"Emerging Technologies in Healthcare"

BY AMARRAM MADHU MALVEETIL

ROLL NO.:21111009

"Department of BIOMEDICAL ENGINEERING"

"NATIONAL INSTITUTE OF TECHNOLOGY, RAIPUR", CHATTISGARH"

BATCH:2025 SEMESTER:I

Assignment 5 of"BASIC BIOMEDICAL ENGINEERING"

SUBMITTED ON FEBRUARY 25, 2022

1. INTRODUCTION

Healthcare has inevitably gone through a long way over the last few decades in terms of innovations, service improvement, technology and various other facets. Technology has certainly been the prime and central focus of all the aspects of improvements. The first 20 years of millennium has seen the upsurge of various medico-techno innovations; likely; MRI-CT Scans, PET-CT Scanner, minimal invasive surgery, EHRs, Surgical Robots, Specific Vaccines, and the list is unending.....Arguably, technology has seamlessly impacted healthcare by leaps and bounds and eased up the lives of millions. Today, Healthcare and technology are sharing an inseparable bond with each other and doing wonders in society. Hence, it becomes quite evident that investment in medical technology is going to be a tremendous move in the 21st revolutionary drive and imapct the lives of millions. There is certainly a never ending scope and limitless possibilities in medical technology. This report aims to introduce us to some of the emerging technologies of the 21st Century and throw light on the incredible impacts they can bring upon society. Hence, without crunching much time let's move ahead!!!

1.1. INTERNET OF MEDICAL THINGS

Internet of Things is a highly futuristic and demanded innovation where lifeless physical objects are made interactive using intricate networks and softwares. When this concept is infused in healthcare, Internet of Medical Things takes birth. The future ahead has amazing IOT products in its womb. Patient interactions are going to smooth up and speed up with medical professionals. Not just this, many robust devices like smart wearable sensors, 5g-6g enabled devices, remote-patient monitoring and tracking devices and instruments are getting along the way. This will eventually allow doctors and medical professionals to examine and track patient needs more systematically and scrupulously. Moreover, patient records and data can be managed and tracked more accurately. This is just a wonderful signal for medico-techno improvements as it tremendously eases up the work of medical professionals. The future of healthcare seriously demands humongous investments in this direction.

1.2. DRONES

One of the major drawbacks that has prevailed in healthcare for so many years is the transportation issues pertaining to delivery of vaccines, medicines and samples,etc. Drones have the humongous potency to be reliable medical delivery platforms for microbiological and laboratory samples, pharmaceuticals, vaccines, emergency medical equipment, and patient transport. Using drones could make delivery of critical medicines, vaccines especially to remote areas, more accessible and faster. Also, the use of drones to deliver medical supplies will help in better resource management of the limited supplies and facilitate just-in-time delivery to the current supply chain system.

The need of drones was specially felt during the COVID times when transporting medicinal supplies from one place to other became very difficult and challenging due to the lack of sufficient manpower. Drones can completely erradicate this issue

and make supplies more faster and cheaper. This technology will supposedly make a quick entry in the next few years and lead to considerable impacts in numerous ways!!!

1.3. MEDICAL ROBOTS

Robots in the healthcare are tremendously transforming how surgeries are performed, streamlining supply delivery and disinfection, and freeing up time for providers to engage with patients. Over the years, artificial intelligence (AI)–enabled computer vision and data analytics have revolutionized health robotics, stretching capabilities into many other areas of healthcare. Robots are now used not only deployed in the operating room, but also in clinical settings to support health workers and enhance patient care. As technologies evolve, robots will function more autonomously, eventually performing certain tasks entirely on their own. As a result, doctors, nurses, and other healthcare workers can focus on providing more empathy in patient care.

Health robotics can undoubtedly ensure a high level of patient care, efficient processes in clinical settings, and a safe environment for both patients and health workers. Thus medical robots can be a great innovative step in revolutionizing the whole medical ecosystem and making lifestyle much better.


ROBEAR

2. BIBLIOGRAPHY

2.1 https://www.intel.com/content/en/healthcare-it/robotics-in-healthcare.html

2.2 https://www.prnewswire.com/news-releases/millennium-medical-technologies-mmt-first-in-the-nation-to-receive-fda-clearance-for-a-reusable-fat-collection-and-grafting-system-300443644.html

2.3 https://www.ibm.com/industries/healthcare

2.4 https://onlinedegrees.bradley.edu/blog/emerging-technologies-and-innovation-in-patient-centered-care/

2.5 https://www.rtinsights.com/iomt-devices-will-revolutionize-healthtech-in-2020/