BioSpectrum the business of Bio & Health Sciences

Augmented reality changing healthcare landscape

28 September 2020 | Views

AR can play a significant role in the healthcare sector as it looks to reduce risks

The current situation of COVID-19 pandemic has identified new-age technologies playing an important role in reducing human interactions and maintaining social distancing. COVID-19 has pushed many sectors to explore technologies such as Augmented Reality (AR) to maintain business continuity.

The AR market is bound to be pushed due to the usage of smartphones, applications across various sectors, and connected devices. According to the information published on Alliedmarketresearch.com, the global Augmented Reality market size was $11.35 billion in 2017, and forecasted to reach $571.42 billion by 2025, growing at a CAGR of 63.3% from 2018 to 2025.

What is Augmented Reality?

Augmented Reality is a technology, which uses the existing user's environment and overlays the digital/virtual content or information over it to offer immersive digital experience in a real-time environment. AR does not allow its users to lose touch with reality and offers information live and in quick time. AR offers an indirect view of a physical, more real-world environment which is further augmented with graphics, GPS data, sound, and videos.

How can AR enhance the future of healthcare?

Use of AR in locating hospitals and medical support during emergencies:

AR can save lives by actually offering real-life feed through videos and sounds in case of medical emergencies. Imagine someone around you just collapsed and you need to offer immediate medical attention to the patient while they are on the move. Solution-providing applications have been developed to locate hospitals offering specialized treatments, doctors, or ambulances which offer immediate support during such emergencies through GPS data sources. Finding information like this

can barely take a minute to project the exact location of such a facility and immediately help those who are in need.

Use of AR during COVID-19 crisis in India:

In India, amidst the COVID-19 scare, various applications have been launched that have helped the government and healthcare officials to trace and monitor active cases of COVID-19. These applications have been beneficial to track recoveries in specific areas and get a list of quarantined citizens in and around the vicinity, helping citizens to get medical supplies and essentials well on time. A few examples of applications that were launched in recent time are:

Aarogya Setu App:

Aarogya Setu App was developed by the National Informatics Center (NIC) for Ministry of Electronics and Information Technology (MeitY) and is available in 11 languages. The application uses GPS and Bluetooth in smartphones to alert users whenever they come in proximity of COVID-19 patients.

MahaKavach App:

This application was developed by the Maharashtra State Innovation Society and the National Health Authority, which tracks COVID-19 patients who have been quarantined in various facilities across Maharashtra. Using a geofencing app, this application tracks users' locations and determines if they have come in close contact with anyone infected by COVID-19. This application is used to take disciplinary actions against COVID-19 patients who defy quarantine instructions and are suspected of going beyond the radius.

Reducing physical interaction through AR in healthcare:

The advent of COVID-19 has put healthcare facilities to strictly focus on maintaining social distancing. Hence, hospitals and various clinics have adopted ways through which they can communicate in real-time with their patients. One such example is doctors communicating face-to-face to offer medical advice and treatment to quarantined patients.

Traditionally, the access to healthcare was limited where practitioners would consult patients face-to-face; leading to long queues and waiting for patients. The concept of telemedicine is removing these limitations by normalizing the concept of medical consultations over distance, via smart devices and the internet. (This is just an idea, please let us know if there is an application or a solution that has been developed)

Use of AR in pathlabs:

Another example of AR is sensory scanners which can be used by pathlabs to detect veins in order to collect blood samples. Sensory Scanners play an important role in maintaining accuracy while collecting blood samples especially in the case of toddlers and elderly people. These scanners can be deployed by pathlabs to locate veins and collect blood samples reducing sample collection time and maintain accuracy. In the recent time of the globally spread COVID-19 pandemic, Sensory Scanners can prove to be fruitful too.

Use of AR during surgeries:

Real-time data and precision are very important when it comes to complex surgeries. AR healthcare apps can be useful for surgeons while conducting minimal invasive surgeries by locating a tumor or a relatively abnormal disorder in an organ and save patients' lives seamlessly. AR apps can be used to create 3D views of an organ or dysfunction such as tumors in human bodies. This 3D reconstruction of complex issues within a human body empowers surgeons with X-ray views of the organ which needs to be operated on without any radiation exposure in real-time.

AR in training healthcare professionals and patients:

While most of the Indian population resides in Tier II and Tier III cities where healthcare capacities are skewed, it becomes invariably important to have well-trained healthcare staff that can offer smooth services and lesser time of recovery to their patients. Pieces of training and workshops can be offered through AR. Real-time consultations can also be easily accessed by healthcare professionals who have to admit patients with medical emergencies on their way to a hospital allowing them to save the lives of many. AR has also revolutionized medical education for medical students who are now able to see the human body in a 3D view instead of the usual black and white pictures that were used traditionally.

Thus, AR can play a significant role in the healthcare sector as it looks to reduce risks. The overall aspect of AR can be used to modernize the training and learning methods that were very traditionally followed in the sector. Healthcare providers today are banking on the capabilities of AR to offer potential benefits to their customers and businesses through solutions that are beneficial to both. The future of AR in the healthcare sector shall bring in significant advances to healthcare professionalism, patient education, and outcomes along with effective communication.

Ajay Torgal, Managing Director, ATCS Bengaluru