**Motion Capturing**

**Motion capturers and their working:**

Motion capturing is a technology to join together the real-life with the animated computerized forms. Motion capture specialists use sensors over the body of the actors to track their movements and map them on their display screens, and after that, the complex computer programs are used to analyze the information including the movement patterns, speed, and other aspects of taking place.

Motion capturing has its most application among the sportspersons and athletics people to analyze their movements and help them set the targets and goals in sports. It is also used for the players to check their positions and motions while playing and hence to analyze the game tactics they might follow according to their analysis.

**History and Present market status of Motion Captures:**

It is used to trace the live actions and thus is highly used in animated film making. The first-ever animated film that was created using motion capturing was Snow White and the Seven Dwarfs, a Walt Disney animated film. Also, in the Lord of Rings series, the character of Gollum was entirely created using motion capture.

Motion capture market accounted for around 141.7 million USD in 2018, and is expected to grow at CAGR 10.09%, and thus reaching 266.4 million dollars by 2026.

**Types of Motion Captures offered for Human Motion Analysis:**

Human Motion Analysis is used by scientists too to analyze the muscular contractions while accomplishing several tasks and accepting the motor control system and gait dynamics’ relationship. It helps analyze the effects on the gait system with some disorders in anybody. The captured motion can vary in complexities and the mapping can also vary from direct to the indirect one.

During the motion capture, the human body is considered rigid parts linked by the joints. With years, there have been several advancements in the motion captures with several categorizations of them including mechanical, optical, magnetic, acoustic, and inertial. In Human motion analysis, the main categorizations that have the largest applications and are provided widely are optical and inertial trackers. To have a better understanding of choosing the right type, let us have a glance over both of them in details:

1. **Optical Motion Capture:**

Optical motion-sensing acquires a wide area of the technologies where image-based systems capture the motions using several cameras. The estimations are carried out using the 2D imaging, tracking some marked points of the human body. Stereometry is used to relate the points from the images. The used markers are either light-emitting (active) or reflective (passive). The passive systems use Infrared LEDs surrounding the lens of the camera with the IR filters over the lens to track the reflected light from the markers. The active sources, on the other hand, uses a beam of light or lasers for motion captures.

1. **Inertial Motion capture:**

In this technique, the body properties are analyzed through the inertial sensors for maintaining velocities and coming up with motion capture. Miniaturized and micro-machined sensor technologies ensure practicality in inertial tracking used in the accelerometers and rate sensors.

**Services offered by Game App Studio with motion capture technology:**

There are several facilities in which we help with the technology from the sports industry to bio researches, game developments, and other entertainment sectors. Below is a complete brief on all the services that we offer:

1. **Sports sector:**

Motion capture in Sports Biomechanics is helped in the analysis and studies of all the movements during sports activities. Professional athletes and players can use it to understand their current performance and ways to improvise them.

1. **Ergonomics (Human factors)**

Motion capture helps in this area in designing and arranging the workspace systems and products and analyze how people will fit into the area. It is an effective technique to be used in workspace analysis and task analysis for humans.

1. **Motion analysis**

Motion capture has research-based needs in the laboratories for motion analysis. It is used to analyze human kinematics, joint movements, muscle interactions, and other observations related to a person’s movements. It helps observe the effectiveness of any treatment in case of some disorders.

1. **Gait analysis**

Optical cameras are used in gait analysis in the gait labs. It is also important for high-end runners to help them analyze their locomotion, feet, and body postures, and the right movements for better outcomes.

1. **Musculoskeletal Models**

Motion Capture helps enhance the biomechanics and several inner body-related types of research. In getting a clear view of the human body, their ligament positioning, muscle structures, joint orientations, and other inner body analyses can be carried out without invasive methods using the musculoskeletal models developed by motion capture.

1. **Game development**

To develop the game characters and in-game cinematics and visuals, inertial motion capture is recommendable. It can help any indie or expert game developer get a giant fan-base for their games. They are helpful in indoor as well as outdoor graphics development for the games.

1. **Video entertainment**

To get attractive animated characters with the computer graphics and recording accurately the whole-bodily movements to come up with unique characters in the movies, motion capture plays a significant role. It is used in several movies to blend the real characters and environments with animated and virtual ones.

1. **Live Entertainment**

Artists and designers can come up with live performances with animated visuals and on-stage virtual graphics. These provide spectacular live movements smoothly. With this, live characters can be exhibited to the audience that is helpful during the promotional seminars too.

1. **Extended reality**

Motion capture suits can be used to enhance the experience by giving life to the virtual characters for more entertainment and amusement. With this, users can experience the animated virtual surroundings. They can also be used to display live characters wearing the suit on any other platform. And, thus AR and VR technologies help in motion capture for stage interactions and personal ones with far-away people.

**Tools for Motion Capture with us:**

We have an array of motion capture hardware as well as software to capture, analyze, and review the motions and postures. From suits to straps we offer the required means for motion capture in several usages.

1. **Motion Capture Suit, markers, and patches**

We have motion capture suits in several sizes to fit closely to the users. They are the specially designed ones to assure maximum interactions and accurate results.

These suits have hooks and Velcro to attach the markers and sensors. We have optical as well as inertial sensors. 60-65 markers are required per actor, and we have a vast collection of these for multiple uses simultaneously.

Further, we also have neoprene patches to tightly attach the markers and prevent them from transferring to other parts and making the distinguishing of actors easier.

1. **Head-Mounted camera**

For facial captures and recording facial expressions, we also have Head-Mounted cameras (HMC). It provides complete intricacies of any performance with 1-4 attached cameras for varying models and varying outcomes.

1. **Volume**

A volume is a place/ space where capture can be provided. It is a type of studio with around 60+ motion capture cameras and is perfect for motion capture on a wide scale or for extensive usages like an athlete’s use or a movie animation use. We also offer green screen work for better results and best scenery representations.

**For best Motion Capture services, reach out to Game app Studio and get a set of best and high-quality captures with supreme analyses!**