Touchless Gesture based Interaction

Controlling different devices without any touch sounds interesting .These days touchless gesture based interaction is more demanding everywhere as it looks an attractive interaction between human and computer It leads to hygienic environment as need in pandemic nowadays .So lets discuss what is it ,the techniques used in past and now ,and its rules

Touchless gesture based interaction

Replacing touch screen interaction with gestures of hand to control devices ,if anyone of past think about it he/she must be curious how to make it possible So now it can be possible using Augmented reality

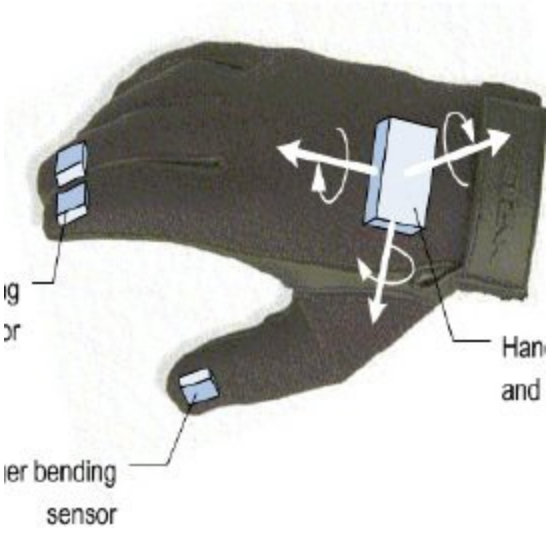
technology that creates gestures and interaction controller sensors to make an environment between real and virtual world. Different mathematical techniques can also use to make it possible especially the people who are unable to use technology by touch can use gesture techniques.

The basic problem in the beginning was how to make computer understand hand gesture. This leads to two approaches we will discuss

- Data-Glove Based Approach
- Vision Based Approach

Data-Gloves based approach

In this approach there is a glove which contains multiple number of sensors and connect it with computer by using electric line



Data Glove

The user puts glove in hand ,stand in front of screen and just move his/her hands .The glove collects hand and fingers movement and convey it to the computer So computer can get the information.

Size issue

This technique is amazing and accurate but the issue was it was expensive and some unexpected experiences like different users do not get their size and the line limit of uses scope.

Vision Based Approach

In this approach the system gets input visually and uses camera to recognize the hand gestures no need to use any other devices. So this approach overcome the limitation occurs in data glove approach as no need any kind of encumbrance ,easily free to control which leads to a natural interaction between computer and human. So the main purpose touchless interaction with convenience occurs So become focus of researchers for the development of friendly interaction. But step behind is having no accuracy like data glove approach

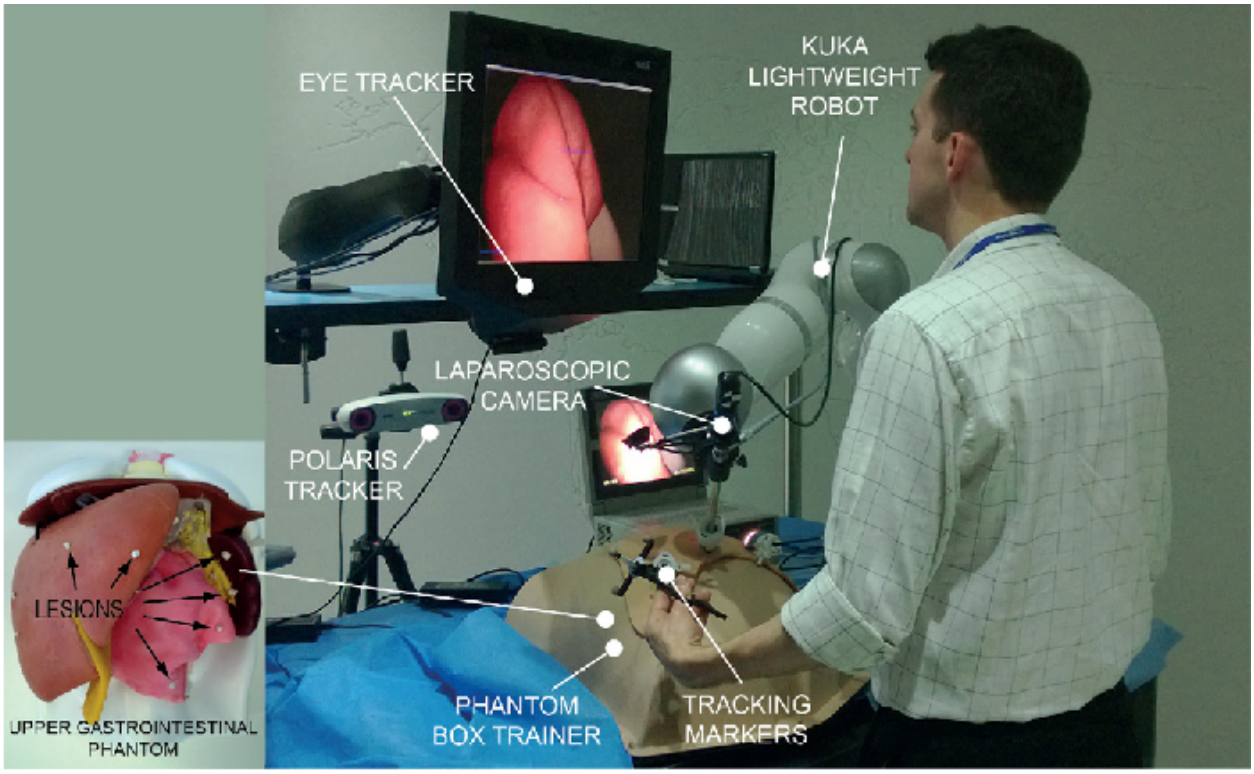
Vision based approach

Lets discuss some examples where vision based approach is using

there are some people in a meeting room for some specific purpose and need to show their ideas by presenting and by drawing during presentation. At that time vision based interaction is best suited as no one has time to use mouse and keyboard together as this approach just require a camera to operate nothing a huge setup.

Areas using Gesture based interaction

There are many existing systems where gesture based interaction is working and widely applicable as in robot control where robots are controlled using gestures techniques, in medical researchers on different kinds of human concepts, in navigation systems, in game as latest technology,



Applications

For deaf students some researchers used gesture based techniques to develop a game so they can learn language using signs. Now using gestures-based screen using mobile phones computer watching videos has become fun for the end users and a easy going for the people who does not know how to use technology .There are musical based instruments for entertainment using gesture based approach