Transforming Nursing and Healthcare Through Technology  
  
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There are ongoing rapid changes to our daily life including the delivery of health care due to digital technology. Patients are expecting health care to be easily accessible, convenient, and delivered seamlessly just like ordering any item from an online store. Technology is making everything look easier and simple like the little pacemaker that listens to our heartbeat and syncs our heartbeat based on the vibration caused by the blood flow. It is understanding the human body and using tools such as Artificial intelligence, humans are personalizing care to make it accessible and efficient.

**Project**

Nursing is a highly demanding job that can touch a lot of lives, it requires a lot of attention, empathy, and care. All this is impossible to be done by any kind of technology but if there is a robot that can help Nurses with anything other than human emotions then nurses can spend more time with their patients at the bedside providing quality care. The project I would like to propose is called CAR, care assisted Robots. Robots are a form of artificial intelligence, where machine learning and intelligence are used to infer things and learn from their interfacing and interaction. (McGonigle et al., 2022). Care-assisted Robots can assist with transfer, ambulation, and lifting which will reduce physical stress on nursing. Musculoskeletal injuries that are related to work lead to higher costs because of medical expenses and disability compensation, and 20 % of nurses leave bedside nursing or direct patient care due to the physical risk that comes with patient transporting and transferring. According to the department of labor, t is estimated that direct and indirect cost associated with back injuries is $20 billion dollar annually (*Department of Labor Logo United States Department of Labor*). In addition to all these healthcare workers who experience physical pain and fatigue are usually less productive, and more susceptible to further injuries that can affect the health and safety of patients, so because of all these reasons I would like to bring Care assisted Robot that can assist with transferring, transporting, and assisting with daily life activities to the neuro patient who have lost their sensory and motor abilities.

**Stakeholders impacted by the project**

Stakeholders for this project include healthcare workers, patients, researchers, technologists, policy groups, Insurers, advocacy groups, and regulators. People who are directly using this are the ones who are most impacted by this project and they are healthcare workers and patients. Even though the clinicians are well educated their literacy rate is lower in terms of technology, so if for some reason there is a problem with the robot and can't be used, the likelihood of successfully training a direct robot user or caregiver is greatly decreased (*Healthcare Robotics* )I think direct robot users directly involved in research and development of robots can be beneficial as they can troubleshoot and make Robots usable and suitable in health care. Despite Robots being costly to purchase, maintain and repair it can be beneficial to all stakeholders because it is an emerging exciting area, Due to advancements in Robotic technology, the future of Robotic technology can be fruitful**.**

**Patient care Efficiencies**

Robots can perform laborious physical tasks, such as transferring patients from bed to chair and vice-versa. We have a lot of scans in Neuro ICU every day, patient are critically ill, and Nurses have to transport a patient with a lot of drips hanging that needs to be titrated frequently, anything might happen during transport, but if we have a Robot that can help with the transport, Nurses can focus on the patient, drips, and many more instead of pushing heavy patient on a stretcher. Patients can be monitored closely which will ultimately improve patient care. There was one time I was transferring a patient for a CT scan and suddenly he was bradycardic in the 20”s in the middle of transport, I was by myself in the hallway, I was pushing the stroller with one hand and trying to remove atropine with my other hand, thank god I was able to push the atropine and patient recovered, but I felt like if there was some assistance pushing that stretcher, I would have been less stressful, it would have been easier, the patient can get my complete attention. Robots perform tasks that are either highly repetitive or too dangerous for humans to conduct safely. Along with this, these Robots can combat loneliness and inactivity mainly in hospitalized patients. They can be assigned to daily work such as doing patients' vital signs. (Soriano et al., 2022). More than 20% of the world's population are experiencing physical, mental, and sensory impairment, and Robot can fill the gaps and provides independence to those population. (Riek, 2017)

**Technologies required to implement this project**

To implement this project a standard server is required. The server will be integrated with other servers that serve the health facility system. The existing operating systems in the health facility system will be used with the upgrade to the latest version of the operating system in Windows and macOS. Technologies such as Splunk or ELK Stack will be used to collect and monitor logs generated through the machine, these data can be used to produce different reports and can visualize results, and can use the data for the improvement of the project. ELK can collect, aggregate, search and analyze, monitor, visualize and report the data logs that help IT professionals and SREs’ to gather infrastructure performance, and make better decisions. (Sematext, 2022). Depending upon the facility’s existing infrastructure and cost the server can be hosted on-premises or in the public cloud. In recent years many organizations have shifted their infrastructure to the cloud from on-premises because of cost-effectiveness and safety.

**The project team and how Nursing Informaticists can be incorporated in the project team**

The project team includes a Nurse manager, Nurse Informaticists, an information technology expert, a system developer, and a representative from physical or occupational therapy. Everyone is included so that all the features can be incorporated into the Robot and multidisciplinary unity is very much important to gain public trust in our healthcare system in order to provide safe and quality patient care. (Sweeney, 2017) Nurse informaticists play a crucial role in this because they are the only person who has both technology and Nursing Knowledge, and they know what kind of Robot can be made so that that is beneficial to both patients and healthcare providers. They can collect and interpret complicated patient data and deliver it to the concerned stakeholders. By collaborating with the IT experts, they initiate the system change and upgrade in the system for quality service delivery. (McGonigle &Mastrian, 2017).

**References:**

*Department of Labor Logo United Statesdepartment of Labor*. Healthcare - Safe Patient Handling | Occupational Safety and Health Administration. (n.d.). Retrieved December 24, 2022, from <https://www.osha.gov/healthcare/safe-patient-handling>

*Healthcare Robotics - arxiv.org*. (n.d.). Retrieved December 24, 2022, from <https://arxiv.org/pdf/1704.03931.pdf>

McGonigle, D., & Mastrian, K. G. (2022). Chapter 26. In *Nursing Informatics and the foundation of knowledge* (p. 619). essay, Jones & Bartlett Learning.

Riek, L. D. (2017, November 1). *Healthcare Robotics*. ACM. Retrieved December 21, 2022, from <https://cacm.acm.org/magazines/2017/11/222171-healthcare-robotics/abstract>

Sematext. (2022, December 12). *What is log analysis tutorial: Logging use cases & benefits*. Sematext. Retrieved December 25, 2022, from <https://sematext.com/blog/log-analysis/>

Soriano, G. P., Yasuhara, Y., Ito, H., Matsumoto, K., Osaka, K., Kai, Y., Locsin, R., Schoenhofer, S., & Tanioka, T. (2022, August 18). *Robots and robotics in nursing*. Healthcare (Basel, Switzerland). Retrieved December 21, 2022, from

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9407759/#:~:text=Robots%20in%20nursing%20can%20perform,measuring%20patients'%20vital%20signs%E2%80%9D>.

Sweeney, julianne. (2017). *Healthcare Informatics*. EBSCO Information Services, Inc. | www.ebsco.com. Retrieved December 25, 2022, from

<https://www.ebsco.com/products/ebscohost-research-platform>