**Three dimensional Image display, using laser projection.**

Invention Background:

There are many types of 3D displays:

·        Stereoscopic 3D displays show a different image to each eye

·        Auto stereoscopic 3D displays do this without the need for any special glasses or other head gear. within this type, there are several methods, such as:

o       Flat Panel device:

▪▪▪▪▪▪▪▪▪ A lenticular lens is an array of magnifying lenses, designed so that when viewed from slightly different angles, different images are magnified.

▪▪▪▪▪▪▪▪▪ A parallax barrier, consists of a layer of material with a series of precision slots, allowing each eye to see a different set of pixels, so creating a sense of depth through parallax. A disadvantage of both technologies is that the viewer must be positioned in a well defined spot to experience the 3D effect.

▪▪▪▪▪▪▪▪▪ Eye tracking device, that automatically adjust the displayed images to follow the viewer's eyes as they move their head, only suitable for one person.

▪▪▪▪▪▪▪▪▪ Holographic 3D displays: reproduce a light field which is identical to that which emanated from the original scene

o       Volumetric displays, where some physical mechanism is used to display points of light within a volume. Such displays use Voxels instead of pixels.

▪▪▪▪▪▪▪▪▪ multiplanar displays, which have multiple display planes stacked up

▪▪▪▪▪▪▪▪▪ A swept-volume display: the three-dimensional image is formed by illuminating a rapidly moving display surface, which may be a spinning diffuser. Typical schemes use a circular screen rotating at about 900 rpm, which sweeps a spherical volume at each half-rotation.

▪▪▪▪▪▪▪▪▪ Static volume: In the simplest case, an addressable volume of space is created out of active elements that are transparent in the *off* state but are either opaque or luminous in the *on* state. When the elements or voxels are activated they show a solid pattern within the space of the display.

This Invention is based on the auto stereoscopic, volumetric display, with no need of any special device to view the image, and by displaying the image "as is, and can be viewed from all directions, unlike the flat panel.

Abstract:

The device uses lasers with sufficient amout of energy, that it's light course is seen duo to the existence of impurities in the sorrounding air. by spreding the Laser beam, through a mirror or a lens, thus making it less powerfull so it would not be seen to the viewer, and using a second mirror or lens to focus it to one single point, making it a single voxel in the air, no oother medium needed.

the device consists of many rows of this kind of laser projection, to creat a whole screen, and creating several screens one behind the other, to create a three dimentional image, layer by layer.

there is a possibility to use rotating mirrors to create a scan, not projecting all the lasers at once, but projecting the laser through several lenses or mirrors on a high frequency.

