CLAIMS

1. An immersive optical projection device comprising:

a frame;

a projector array comprising:

at least one multi-dimensional image projection device;

at least one light source; and

a reflector,

wherein said reflector is affixed to said frame; and

a projector array support,

wherein said projector array is attached to said projector array support and said projector array support is affixed to said frame,

such that a beam of light produced by said light source is acted upon by said multi-dimensional image projection device and the resulting modified beam proceeds towards said reflector and is further directed into a wearer's eye.

2. The immersive optical projection device of claim 1, wherein said projector array is a scanning projector that can steer at least one beam of light with at least one degree of freedom.

3. The immersive optical projection device of claim 1, wherein an optical beam modifier is placed between said light source and said at least one multi-dimensional image projection device, such that the vergence of said beam of light impinging on said optical beam modifier can be dynamically controlled, and is further steered with at least one degree of freedom by said at least one multi-dimensional image projection device.

4. The immersive optical projection device of claim 1, wherein an optical beam modifier is placed between said at least one multi-dimensional image projection device and said reflector, such that the vergence of said modified beam emanating from said at least one multi-dimensional image projection device, can be dynamically controlled as it proceeds to said reflector.

5. The immersive optical projection device of claim 1, wherein said at least one multi-dimensional image projection device is a multi-degree of freedom beam steering device.

6. The immersive optical projection device of claim 1, wherein said projector array is a scanning projector.

7. The immersive optical projection device of claim 1, wherein said reflector is a revolved approximately conic section reflector surface.

8. The immersive optical projection device of claim 1, wherein said reflector is a refractive element having a reflectively coated distal surface and a substantially transparent proximal surface such that said modified beams passing through said substantially transparent proximal surface and reflecting off of said reflectively coated distal surface are further directed back through said substantially transparent proximal surface and into a wearer's eye.

9. The immersive optical projection device of claim 1, wherein said reflector is a revolved approximately conic section reflector body having an array of individually controllable micromirrors disposed on said revolved approximately conic section reflector surface.

10. The immersive optical projection device of claim 1, further comprising:

at least one power source;

at least one communications module; and

at least one speaker,

wherein said power source, said communication module and said speaker are attached to said frame.

11. The immersive optical projection device of claim 1, further comprising:

at least one outward looking camera; and

at least one motion sensor,

wherein said at least one outward looking camera is affixed to distal surface of said reflector and said at least one motion sensor is affixed to said frame.

12. The immersive optical projection device of claim 9, wherein said array of individually controllable micromirrors are configured to control the vergence of an impinging beam of light.

13. The immersive optical projection device of claim 9, wherein said array of individually controllable micromirrors are configured to control the direction of an impinging beam of light.

14. The immersive optical projection device of claim 1, wherein said projector array support is a refractive corrector lens that is sealed against said reflector, thereby forming a sealed cavity protective of said reflector and said projector array, wherein said projector array is affixed to said refractive corrector lens and within said sealed cavity.