MIDI keyboard

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3D Mouse

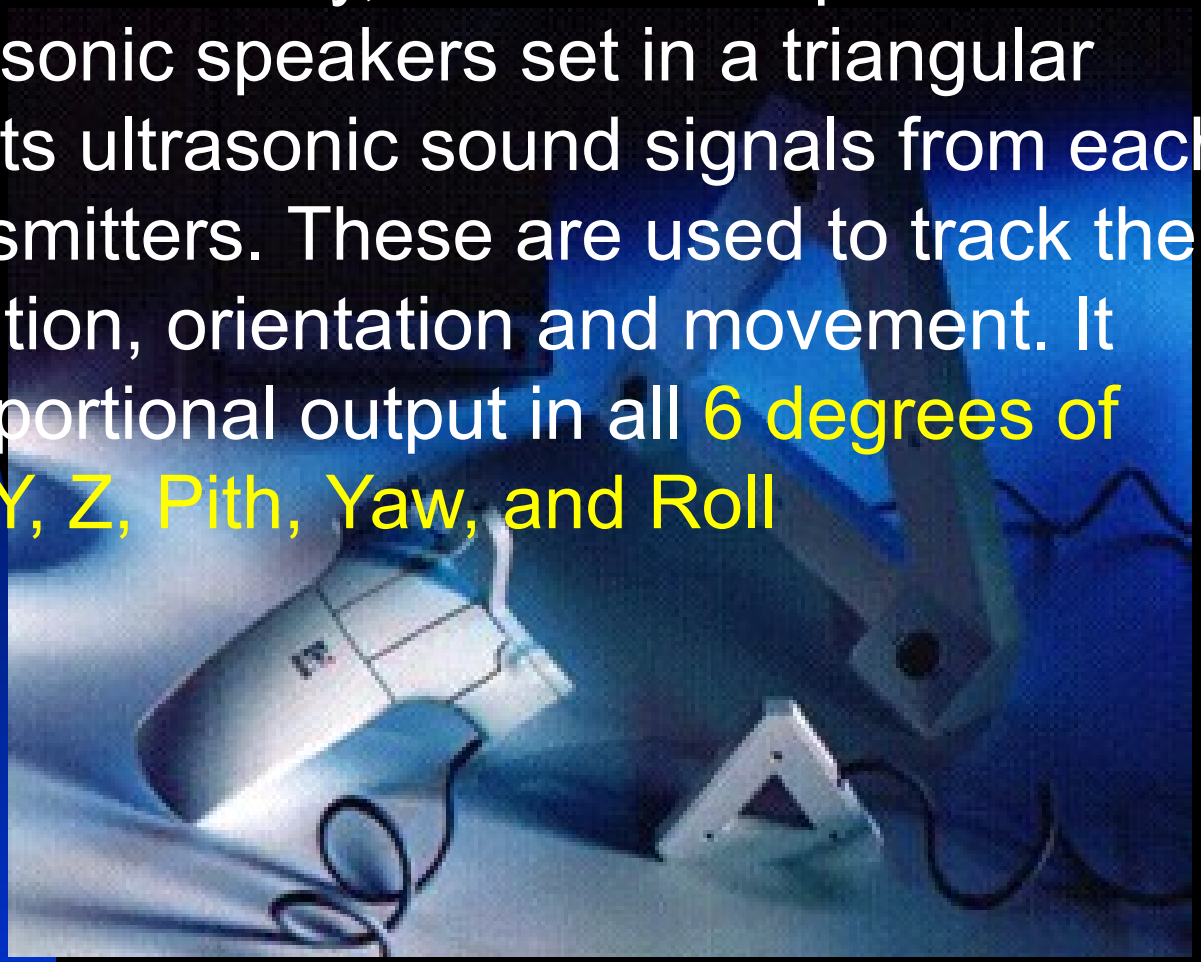
- 3D Mouse is the perfect input device for building and manipulating 3D models and Virtual Reality Worlds!

3D Mouse

- The 3D Mouse consists of a tabletop transmitter, handheld receiver in the shape of a mouse and a control box. The transmitter contains 3 speakers which emit ultrasonic signals and the receiver contains 3 miniature microphones to sense these signals. The transmitter and receiver communicate along a line of sight, facing each other. A control box is connected to both devices and determines the position of the mouse based on the timing of the microphone signals and also detects mouse status buttons.

3D Mouse

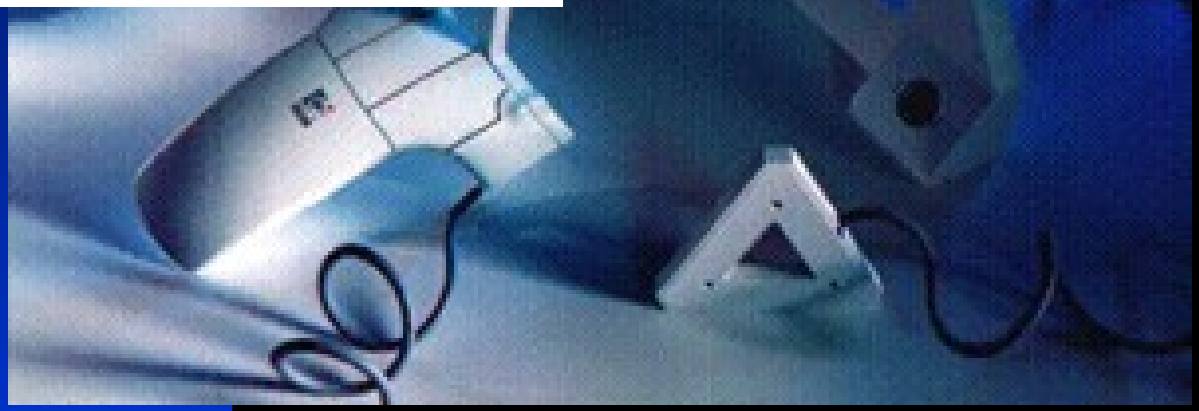
- The Logitech 3D mouse is based on a ultrasonic position reference array, which is a tripod consisting of three ultrasonic speakers set in a triangular position, emits ultrasonic sound signals from each of the tree transmitters. These are used to track the receiver position, orientation and movement. It provides proportional output in all 6 degrees of freedom: X, Y, Z, Pith, Yaw, and Roll



3D Mouse

3D MOUSE

Head Tracker



University of the Ryukyus

3D SHUTTER GLASSES

You need to wear a pair of 3D SHUTTER GLASSES to visualize the 3D pictures and 3D videos.

With the signal (via electrical wire or infra-red) emitted from the computer which is synchronized with the images/videos displayed on the computer monitor, the right-hand and left-hand shutter glasses will turn on and off sequentially to let the observer view the right-hand and left-hand images of the objects or videos. As the refresh rate is fairly high (>60 frames per second), our human brain will treat the images from the two eyes to arrive simultaneously and combine them to form the 3D images which have the depth clues. Almost all people can see the 3D effects without difficulties but prolonged viewing may cause some unpleasant feeling to some people.

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3D SHUTTER GLASSES

HMD

Head Mounted Display

- **In the 1960s Raymond Goertz at Argonne**

National Laboratory in Argonne, Illinois

demonstrated early versions of HMDs.

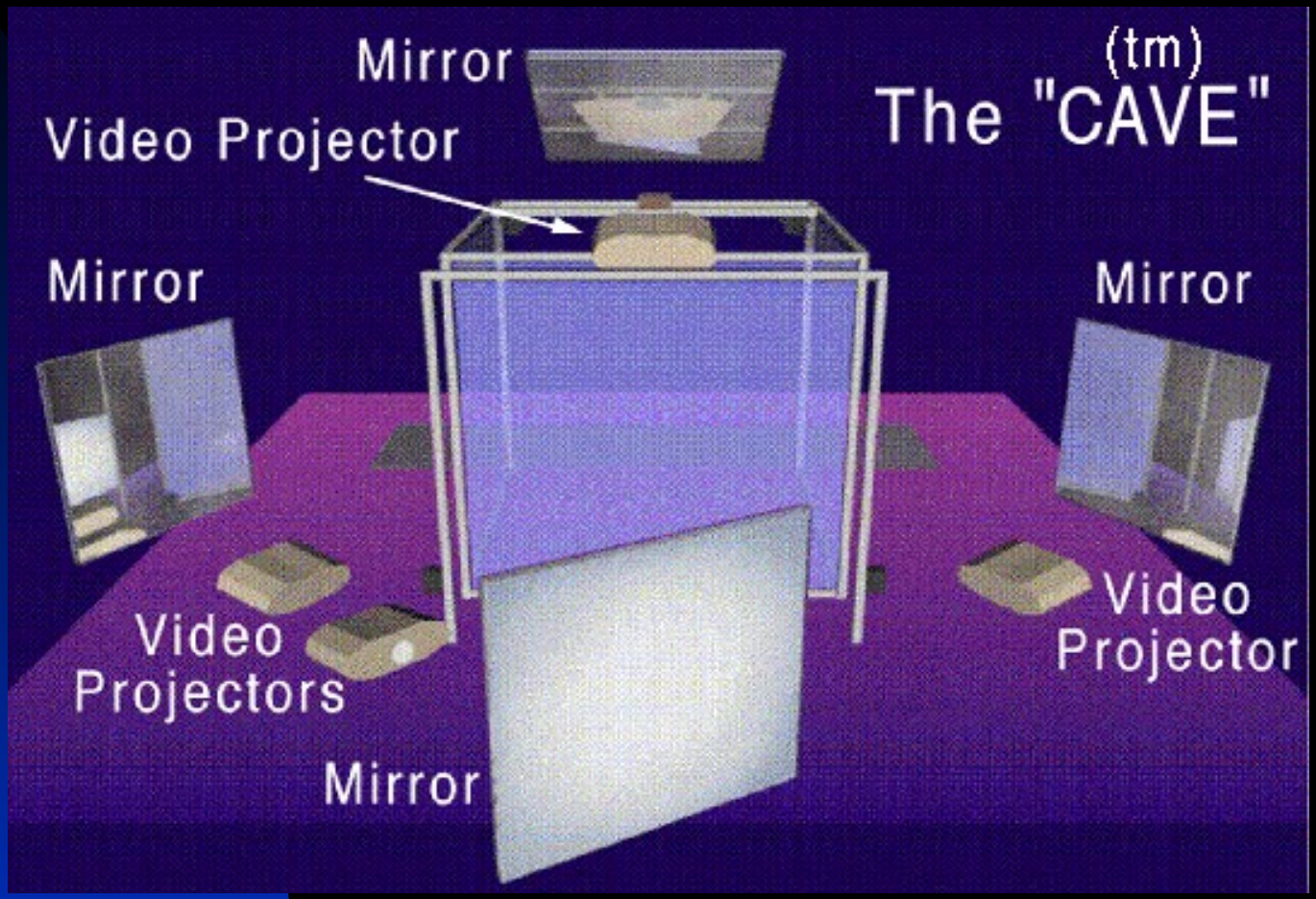
HMD

- HMD1 Head-mounted Display

CAVE

- **The CAVE is a 10’ X 10’ X 9’ theatre that sits in a larger room measured to be around 35’ X 25’ X 13’.**
- **The outside room must be free of light at all times while using the CAVE.**
- **The walls of the CAVE are made up of rear-projection screens, and the floor is made of a down-projection screen. High-resolution projectors** (University of Illinois)

CAVE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Video Projector
(tm)
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CAVE