects it represents novel based architecture designed for e-healthcare based on wireless sensor network (WSN), wireless sensor network (WSN), wireless body area network (WBAN), remote sensing, optimizing different algorithms including security and data fusion and clustering, improving geolocation.
2. Design of e-healthcare management system based on the cloud and service-oriented architecture, Rasha Hameed, Omar Mohamad, Nicolae Tapus, 2015, it recommended a model for designing e-healthcare management system based on cloud computing and service-oriented architecture (SOA), cloud computing, (SOA), Electronic health record, SOAP, REST, RIA, Model can be incorporated with third party services like GPS, MAP and wireless sensor network.

3. Use of E-healthcare technology in healthcare environment: the role of RFID, Samaneh Madanian, 2016, it investigates impact of e-health technologies on the basis of healthcare industries with main focus on advantages of using RFID technology in healthcare, Radio frequency identification (RFID), HER, radio frequency identification usage in healthcare in case of privacy and security by considering (RFID) advantages and bearing in mind beneficial results the healthcare achieved through its implementation.
4. Patient health management system using e-healthcare monitoring architecture, Madhuri Baswa, R Karthik, P B Natrajan, K Jyothi B Annapurna, 2017, it represents the design and implementations of patients health monitoring architecture using GSM and main focus on developing model that can facilitate doctor through tele monitoring, Wireless sensor network (WSN), Mobile phone, GSM, Further research in this perspective framework can change the way to take gander at remote wellbeing observing administration.
5. Online healthcare, Fayezah Anjum, Saleh Shoaib, Abdullah Hossain, Mohammad Khan, 2018, Provide an efficient way of storing the information electronically, faster communication mechanism between patient and doctor and also ensures better security for uses, SQL Server, PHP, XAMPP/WAMP (Local Server), In future it was the time constraint and access to limited resources.
6. E-healthcare Delivery solution, Priyata Mukhopadhyay, Himadri Roy, Nandini Mukherjee, 2019, Proper healthcare delivery in rural area, in that developed a modular, easy re-configurable, touch screen based remote health care application for delivering primary health care application for delivering primary health care in an efficient manner in the rural areas, SMS based health care, KiORH (Kiosk Operated Rural Healthcare) application, Focus ondeliveringprimaryhealthcareservices efficientlyinrural areas.Provideaccess toessentialmedical servicesthroughthe application.
7. Improving the Efficiency of E-Healthcare System Based on Cloud, Inderpreet Singh, Deepak Kumar, Sunil Khatri, 2019, Its recommended framework has been enhanced and incorporates different divisions to create healthcare service framework, Cloud computing, REST, RIA, Biometric Authentication agent, SOA, offer support for health education by providing reliable information, tips, and resources within the application. Provide access to essential medical services through the application.
8. Smart Healthcare Making Medical Care More Intelligent, Shuo Tian, Wenbo Yang, Jehane Michael, Peng Wang, Wei Huang, 2019, It review the list of keys technologies that supports smart healthcare in some important field, IOT, mobile internet, cloud computing, microelectronics, AI, RFID, some improvements depend only on technological progress also on joint effort of patients, doctors, health institutions and technology companies.
9. Centralized and Automated Healthcare System an Essential Smart Application Post Covid-19, Rama Moorthy, Sahana Udupa, Samanvitha Bhagavath, Shreesha, Varun Rao, 2020, Fast track process for central repository (cloud) based system to maintained electronic health record of patients, electronic healthrecord(EHR),HSM, AudioSteganography,NFCSystem, Ageing factor of elderly citizens, patients, Android application testing centre easier.
10. Development of Smart E-Health System for Covid-19 Pandemic, Mohammad Khan, Rezaul–Karim, 2020, Realtime online doctor – patient interaction and prescription using web and app-based telecommunication system to increase popularity of online system, Django channel, Bootstrap4, API's Open Tok, Twilio, WebRTC Django Rest framework, Online order medicine through web app from doctor by staying at home.
11. Big Data Analytics in Healthcare a Systematic Literature Review and Roadmap for Practical Implementation, Sohail Imran, Tariq Morshed, Timos Sellis, 2021, It represents a comprehensive roadmap to derive insights from BDA in the healthcare domain, based on the results of systematic literature review,

Big Data Analytics (BDA), NOSQL Data, Big Data Architecture, roadmap, Develop an architecture the particular requirements of given domain need to be initially analysed and then technology stack can be selected based on these requirements by big data domain experts.

12. The Internet of Things for Healthcare Applications Selected Cases and Challenges, Rehab Rayna, Christos Tsagkaris, Romash Iryan, 2021, It recommended the basics of IOT in the health system highlights the IOT technologies that apply newly evolved in personalized health and also sophisticated IOT derived techniques, Electronic Health Record (HER), cloud computing wireless technologies, IOT and AI technologies, more research on AI and IOT with various aspects of their development, implementation and use is encouraged as way of future healthcare.
13. The Role of Ayushman Bharat Heth Account in Telehealth a New Frontier of Smart Healthcare Delivery in India, Sushila Paliwal, Suraiya Parveen, Ompal Singh, Afshar Alam, Jawed Ahmed, 2023, Interdisciplinary approach for implementation for (ABHA) it's AI and telehealth in India to provide remote healthcare services, Telehealth, SDG3, ABHA, Centralized Health Data, AI, detecting patterns and trends in the prevalence of diseases by using AI.

III.LIMITATIONS OF EXISTING WORK

- **Data security and privacy concerns:** One of the major limitations of the digital health ecosystem.[11]
- **Integration challenges:** Integrating different healthcare systems, such as hospitals, insurance companies, and wellness portals, can be complex and challenging.[12]
- **Internet connectivity:** Since cloud computing plays a crucial role in the digital health ecosystem, a reliable internet connection is essential for accessing medical records or utilizing various healthcare services.[13]
- **Technical issues and system failures:** Like any other technology-driven system, digital health ecosystems may disturb healthcare operations and affect patient care if not resolved promptly.[14]
- **Legal and regulatory challenges:** The use of cloud computing in the healthcare industry raises legal concerns regarding data ownership rights.[15]
- **Limited data availability:** AI relies heavily on data to learn and make accurate predictions or diagnoses.[16]
- **Inability to replace human interaction:**While AI can assist with certain tasks in digital healthcare systems, it cannot fully replace the importance of human interaction between patients and healthcare providers. The empathetic aspect of care is crucial but cannot be replicated by machines alone.[17]
- Cloud Computing is a new technology that allows access to applications as utilities over the internet. Cloud computing environment provides a great flexibility and availability of computing resources at a lower cost. However, it brings new security concerns mainly when users understand exactly how a process is running.[18]

IV.CONCLUSION

India's vast population and expansive geographical area make it difficult for individuals living remotely to avail themselves of suitable healthcare services quickly. Where the life wellness will provide a feasible solution by

enabling virtual consultations, diagnosis, and accurate and specific treatment. Also it provides (AI) virtual assist throughout patients with personalized healthcare information and answers to common medical questions and alert system for better assist like human.

Insurance claims can be a complex process, using Life Wellness digital health ecosystem, for an agent also useful it will reduce hard work and go through the smart work seamlessly verify the patient's reports and help to get reimbursed for the cost of medical treatment.

In future, we plan to upgrade the system and incorporate other functionalities related to health care. There is also another scope to make this project into a complete health care solution, if we could incorporate this existing web application to hardware device. Then the users could directly take input from the device such as blood sugar machine, and record it in the database via the mobile application. With the help of (AI) also improved diagnostics and more accuracy, personalized treatment plans, virtual health assist, mental health support…

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