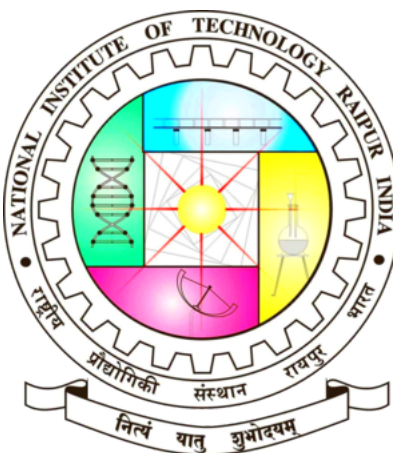


NATIONAL INSTITUTE OF TECHNOLOGY (NIT)RAIPUR (C.G.)

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ASSINMENT-5

ON

EMERGING TECHNOLOGIES IN HEALTHCARE

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1 EMERGING TECHNOLOGIES IN HEALTHCARE

There are many major factors driving the greater usage of wearable technology (AR) and virtual reality (VR) technologies, including the growing technology and digitization in the field of healthcare . As the field of Medicine and Healthcare grows, many new areas of human health diagnostics, treatment, and care develop. Wireless technology is improving, and 5G mobile technology enables the Internet of Medical Things (IoMT) to significantly improve patient care and more effectively stop illness. The adoption of modern technology in the field of medicine, such as augmented reality (AR), virtual reality (VR), and 3D operating rooms, has had a major impact on the healthcare sector. These technologies help in complex operations and also work as a fear buster in mental health.

There are few example of Emerging Technologies in healthcare -

1. Robotics in Healthcare
2. 3D printing in Healthcare
3. Chatbots in Healthcare
4. Artificial intelligence in Healthcare

1.1 Robotics in Healthcare

In the medical field, robots are transforming surgery, simplifying product delivery and cleaning, and saving time for doctors to interact with patients. The first medical robots appeared in the 1980s and provided surgical aid via robotic arm technologies. Machine learning and artificially intelligent (AI) have transformed health robots over the years, extending capabilities to many other sectors of healthcare.

Robots [FIGURE 1] are now used in healthcare situations to assist health personnel and improve patient care. During the COVID-19 pandemic, hospitals and clinics started using robots for to help decrease virus exposure. It has become established that health robotics' operational savings and risk control give benefit in a variety of areas. for example, robots may clean and prepare patient rooms on their own, reducing human-to-human contact. The time it takes to identify, match, and deliver medicine to patients in hospitals is reduced by robots with AI-enabled medicine identifier software.

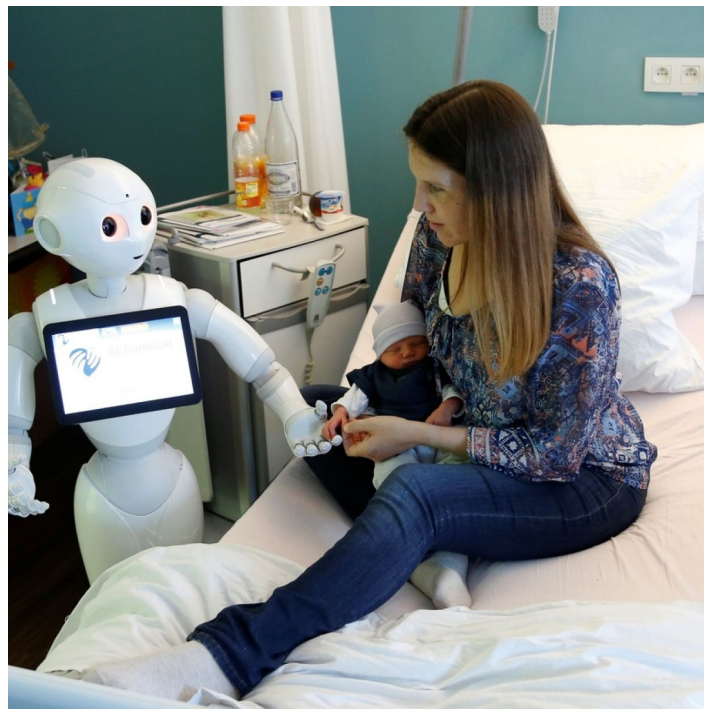


Figure 1: Robotics in Healthcare.

1.2 3D printing in Healthcare

The usage of 3D printers is one of the ways that the medical industry has developed and grown. Medical experts may use 3D printing in healthcare to provide patients new treatments in a variety of ways. 3D printing is being used to create patient-specific copies of bones, organs, and blood vessels, as well as innovative surgical cutting and drill guides.

Rapid innovations in 3D printing has give lighter, stronger, and safer items, as well as faster delivery and lower prices in healthcare. At both the pharmaceutical and industrial sectors, 3D printing opens up a whole new world of possibilities for the creation and preparation of personalised pharmaceuticals. Physicians, nurses, and pharmacists would be able to create a dose and delivery to the patient's with using of system based patient's body size, age and lifestyle . if 3D printers [FIGURE 2]were introduced into pharmacies and hospitals. This would personalise medicine for the patient while also saving money and resources.

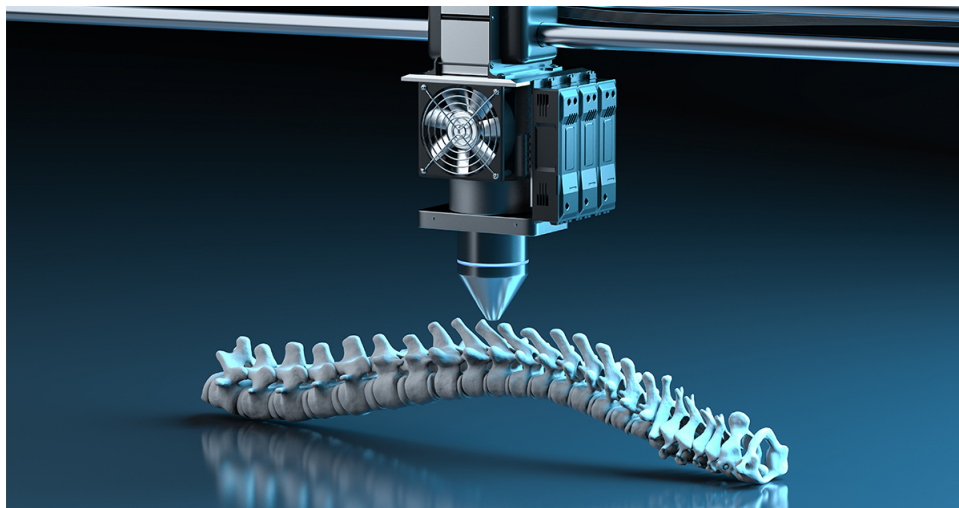


Figure 2: 3D printing in Healthcare.

1.3 Chatbots in Healthcare

Healthcare Chatbots are conversationalists that follow machine learning rules, which are categorized as artificial intelligence. They do things like provide solutions, send emails, market, generate leads, and analyze the results, among other things. Chatbots help in the healthcare industry by automating all of the repetitive and lower-level illness tasks that doctors would normally do. Chatbots are being used for simple, repetitive diseases, allowing our healthcare personnel to focus on more complex tasks.

Patients no longer have to wait in line for a professional, a healthcare chatbot can answer them and deliver correct information instantly. Doctors are important, and they make every effort to be available at all times and give sufficient attention to each patient. But, doctors are normally on a tight schedule, it difficult for them to see each and every patient.

Healthcare Chatbots[FIGURE 3] are available 24 hours a day, 7 days a week, and are committed to helping you recover. While doctors save many lives, the chatbot can assist you with activities such as medication reminders, medical information, advice, and monitoring your general health.

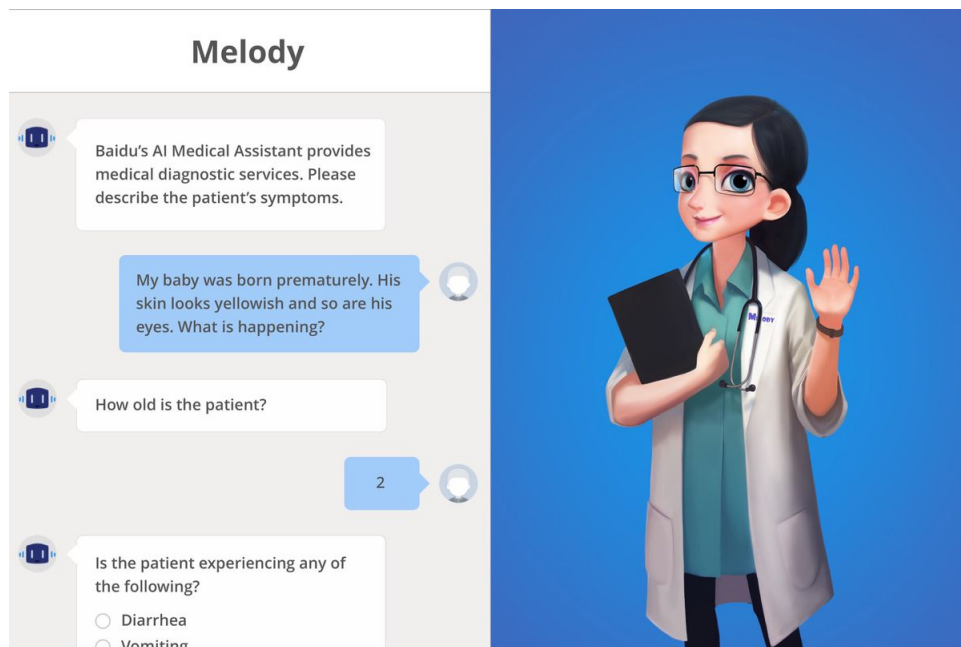


Figure 3: Chatbots in Healthcare.

1.4 Artificial intelligence in Healthcare

Artificial intelligence (AI) – Artificial intelligence will definitely be one of the most transformational technologies and boosters for human society in the twenty-first century, which is only two decades old (AI). The concept that AI and related services and platforms would transform global productivity, working patterns, and lifestyles, as well as create massive wealth, is well-established. AI applications are everywhere in healthcare, from patient intake to predictive analytics to new drug development. This technology [FIGURE 4] is changing how health systems operate and how care is delivered.



Figure 4: Artificial intelligence in Healthcare.