Telemedicine

The World Health Organization (WHO) refers to telemedicine as “healing from a distance”. It is the use of telecommunications technology and information technologies to provide remote clinical services to patients. Physicians use telemedicine for the transmission of digital imaging, video consultations, and remote medical diagnosis.

Telehealth as “the utilization of electronic information and telecommunications technologies to support and promote long-distance clinical health care, patient and professional health education, public health and health administration.”

While this definition sounds a lot like telemedicine, there is one distinct difference. Unlike telemedicine, telehealth also covers non-clinical events like administrative meetings, continuing medical education (CME), and physician training. Telehealth is not a specific service, but a collection of methods to improve patient care and education delivery.

The recent activities under Telemedicine Programme involved migration and operationalisation of the nodes which were affected due to non-availability of EDUSAT (GSAT-3).

Most of 190 nodes operating on EDUSAT were migrated to operational GSAT-12 satellite. Around 139 nodes are now operational on INSAT-3A and the remaining nodes on INSAT-3C and INSAT-4A satellites. ISRO is in the process of bringing in annual maintenance support for the Telemedicine systems to ensure continuity of service.

A Telemedicine monitoring node is established in DECU, Ahmedabad which is used for testing and supporting users for minor troubleshooting, etc.

Telemedicine is simply defined as, “the remote delivery of healthcare services“. There are 3 common types of telemedicine, which include but not limited to:

1. Interactive Medicine – which allows patients and physicians to communicate in real-time.
2. Store and Forward – which permits providers to share patient information with a practitioner in another location.
3. Remote Patient Monitoring – which allows remote caregivers to monitor patients that reside at home by using mobile medical devices to collect data (e.g. blood sugar or blood pressure).

Opportunities for telemedicine

- Telemedicine is helpful for people living in rural areas. This is very crucial for India, since 70% of the population lives in rural areas.
- Telemedicine helps overcome the shortage of health professionals. India currently has only 0.7 physicians per 1000 people while China and Russia have 5 and 1.5 respectively.
- Telemedicine is a better option while dealing with particularly infectious diseases like swine flu.

Developments in Telemedicine
The Indian government has launched the SEHAT initiative to connect 60,000 common service centres nationwide and provide health care services to citizens. This will dovetail with the Digital India Initiative.

In 2009, KIDROP programme was launched in Karnataka to screen infants for retinopathy of prematurity (ROP), a leading cause of childhood blindness. Its success has led to it being replicated in two more States.

**Disadvantages of telemedicine**

- Lack of technical Training and Equipment
- Restructuring IT staff responsibilities and purchasing equipment takes time and
- Reduced Care Continuity
- Fewer In-Person Consultations
- Tricky Policies and Reimbursement Rules

**Augmented Reality Vs Virtual Reality**

One of the biggest confusions in the world of augmented reality is the difference between augmented reality and virtual reality.

**Virtual reality (VR)** is an artificial, computer-generated simulation or recreation of a real life environment or situation. It immerses the user by making them feel like they are experiencing the simulated reality first hand, primarily by stimulating their vision and hearing.

VR is typically achieved by wearing a headset like Facebook’s Oculus equipped with the technology, and is used prominently in two different ways:

1. To create and enhance an imaginary reality for gaming, entertainment, and play (Such as video and computer games, or 3D movies, head mounted display).
2. To enhance training for real life environments by creating a simulation of reality where people can practice beforehand (Such as flight simulators for pilots).

Virtual reality is possible through a coding language known as VRML (Virtual Reality Modeling Language) which can be used to create a series of images, and specify what types of interactions are possible for them.

**Augmented reality (AR)** is a technology that layers computer-generated enhancements atop an existing reality in order to make it more meaningful through the ability to interact with it. AR is developed into apps and used on mobile devices to blend digital components into the real world in such a way that they enhance one another, but can also be told apart easily.

AR technology is quickly coming into the mainstream. It is used to display score overlays on telecasted sports games and pop out 3D emails, photos or text messages on mobile devices. Leaders of the tech industry are also using AR to do amazing and revolutionary things with holograms and motion activated commands.

**Augmented Reality vs. Virtual Reality**
Augmented reality and virtual reality are inverse reflections of one in another with what each technology seeks to accomplish and deliver for the user. Virtual reality offers a digital recreation of a real life setting, while augmented reality delivers virtual elements as an overlay to the real world.

**Differences between Augmented Reality and Virtual Reality:**

**Purpose**

Augmented reality enhances experiences by adding virtual components such as digital images, graphics, or sensations as a new layer of interaction with the real world. Contrastingly, virtual reality creates its own reality that is completely computer generated and driven.

**Delivery Method:**

Virtual Reality is usually delivered to the user through a head-mounted, or hand-held controller. This equipment connects people to the virtual reality, and allows them to control and navigate their actions in an environment meant to simulate the real world.

Augmented reality is being used more and more in mobile devices such as laptops, smart phones, and tablets to change how the real world and digital images, graphics intersect and interact.

**Similarities between Augmented Reality and Virtual Reality:**

**Technology**

Augmented and virtual realities both leverage some of the same types of technology, and they each exist to serve the user with an enhanced or enriched experience.

**Entertainment**

Both technologies enable experiences that are becoming more commonly expected and sought after for entertainment purposes. While in the past they seemed merely a figment of a science fiction imagination, new artificial worlds come to life under the user’s control, and deeper layers of interaction with the real world are also achievable. Leading tech moguls are investing and developing new adaptations, improvements, and releasing more and more products and apps that support these technologies for the increasingly savvy users.

**Science and Medicine**

Additionally, both virtual and augmented realities have great potential in changing the landscape of the medical field by making things such as remote surgeries a real possibility. These technologies been already been used to treat and heal psychological conditions such as Post Traumatic Stress Disorder (PTSD).