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Development Of A Healthcare Information System

Harish Jaiswal[1], Sarvaree Bano[2], Veena Kumar[3]
[1]Assistant Professor, Department of Pharmacy, Kalinga University, Raipur, India. ku.harishjaiswal@kalingauniversity.ac.in, 0009-0000-8183-4944
[2]Assistant Professor, Department of Chemistry, Kalinga University, Raipur, India.
[3]Professor, New Delhi Institute of Management, New Delhi, India., E-mail: veena.kumar@ndimdelhi.org, https://orcid.org/0009-0003-8698-9787

Abstract
The data that service providers typically gather and report should not be the only thing included in an evaluation of each nation's health information systems (HISs). Studying the experiences of other countries worldwide, particularly those with geographical, cultural, political, and economic linkages, is the first step in any national attempt in this regard. Digital technology has transformed a number of industries, including retail, finance, and investing. Digital technology greatly simplified a number of difficult tasks. There is a lot of promise for digital health in healthcare. Wireless gadgets, cutting-edge technology, and novel approaches like big data are increasing its possibilities. India needs an alternate health delivery paradigm due to the growing number of patients spread across rural and urban areas with limited resources. It's possible that digital health services will become that alternative delivery method. The medical signals and parameters are displayed on the system using a high-quality graphical user interface. The medical professional can monitor the patient's status from a distance thanks to the portable system's camera interface.
Keywords: *HIS, growing countries, profitability, organizational*

1. INTRODUCTION

HIS is not just about gathering data; it is also about enhancing the performance of the health system. Because of this, there has been a lot of effort and innovation in the development of HISs during the past 10 years, driven by advancements in new technologies [1]. To meet the increasing demand for more efficacy and efficiency in health care, a large number of public and private organizations in both developed and developing countries have resorted to Health Information Management Systems (HIMs) [2]. In many underdeveloped countries, medical professionals use information systems that include registration forms that gather patient names, addresses, and disease-related information. Weekly or monthly, these forms are filled out and turned in with little to no feedback [9]. Furthermore, because the data collected is frequently inaccurate, incomplete, irrelevant, and out of alignment with the objectives of health staff responsibilities and obligations, it is typically insufficient for management decision-making. A low-cost, user-friendly system that people may bring with them for routine physiological parameter monitoring can be manufactured and marketed. It can also be installed in primary healthcare facilities in rural and suburban regions to measure patient information. A specialist physician in an urban region can receive the measured data in real-time for expert guidance, and the expert can access the historical data as needed. Additional sensors could be added to the system as an expansion of the work. By adding a mechanism for paying doctors, the system can be evolved into a comprehensive medical kiosk that can be installed anywhere in the world to provide access to medical facilities [3]. By using machine learning methods, the huge data produced by more of these systems spread across many locations can be used to provide efficient medical treatment. The system can be enhanced with artificial intelligence to analyze the parameters more thoroughly and identify potential illnesses for high-quality medical care.

2. LITERATURE REVIEW

India, which has the most smartphone users, also has the most Google searches for medical apps, indicating that people there are interested in these kinds of apps [12]. Despite the fact that consumers have begun investigating different digital health services, there are still a number of obstacles to managing these services, including cost, a lack of scientific proof, data security, and legal restrictions [10]. However, India has the lowest ratio of healthcare workers to the total population, according to a PwC analysis [8]. Adopting digital technology includes more anxiety than just buying a product or service, even though

smartphone use has become widespread and consumers are accustomed to scenarios involving digital health care [4]. To put it another way, service information can pique consumers' curiosity in new technologies, but they need to take a few actions to embrace them [14]. There is a gap in the literature that reflects the lack of research on hierarchy-based models in understanding adoption of digital health services and factors affecting intention to adopt such services, particularly in India [5], even though the body of knowledge offers some insights about the users and various factors impacting digital health services [15]. Therefore, this study's primary goal is to investigate the adoption process using the integrated hierarchical bases of the Technology Acceptance Model (TAM) and the Attention-Interest-Desire-Action (AIDA) model [6]. It will significantly advance our understanding of digital health if two ideas are combined with other determinants of consumer propensity to use digital health services. [11].

3. MATERIALS AND METHODS

It is considered essential to emphasize change management principles and the dedication of senior management to support these transitions for the effective adoption of the system [7]. Furthermore, a different study divided the potential and difficulties for a chronic mental health care information system's successful implementation into three groups: organizational, technical, and behavioral variables.

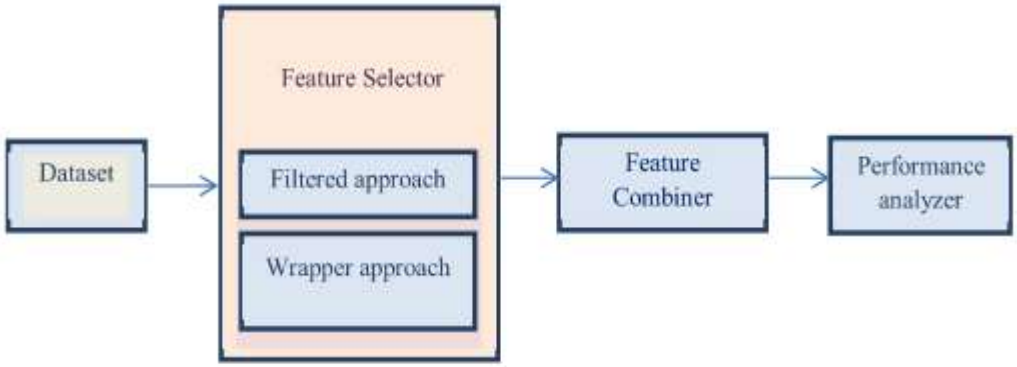

Figure 1: proposed architecture

The field of embedded systems is evolving ever since microcontrollers are introduced to the world. The combination of the microcontrollers/microprocessors, sensors, and actuators perform a wide variety of operations; hence they found their application almost everywhere in human life. With the advent of IoT technology, millions of embedded systems are connected to serve humans with countless novel applications. [13].

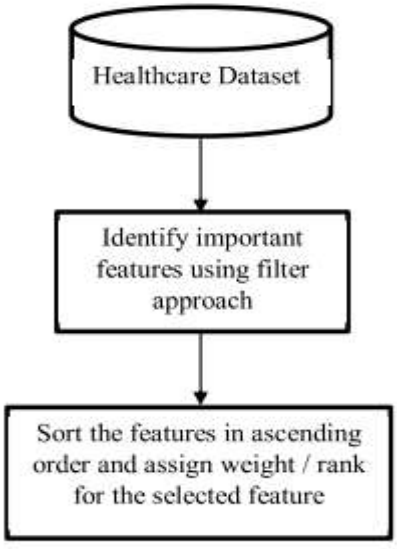

Figure 2: health information systems

Human, financial, legal, organizational, technical, and professional are the six categories into which the researcher divided the difficulties that come with HISs. Major challenges noted in this study include concerns about potential data loss, misconceptions and attitudes regarding the use of these systems, and the high costs of system setup and maintenance.

4. RESULT AND DISCUSSION

Following a thorough examination of the aforementioned databases, a total of 455 studies were identified. Duplicate articles were then eliminated, leaving 338 articles for additional review.

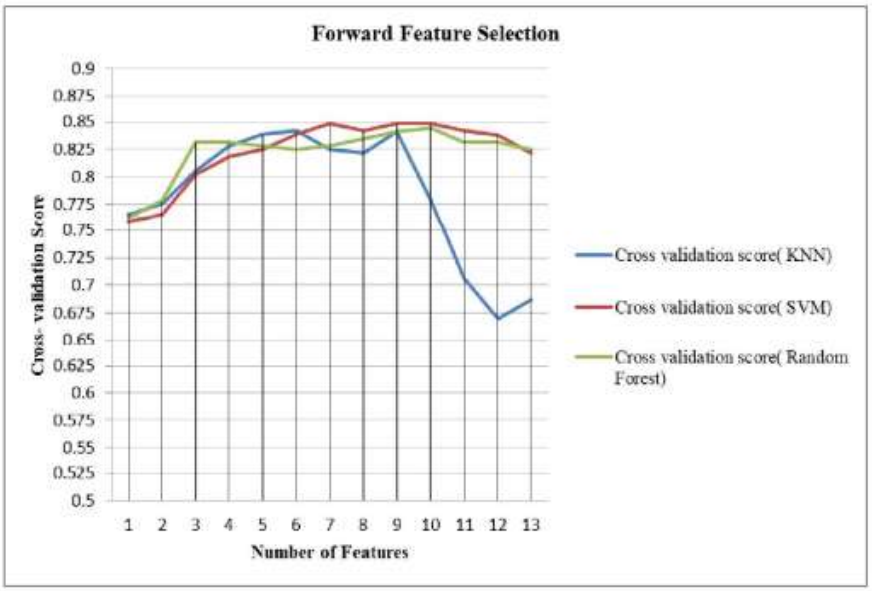

Figure 3: Selected number of features

The study looked into how human factors—more especially, hospital information system users—affect whether these technologies are successful or not. According to the findings, physicians play a significant part in how healthcare institutions use hospital information systems. Additionally, the study discovered that there are 14 elements that contribute to failure and 15 ones that lead to success for hospital information systems in sub-Saharan Africa. Among the failure causes that were found were unclear goals, poor management, a lack of training, and inadequate skills.

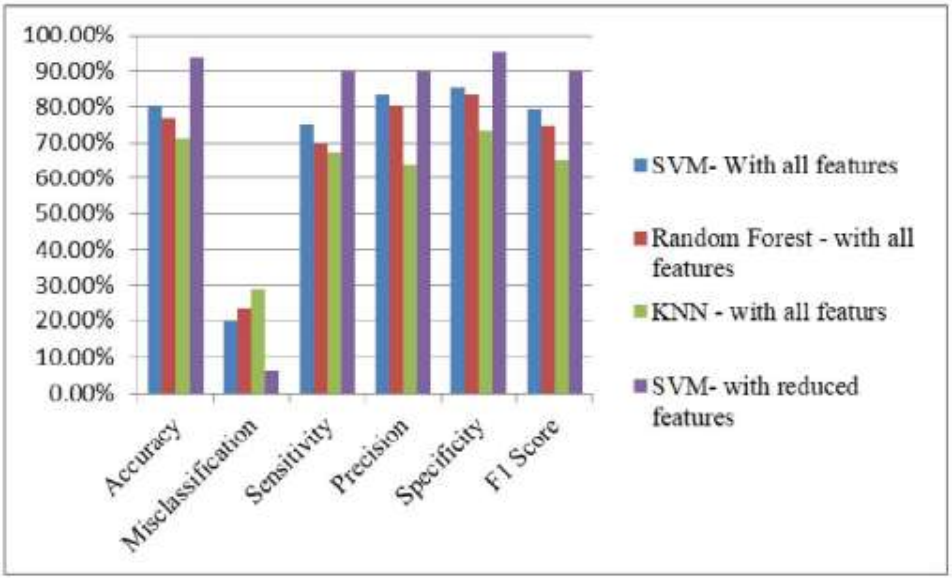

Figure 4: Performance analysis

After a thorough study of their entire texts, 24 studies were finally authorized out of the 131 papers that were chosen for inclusion based on an assessment of their titles and abstracts. Five of this research (21 percent) were carried out in 2015.

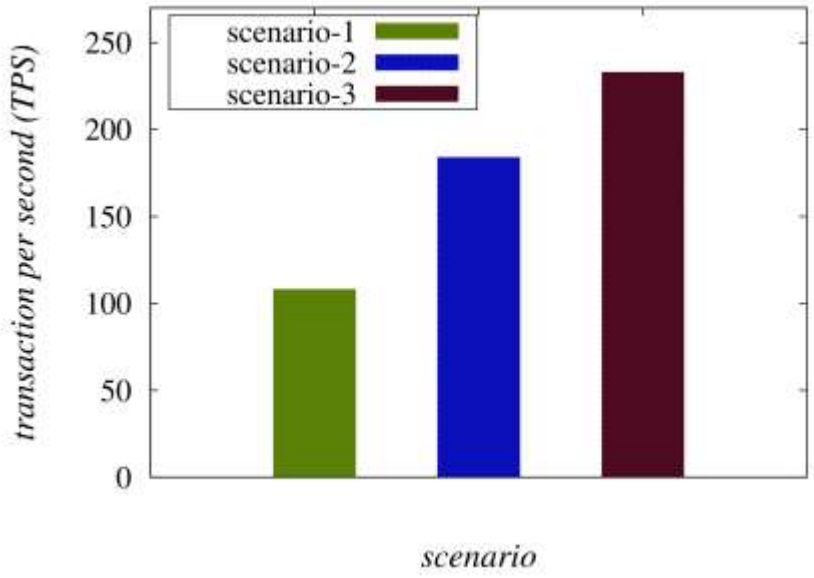

Figure 5: Obtained results of transaction of data

Furthermore, 6 studies (25%) came from African countries, whereas 12 studies (50%) came from Asian countries. Notably, seven papers (29%) focused on the Hospital Information System (HIS), and six studies (25%) were review articles.

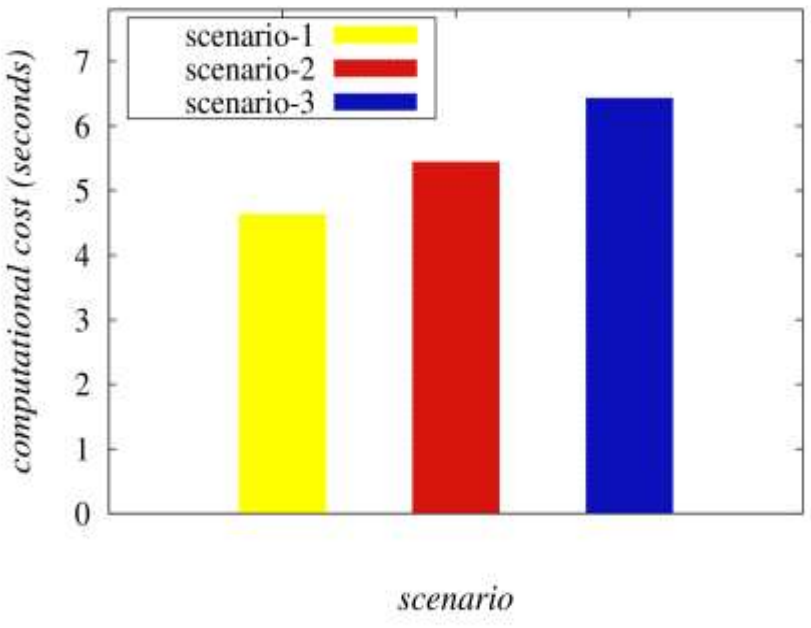

Figure 6: Computational cost

On the other hand, success criteria included efficient change management, timely updates, and clear communication. The growth story was always the main focus of the conventional method, but in the current context, performance management is being examined from many angles, including clinical, operational, customer, and financial. Critical bottom lines have become increasingly important in order to support companies' strategic goals of increasing patient loyalty through the provision of high-quality services and care. These days, hospitals are more aware of performance.

5. CONCLUSION

The following keywords were used to search these databases: "health information system," "challenges," "success," "failure," "developing nation," and "low- and middle-income country." Synonyms were found following the retrieval of these core keywords. By using the developments in embedded systems, it is possible to create portable electronic devices with intuitive working modes for recording physiological signals. The term "embedded systems" refers to specialized hardware systems that work in tandem with software to accomplish certain tasks. According to a PwC report, digital health encompasses a wide range of different fields, including telemedicine, big data analytics, medical records, health IT, wellness apps, and more. The number of digitally savvy customers is steadily surpassing that of conventional consumers. Both the public and business sectors have shown interest in digital health. The Indian government recently established a national digital health policy and connected the Aadhaar card to a number of programs. Furthermore, the emergence of numerous healthcare entrepreneurs has facilitated the development of digital health.

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