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An Evaluation of Wearable Technological Advancement in Medical Practices

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Abstract - The segment of wearable technology allows medical practitioners and nurses to be incredibly responsible for the patients who are interested in it. A lot of research analyses in this segment have been done which makes it essential for nurses to be significantly engaged in the promising technological advancement in the process of enhancing the lives of patients. In this paper, a synthesis of the present condition of wearable technology has been done. A brief evaluation of nursing satisfaction with medical technology has also been done based on the present research on wearable technology and its implications for the future state of nursing. It is therefore founded that other segments in the healthcare sector have applied wearable technology to enhance gait in patients suffering Parkinson's illnesses which provides automated defibrillation in the cardiac patients. This has also enabled medical practitioners to effectively monitor post-stroke rehabilitation. The medical practitioners are also considered a front line for patenting and designing novel ideas to enhance the lives of patients. As such, nurses typically adopt the novel technologies such as electronic clinical administration records, electronic medical records and the simulation status in the sector of education. Wearable technological advancements consider the upcoming trend since its potential application is considered endless. Including the patients in their individual care is considered a potential obligation of nursing. In that case, more research evaluation is required to link-up patients with caregivers that benefit from the wearable technological advancements.

Keywords - Biomedical Engineering, Wearable Technological Advancement; Medical Practices; Electronic Medication Administration (eMAR).

1. Introduction

Biomedical engineering in the healthcare sector is significantly evolving and transforming as years go by and one of the prevailing transformations faced by nurses in the wearable technological advancement. Novel technologies are therefore being enhanced to aid patients to stay a healthier life and to take control of their bodies via the application of complex networks of interconnected tools. At the moment, we have entered a segment of wearable technologies and all people have the potential of wearing something that is linked to the internet. The Internet of Things (IoT) is an individualized network of interlinked devices. A lot of people possess devices such tablets, computers and cell phones which link them to the internet. Within a short period of time, these network devices will be wearable and capable of capturing information which can be shared with users such as friends, family members and healthcare practitioners. IoT is fundamental due to the fact that objects which project themselves digitally become something more significant compared to an individual object. Expert nursing has to be included in the procedure of applying and evolving digitalized tools that have profound implication of the well-being and health of the people. The generation of 'big data' is now collecting patients' data via information capture on their individualized wearable equipment that has the capacity to inform diagnosis and treatment choices of medical providers in various levels.

The Institution of Medicine (IOM) previously commented that medical providers have to incorporate a premium on completely involving patients for quality purposes which signifies a call to action, to develop a lot of networks which are integrated for patients. This development also includes wearable devices and the medical providers connecting and improving the quality of healthcare services. The wearable technological advancement includes the various devices on the healthcare body which are capable of capturing information such as gait abnormalities, heartrate, heart rhythm and the amount of calories being burned. These medical devices can be linked with their corresponding network devices hence allowing the providers of services to effectively track the functionality and historical records of equipment suitable for patients. Data from the devices and sensors is transferred to certain people of interest through the internet. Medical practitioners have to be considered front line in the attempt to apply these technologies in the medical field. This is probably because the medical decisions depend on the subjective evaluation of data that represent the hallmark of medical contribution to the health status of patients. Wearable technologies permit the process of capturing data which is dependable and easy to access and utilizes the objective principles that enhance the process of making medical decisions.

Nurses and medical practitioners have been inundated with the internet and technological enhancements in the medical sector for years now. Research evaluations have indicated the differential degree of satisfaction and tolerance with basis to innovation. The adeptness and willingness of medical practitioners and nurses to get used to technological enhancements might be a single indicator on how these measures connect to the assumptions of wearable technology for the promotion of medical results and health monitoring. Early adopters of technological advancement might have the easiest path to accept the novel technological advancements whereas nurses who resist these innovations might face issues such as the global medical technology progress with devices helping patients. The discussion below defines the most profound clinical innovations that focus on the application of simulation in medical education, acknowledgment of digitalized clinical frameworks and the adoption of electronic medical records. The problems and barriers will be considered alongside research evaluation of medical satisfaction with medical innovations.

2. Analysis of Simulation in Medical Education

In the modern age, medical practitioners are engaging in technological advancements to gain premium experience with the conditions of patients based on the application of simulation. Simulation represents the burgeoning sector that has been embraced by the medical education that assures the connection between practice and theory in the secure ecosystem for learners. As medical space gradually becomes challenging to find nursing educational institutions that are focusing on simulation labs, to focus on teachings and to initiate hands-on practices for medical students. Due to the fact that learners are used to technological advancements the change of the learning curve for applying and utilizing simulation technologies is not an issue to medical practitioners. The application of mannequins that are considered networked to simulation programs and IoT provides smalls, sounds and sights to learners that enhance the actual-world experience. More educational institutions are utilizing high-fidelity mannequins that permit how learners can prioritize practices, listen to breathing sounds or deliver babies. Learners have a tendency to engage themselves in digitalized world and have incredibly shown a globalized acceptance of simulated laboratory experience.

A research analysis on the assumption of low-fidelity and high-fidelity simulation approaches evaluated the satisfaction including the self-confidence analysis after various approaches of simulation were applied in the medical school laboratory. In this practical evaluation, 86 baccalaureate nursing learners from years 1-3 we categorized to receive a pencil or a paper simulation, static mannequin simulations and the high-fidelity simulation. The results revealed that irrespective of the educational levels, learners were satisfied based on the experiences attained in self-confidence education. The first-year learners reported a mean score of about 3.9 for the general satisfaction. The second-year learners reported an average score of 3.8 and the third-year learners reported a mean score of 4.0 [1]. The results also indicated that learners were satisfied with the results of the simulation irrespective of the experience they underwent. This showed that the approaches use a minimal fidelity which could be applied in medical education in various levels. Medical practitioners might be able to effectively adapt to the technological advancements more effectively if they are exposed to initial medical school.

Utilizing computerized simulation application to keep learners engaged in learning is a fundamental step in the enhancement of adaptability in the field of biomedical engineering for learners. Researchers have over the years utilized the exploratory illustrative evaluation of research of approximately 14 nursing learners' perception of the scholarly computer-centred simulation based on the application of the program known as e-Baby. In the field of e-Baby simulation, the virtualized preterm patient presents the various levels of the respiratory status where learners have to respond. The learners, who had a laptop or a desktop computer were forced to select the best assessment equipment of oxygenation for the preterm infants, including providing answers on the interaction with kids and making choices in reference to data. The findings of information indicated that 100% of learners found the technological advancement being easier to apply and all the learners were in agreement with the timeframe for accessing e-baby that might potentially enhance their process of learning [2]. The barriers to the experience of simulation showed by learners incorporate occasional difficulty in acquiring the programs on a number of computers and demanding more space for experts to answer queries based on their experience. Being satisfied with novel technologies such as the computerized simulation with the nursing learners might potentially open paths for futuristic adaptation by medical practitioners for technology.

2.1 Acknowledgment of Digitalized Systems

The initial electronic Medication Administration (eMAR) framework was launched in 1995 in Kansas by administration medical experts. This framework has been applied throughout the country to assist in minimizing medical mistakes, streamline the healthcare administration procedure and enhance the process of documentation. The foundational premise of eMAR is getting the medication progress to the clinical databases which is identified by a barcode. The procedure of providing medication includes the medical practitioners scanning and evaluating the barcodes available on the patients' wristbands and therefore scanning these codes on the medication to be provided. The computers then verify the links between the patients and the exact medications hence permitting for the finalized medication check-up to be done before the nurses administer the required medications. An eMAR permits the nurses to effectively verify five medication rights and administration. Moreover, the framework evaluates the order of the doctors and document medication whereas providing the required links to such information as lab values, vital signs and pain levels. The rate of satisfaction in the implementation and adoption of eMAR framework have enhanced with the improved timeframe due to the fact that modifications have allowed the system to provide the required feedback [3].

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In the research analysis by medical practitioners in United States, medical and surgical nurses, including the nurses in the ICU has assessed the eMAR framework. The minimal rate of satisfaction with the vital function of eMAR enhanced the results for more than 18 months of the research. The levels of satisfaction with the minimal logon element are considered from 15% at the start to approximately 92% after the period of 18 months. Similar to that, the rate of satisfaction with the tiresome co-signing procedure was projected from about 30% to 92% whereas satisfaction with the use of standard medication timeframe was projected from 23% to 76% by the end of the research [4]. Whereas the level of satisfaction of more logon timeframe enhanced one barrier which remained a problem was the incapacity to logon the available badges in the eMAR system. Medical practitioners provide feedback to the information technology modifications and administration to the framework structured throughout the study period. As medical practitioners become more customized with technological advancements the rate of satisfaction is also enhanced.

Duration has also been seen as a fundamental element of nursing satisfaction based on the eMAR records and ancient paper-centred medication administration record. In an example of 719 medical practitioners, the electronic versions of MAR were connected to the perceived enhancement of the general nursing workload, teamwork, satisfaction, documentation, data accuracy and the safety of patients over a timeline of three to six months following an implementation. The barrier denoted in the research was the perception of medical practitioners of information transfer with pharmaceutical application [5]. The findings found that communication was untransformed based on the trends throughout the duration. The advent of novel technologies might significantly be affected by different influences such as the application of other frameworks such as paper-centred frameworks, the ages of users and the perception of medical practitioners on the minimal implementation influences of the safety of patients. Irrespective of the barriers with the process of implementation of the novel technologies, medical practitioners consistently indicate the increment in results which conform to the novel frameworks.

2.2 The EHRs Adoption

The EHRs adoption and implementation has been happening for more than thirty years now in the process of easing the transfer of patient information between the various medical practitioners. This process also involves enhancing the accessibility of data accessed from different locations. A lot of nurses have also had love or hate relationships with the previous types of EHRs. However, the previously-done researches suggest that duration with any novel framework is fundamentally considered for positive perception. Earlier researches of barriers to the adoption and implementation of EHRs concentrated entirely on physicians, including the barriers like limited EHRs training.

Other barriers include limited manpower in the medical department that facilitates an implementation, deficiency of providers to learn of novel computer frameworks and the security fears like unpermitted accessibility to the records of patients. Recent research evaluations have incorporated not just nurses by the medical students and their acceptance and perceptions of EHRs and the ease of application. The ICU medical practitioners' EHRs acceptance was done over a two-cross-sectional analysis of questionnaires provided to ICU medical practitioners at about 3 months and 12 months following the implementation of HER. The questionnaire variables and instruments have been measured based on technological acceptance.

2.3 The usage of EHR and its Usefulness

The findings indicated that the ICU medical practitioners' EHRs technological acceptance was enhanced and privatized over a specific duration which shows that nurses are more familiarized with the framework and its correct functionality. The responses were elicited from a number of ICU clinicians and nurses during the process of implementation at some scheduled meeting and pilot test. Due to the fact that most nurses in different settings utilize EHRs on normal basis, responses on satisfaction and the ease of application are fundamental elements to consider for the EHRs designers and any other future medical applications and technologies. The use of novel technologies by learners whereas they are in college might significantly affect the adoption of the technological advancement in their potential workplace as new medical practitioners.

Medical student experiences of utilizing EHRs in the medical sector was also projected in the research which utilized mixed approach design for focus groups and questionnaires of about 17 healthcare and midwifery learners. The theme has been presented in the research to illustrate the advantages of EHRs for the EHR framework concerns and healthcare delivery approaches [6]. Advantages of EHRs incorporate enhanced data accessibilities which are illustrated as enhanced information sharing, continued healthcare and enhanced access of patient information. An additional advantage of effective quality of records that incorporates responses on notes has been seen to be easier to read since they were typed. The issues of EHRs included problems adjusting from paper work to computing frameworks, since not all computers in the medical facility can be used to allocate the patient data. Irrespective of the initial problems, developing more training experiences enhanced the perception by learners of EHRs.

The advent of novel technologies in the medical sector demands enough time in training, including the recognition of adjustments which required to be launched to enhance the ease of application. Medical practitioners' satisfaction with these novel technologies is affected by the duration it takes to effectively comprehend and adopt to these technologies, including the accessibility to identify if issues arise or not. Irrespective of these variations in the satisfaction and adoption of novel forms of technologies, medical practitioners have proven to be skillful at the change of launching novel and sophisticated approaches in

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the medical sector [7]. The advent of wearable technologies will be seen as an exciting step forward for medical nurses and might take a short duration of time to adopt considering the fact that ground works have been structured via the application of an electronic record, eMAR experiences and simulation experiences.

3. A Brief Overview of Present Wearable Technologies

Wearable technologies are founded based on exercise physiology, rehabilitations and other medical disciplines. However, the recent advancements have been launched to imply that these are effective tools for healthcare providers. These tools have a panorama sense of vital data for the users such as their location based on GPS, physical states and certain measurements such as the respiratory rates or heart rates. The wearable technologies just do not have sensing capacities but also the diagnostic application that is fundamental to the medical practitioners in making effective medical decisions [8]. A lot of healthy people are presently being consumed in wearable technologies and its wave since they used the Fitbit devices and other potential devices used to share, analyze and track their information.

These devices might get worn out just like a typical wristwatch which makes it necessary to use them along with computers, tablets and smartphones. The storage for these devices is significantly large to store personal-centred data in services which are linked to the internet. The encryption of data in the cloud system is reliable and secure and can also be shared by multiple users in the cloud system. Due to the fact that data is collected and safeguarded in the cloud system, third-party users such as friends, family and healthcare practitioners can only be granted permission to assess the progress of the system or even send messages in the systems. Doing this provides a manner of mutually supporting goals and ambitions of the systems. Other forms of wearable devices are also embedded into the cloud system and utilized in consideration to the monitors which are included in a static environment.

A number of research practices have been completed on the novel technologies in different fields. These researches indicate the implication of collecting information from a single device that is worn on the body before the data is transferred to other devices where medical practitioners can make proper decisions about the illness, outcome and treatments. Presently, a lot of researches on the wearable technologies have been done in other medical fields compared to nursing. These analyses are showing that wearable technologies are being utilized to enhance the lives of patients. In the following section, an analysis of the present wearable technologies has been done. However, the section does not provide an exhaustive analysis of the research thesis.

3.1 Cardiac Analysis

For a long time, cardiology has been applying wearable technologies. For instance, Holter monitors have been used to record the rhythms of the heart for 24 hours. This technology has been utilized for many years to analyze the abnormal rhythm of the heart. Over the past few decades, wearable technology has been applied in cardiology such as the Zoll Life Vest since it has been defibrillated in the vest-like devices and worn by users with potential risks to cardiac illnesses. In case the vest senses any lethal rhythms, it will alert the patients before possibly delivering shock hence providing enough time for patient to act according to the kind of treatment being provided to them. In case the patients become more unconscious, vest potentially release some gel on the electrodes that are worn over the skin before delivering shock that amounts to 285 joules.

The device incorporates more advantages which includes the involvement of another person in identifying the defibrillator and navigating through the process of defibrillation. The information from the vests can be downloaded by the medical practitioners to assess and monitor the abnormal rhythms of the heart, including the necessity of including the defibrillation. As a result, the potential alerts can be structured to notify the medical practitioners whenever a specific event happens [9]. Whereas implantable cardioverter defibrillators have been in usage for some period not every user or patient with arrhythmias has to have these implanted devices. Due to the fact that some arrhythmias are considered temporary or rather in unconfirmed cases, wearable devices are considered an essential option.

The Life Vest technology has been utilized by more than 300 patients in Germany for a period of over three months now. The technology has been used to tell if these wearable cardioverter defibrillators are shown for those patients at risk of succumbing to arrhythmic. The diagnosis and treatment for ventricular fibrillation was essential for about 21 episodes in about 111paitents. Out of the patients, the first discharge shocks of these devices are considered successful. This research reveals that the technologies of Life Vest is clearly provided for patients suffering from lethal arrhythmias which includes added merits of not requiring to be implanted in the chests of patients.

3.2 Rehabilitation of PostStroke

The patients in the physical therapy or rehabilitation centres are wearing the accelerometers and pedometers that are the devices which issue the data on the manner in which something can accelerate at an exponential speed. This process is meant to provide actual-time response on the exercise objectives. The patients are capable of being on their individual natural setting whereas the information is being collected based on unobtrusive analysis. Over the past few decades, rehabilitation nurses had to provide responses on the information provided whereas the patients were left at the medical facility under artificial circumstances [10]. A recent research evaluation testing these wearable accelerometers for the post-stroke patients were to assess the progressive research on the rehabilitation of wearing the non-invasive sensors.

This research amounted to physiotherapists are being able to formulate algorithms in relation to the inputs. The accelerometers' sets of data were collected whereas the patients did some defined tasks, such as accessing some positions and pressing the targets available for them. The

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information potentially reveals that it is fundamental to research the functional compensatory approaches for the previous stroke victims based on the application of the algorithms which evaluate rehabilitation. The process of rehabilitation was formulated based on the application of unobtrusive sensors and lightweight sensors throughout the activities that take place daily and ones that can be developed into personized rehabilitation rules.

3.3 Neurological Analysis

The identification of epileptic seizure has recently been evaluated based on the application of the wrist-worn accelerometers that identifies the velocity and motion, alongside the sensors of skins and their conductivity. This skill has to be sensitive to the minimal amounts of sweats that might potentially be based on upcoming seizure. Information is therefore capturing for every tonic and clonic seizure which makes the algorithms to emerge and be predictive based on the upcoming seizure. The seizure identification algorithms have been assessed on more than 4,000 hours of data analysis and recordings from more than 80 patients which predicted about 94% of the upcoming seizures [11].

Over the past few decades, patients have been asked to wear scalps which include the electro-encephalogram electrode which possibly obtains seizure warnings although they are known for being intrusive. The algorithms might possibly alert the providers of the services regarding any potential seizure and permit for timely responses and the diagnosis required. This form of technology might potentially save trips in an emergency hospital department. Medical practitioners have to know about these devices so that data might be included into the patients' discharge analysis which possibly incorporates the safety measures and responses.

Utilizing wearable technologies in dependent ecosystems such as long-term care ecosystems might be considered as an asset to medical practitioners who are obliged to protect and safeguard the interest of patients. Embedded non-invasive radio frequency-identification apparatus in the patients' throughput and clothing in the medical centred is useful for producing data about the escape actions which allows feedbacks to be provided in real-time. Moreover, data on food and medication intake, including the sensing transition in the behaviour of patients has been captured. The providers of services might provide feedbacks on time to reflect on the anomalous behaviour which allows them to formulate behavioural patterns for initial identification of the potential disabilities of novel pathologies.

3.4 Hands Hygiene

A lot of researches have evaluated different systems which have been projected to enhance the hands hygiene of patients. This is possible by fitting medical practitioners with wearable hands hygiene tracking and monitoring devices when entering patients' rooms. The wall-mounted alcohol and gel dispensing devices have been seen as the best applications for the hand hygiene worth recording. Moreover, every participating medical practitioner wore individualized wearable alcohol gels which are tracked with individualized wearable monitors for the purpose of recording all the events. In case the nurse leaves or enters a specific room without undertaking any hand hygiene, the monitors are allowed to send the required reminders. The findings indicated an increment from the foundational observational research of hands hygiene actions in every hour. Due to the fact that hand washing actions are considered essential in the process of mitigating hospital-acquired diseases, the wearable intervention is considered fundamental to save lives and money as well.

3.5 The Parkinson Gait Disturbance

Shuffling or freezing feet whereas walking might prevent any potential harmful situations to someone suffering from Parkinson illness, who might risk failing. The utility of virtualized reality goggles, accelerometers and earbuds have been analyzed in the prevention of freeze gait in persons with the illness. The individuals underwent some form of training with the potential wearable devices and utilized them for a period of two weeks. The virtualized realities and goggles are viewed as transparent glasses which are worn on other lenses and are characterized with the LED screens that are incorporated in the lenses [12].

The LED screen also replicated the ecosystem and potentially simulates the availability of patients in the actual-world. The patients put on the goggles together with the accelerometers to effectively detect some movement that initiate the goggle before displaying the checker-boards on the tiles on the floor. Before it super imposes on the actual flow, the tiles shift to the patients at the same velocity as the movement of the patients hence providing the potential responses that are seen to relieve and prevent freezing movements in patients suffering from Parkinson. This permits them to track the normalized fluid gait. The patients' earbuds provide some auditory cues based on the footstep sounds. The application of the wearable devices enhances the tracking speed and the length of the strides. Once the research was completed, it was noted that about 70% of the participants progress to enhance by about 20% in tracking speed, length of the stride and the freeze episode which trends based on improvements. This research indicated that gait enhancement might be accomplished based on non-pharmacological evaluations.

Medical providers operate in various segments which incorporate the post-stroke rehabilitation, cardiology and neurology which have been included to the application of wearable technologies. Nonetheless, there are gaps in nursing research connected to the wearable technologies in the nursing field [13]. Medical providers should provide answers regarding the pending queries on wearable technology which is applicable in the medical sector and nursing practices. This is the best moment to effectively advocate for the wearable devices in individualized researches whereas evaluating the complex dimension that advocates the wearable devices for patients' care.

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4. Future Analysis and Application for Medical Providers

The future of the novel wearable technologies to develop nursing and support the patient results should not be underrated. Novel ideas might be produced on a daily basis to effectively research and support its application in the medical field. Future applications for the sensors, e.g. Apple Watches, Fit Bit and Garmin Connect might issue a life-transforming aid in the fields such as distance and time tracked. Moreover, the sensors are essential for identifying the rewards for the objectives accomplished and the encouragement to stand for more than a single minute. Medical practitioners might utilize the wearable technological devices which are applied in stroke rehabilitations and bariatric diagnosis, among other health monitoring practices. The potentials for utilizing wearable elements by the patients at a potential risk for the falls might bring up alerts and transmit them to the potential providers of services which are considered a user-friendly and affordable service [14]. The medical practitioners will aid in the management of these alarms and devices which also includes ensuring that they are effectively managed and the feedbacks are released in time.

The Google Glass is structured as the wearable technology that is potentially worn out using a glass. It includes a minor computer connected to it, to effectively display data on the interior of the glass and also have a wide-range hands-free commands and functionalities. The people who wear glasses might transfer information to the cloud via the voice commands and via the swipe bars available on the earpiece of these glasses. Pictures and videos might be captured using the devices which means novel applications can be created on a daily basis to effectively interact with social media to even receive news and weather updates. These technologies have the capacity to be utilized to develop the practice of nursing via messaging about the medical updates, changes and the laboratory values.

These medical updates are an essential sign on patients who are operating on the surgical/medical floor at an actual time. Certainly, one day seeing medical practitioners on Google Glass is the same as seeing them on a stethoscope which is typically found around the neck. Data might be streamlined based on the glasses without any potential logs in EHRs so that enough time is not spent on the PC system but on the bedside. Medical practitioners undertaking checks might practice them promptly by possibly scanning the prompt feedbacks codes on the medicines before verifying them using the correct forms of medications, route and dosage for the patients. The video and picture transmission will be developed to aid in creating the best medical decisions. Medical practices and patient results will incredibly be affected by the application of wearable technologies and novel applications are structured on a daily basis.

A lot of people around the world are focusing on their own health by using health tools and apps which also includes the application of social media resources. In reference to a survey done by Dell, approximately 64% of the patients prefer using novel technologies which allow nurses and medical practitioners to remotely assess their health using vital treatment feedbacks and signs from the medical devices at home. Moreover, about 61% of patients want to be allowed to access their individual healthcare records via public networks or private websites. A lot of people are already participating in wellness evaluation and monitoring via technologies. This analysis considers that 59% of patients utilize the home wellness and health monitoring devices such as glucose monitoring and blood pressure testing devices. Patients can therefore play a fundamental role in enhancing their individual health via the application of individual-care-centred technologies.

Nursing is considered to be relevant for enhancing the adoption of wearable technologies. Nonetheless, it is fundamental that nurses and medical practitioners get engaged in the testing and development of these wearable items, so that users can have confidence in the process adaptability and information. Wearable technologies can possibly release data in a more dependable manner which is less intrusive. The wearable digitalized reporting tool represents the overt act where patients are encouraged to participate in individualized-care [15]. Possessing wearable devices to utilize in the patient case allows nurses and medical practitioners to customize the medical services to effectively mitigate potential issues that can be accessed by datasets.

Whereas previous technologies are structured to collect data in the office and lap when patients visit, the novel technologies are known to be the best for the upcoming generation of individualized patient care which is also considered responsive to patient needs. Medical decision support framework uses massive data that is retried from wearable technologies. As such, this allows decisions to be made in reference to the points of data released and this includes both objective and subjective information. The support from family and friends has been considered as a positive factor that facilitates quick and positive recovery that effectively services the well-being of patients. With the application of the wearable devices, members of the family can get alerts on potential issues and emergencies in the healthcare sector.

5. The Wearable System Architecture

As an incredibly novel, but significantly wide concept wearable technologies include a wide-range of frameworks and potentially lack more firm taxonomy of system architectures. As a result, this section evaluates four-layer framework which is structured as a system for defining the fundamental aspects of wearable frameworks and launching the most fundamental technologies. We apply this framework to make sure that various elements are properly embedded in the patients' outfit to a certain degree. This is based on functionality and adaptability in relation to certain outfit and implemented technologies. Apart from that, it is based on the realization that patients' outfit is typically a hierarchical and complex framework which links various devices' categories, as shown in Fig 1, with massive application functionalities and domains.

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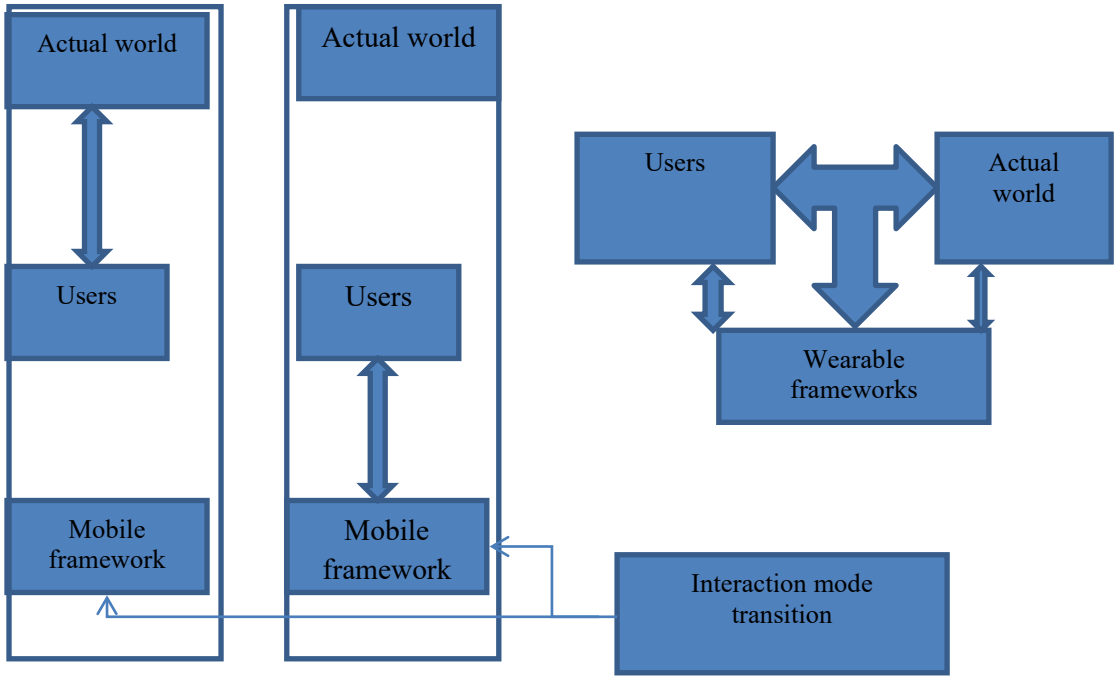

Fig 1: Interaction of the users, systems and the ecosystem in the conventional mobile framework (left) and wearable framework (right)

For every device category, the users are well-defined and are aware of the ideas on life cycles, ranges of prices and the manner in which treatment services have to be offered. The users configure the framework in relation to the conditions available and individualized preferences both dynamically (in the day) and statistically (in the morning). When this is done correctly, the users are bound to be set on a firm constraint in the body hierarchy and location of the cloth pieces. This also incorporates the soft criteria on the system compatibility based on the social context. To effectively incorporate the consideration evaluated in this subsection and the model, four essential layers have to be included (Fig 2). Every one of these layers target the various functionalities, the implementation technologies and the embedded users' outfit levels. The layers include: Carry-on miniaturized appliance, attached peripherals, embedded microsystems and functional textiles.

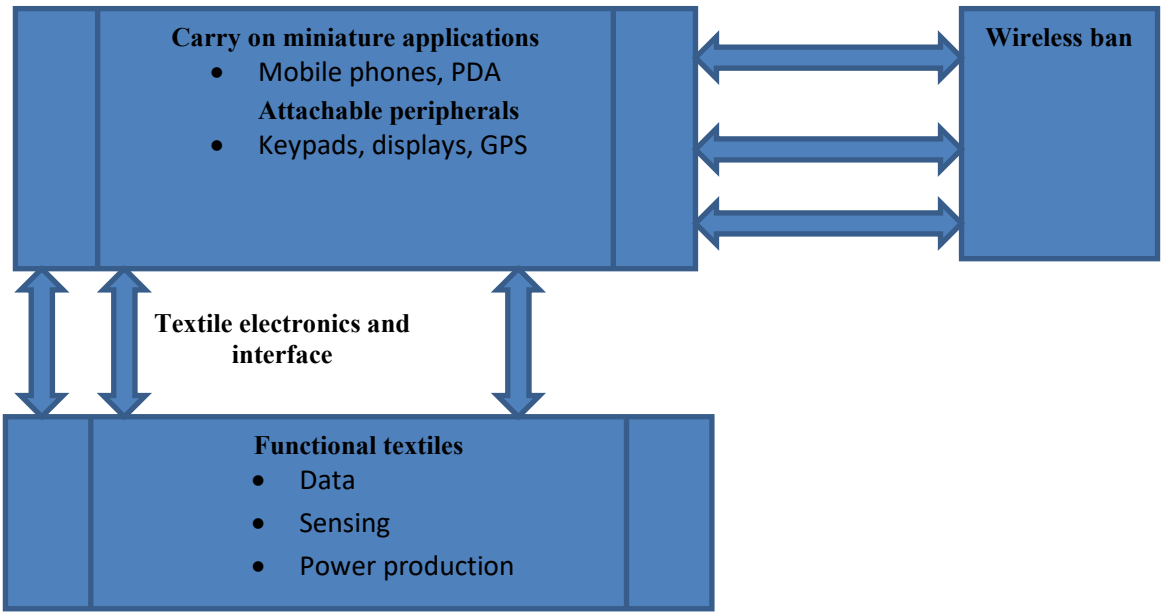

Fig 2: The architecture layers of the wearable framework

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6. Conclusion and Future Research

In conclusion, the inventors of nursing and medicine are essential in the field of nursing since they are poised to tell what is exactly required to help patients to recover and improve. In that case, when they are armed with the required skillsets on how technology will be applied, they can potentially evolve their ideas into novel applications that can potentially enhance the lives of patients. Partnership with designers, developers and healthcare members will be responsible for pushing the advancement of wearable technologies in the medical field. Wearable technology has over the past few years has been seen as an incredible force for nursing practices.

Nursing educational institutions are required to empower learners with data on how they will patent, develop and design ideas which are meant to enhance the health of patients. Since wearable technologies, cloud data, smartphones and mobile apps are a part from the inter-connected globe where data from a single device which is physically worn out is linked to another device, there is need to focus on how the network will be advanced. So, there is need to focus on novel wearable technologies as a temporary tattoo which are purposed to monitor the essential sign within a single week. After this process is over, the technology should allow nurses to discard data after communicating with computers, tablets and smartphones. This advancement will allow nurses to assess how patients are doing from their remote environments before intervening with the enhanced treatments. In general, this advancement is purposed to transform the practice of medical application by involving technology.

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