

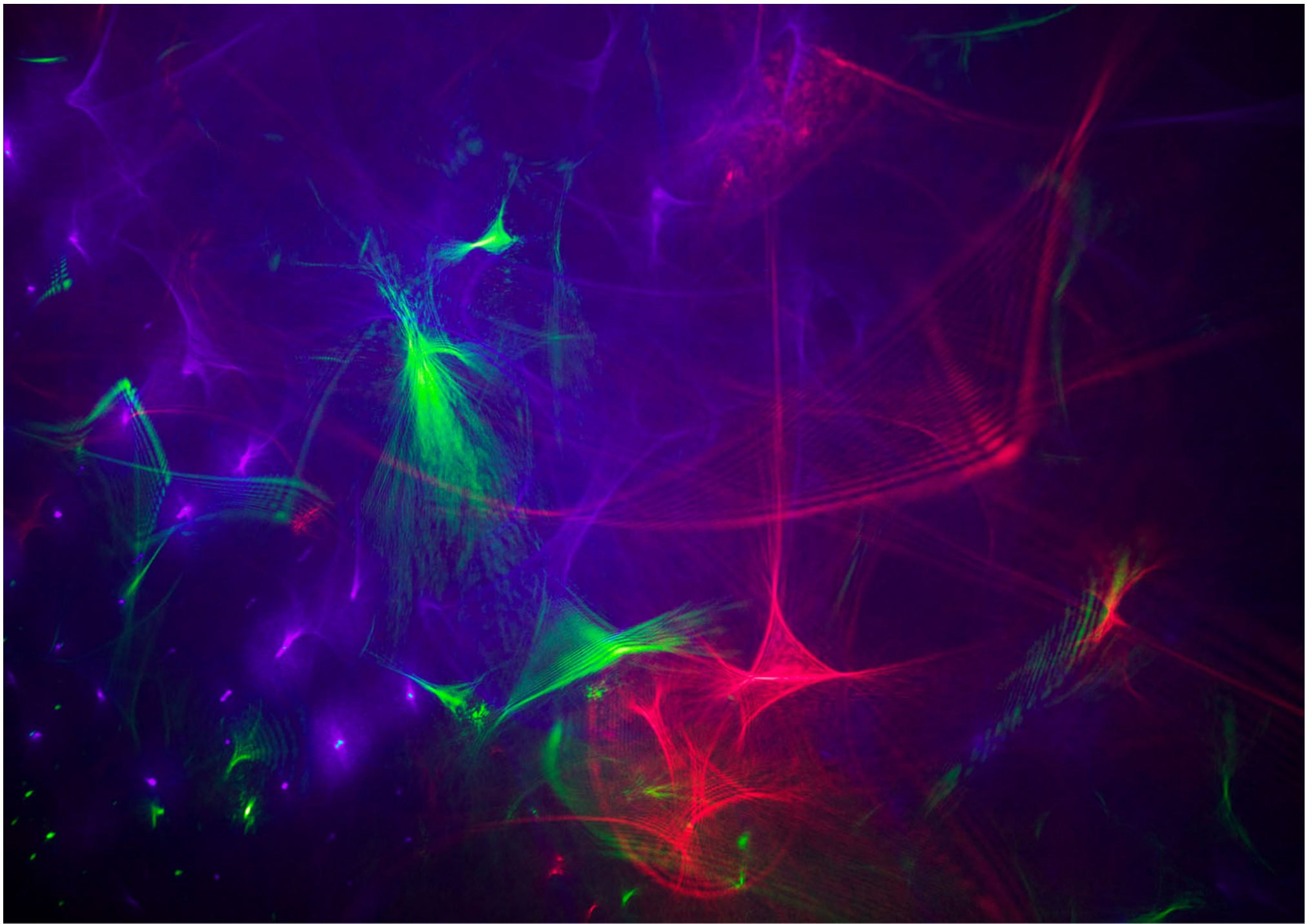


Stratus 10

A Kinetic Laser Sculpture
ArtPrize 2012

Mike Gould, Laser Artist





Stratus 10 kinetic laser sculpture display (detail)

STRATUS 10

AN INTERACTIVE KINETIC LASER SCULPTURE BY MIKE GOULD, LASER ARTIST

My entry for ArtPrize 2012 will be exhibited in the lobby of the JW Marriott Hotel in Grand Rapids, Michigan. This piece is a very large-scale interactive combination of laser display and audience participation, with a side of music and motion. This will probably be the largest indoor laser display in the world, clearly visible from the outside and from across the river that flows next to the venue.

Powerful lasers project a complex shifting pattern of light and dark, controlled by signals received from a motion-sensing device.

As with life itself, here is a combination of randomness mixed with control, as the mechanics of the devices create patterns that never repeat exactly, yet can be controlled as to speed, brightness and other variables.

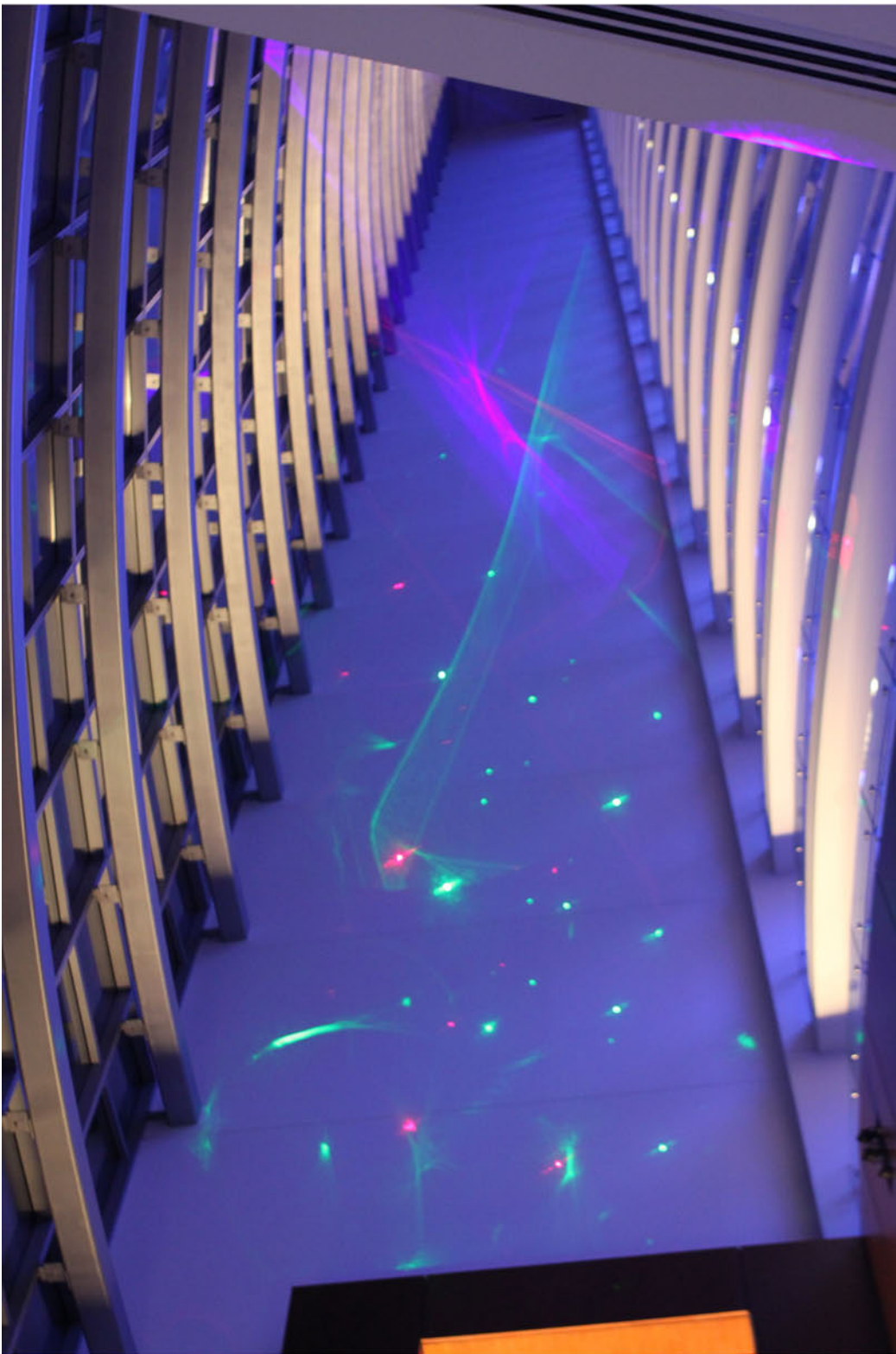
There is a historic dimension to this, as the basic principles of such photonic patterns were established by light artist Thomas Wilfred back in the 1930's. He didn't have lasers at his disposal, of course, but used spotlights reflected and refracted off of reflective foil to create his art. He called this "Lumia". His works also involved music.

Depending on existing lighting conditions, the display will be visible during most daylight hours, but it will look best after dark.

ARTIST STATEMENT

My artistic focus has always been concentrated on the interplay of art and technology, primarily the interaction between the audience and light. I try to raise light to its purest level, illuminating our world in novel ways to inspire and awe the beholder. And what better way to condense the perfection of light than by using lasers - monochromatic until combined, linear until artistically altered, coherent until molded by esthetic enterprise.

A purity of color, a movement of line and form, a brightness to rival the natural noon; that is my direction.



Demo of Stratus 10 Kinetic Laser Display

This was photographed during a demonstration of the prototype Stratus 10 device, which uses lasers that are around 1/1000 the power of the final unit.

This is a combined Red-Green-Blue laser projector, all in one chassis. The final unit will have six large lasers filling this space.

This was taken around 5:00 in the afternoon in November, 2011.



Here is an artist's conception of the Stratus 10 display sculpture, sited in the atrium of the JW Marriott. The projection area is above and to the right. Computers, monitors, and motion sensors will sit on the curved shelf.



Maquette

This is a 1"=1' scale model in plastic and aluminum of the final display sculpture.

Each of the independently-aimed laser cannons will contain a single high-power laser shining through custom optics.

The entire "ring of fire" support is also adjustable to optimize the final display.

The support will be a heavy-duty section of lighting truss concealed in a fabric sleeve.

Power supplies for the lasers will be concealed at the base of this.

The unit will be around 12' tall.

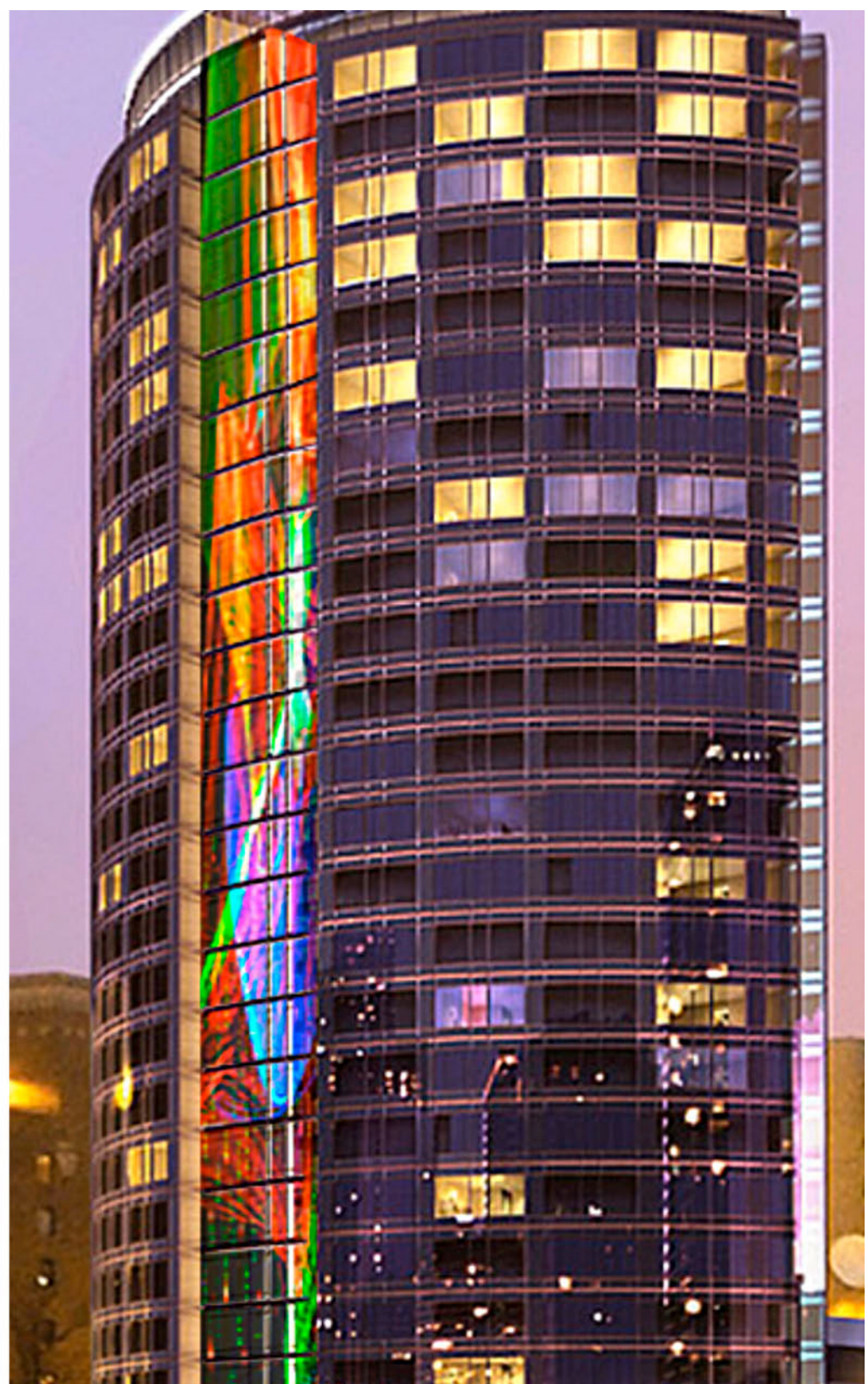
View From Across the River

This is the artist's conception of the piece as viewed from the walkway across the river from the JW Marriott.

The colors will be flowing up and down, controlled by the movements of a visitor in the atrium.

We intend to mount a WebCam on the museum across the river, and broadcast this via the hotel's internal video network so that the visitor in the atrium can see the results of their movements on a monitor.

We should also be able to stream this world-wide.



Glass Working

The artist is seen preparing one of the glass diffractive elements used in the piece.

When a laser passes through the warped glass, it is spread out in a manner that is controlled, abstract, and beautiful.

In addition to glass working, the Stratus 10 creative process involves electronics, aluminum machining, plastics fabrication, drafting, computer graphics and cat herding.



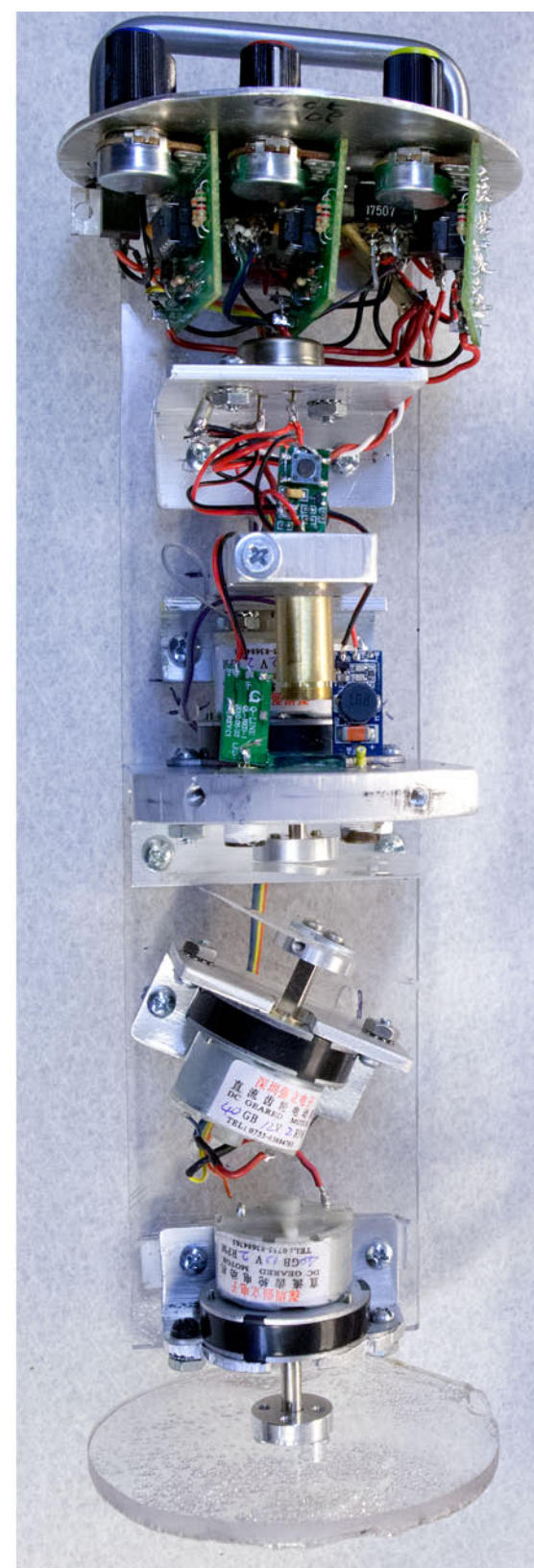
Working Prototype

Here is the proof-of-concept device used to display the Stratus 10 patterns.

The artist has been working on this since May, 2011. There have been many changes during the development process.

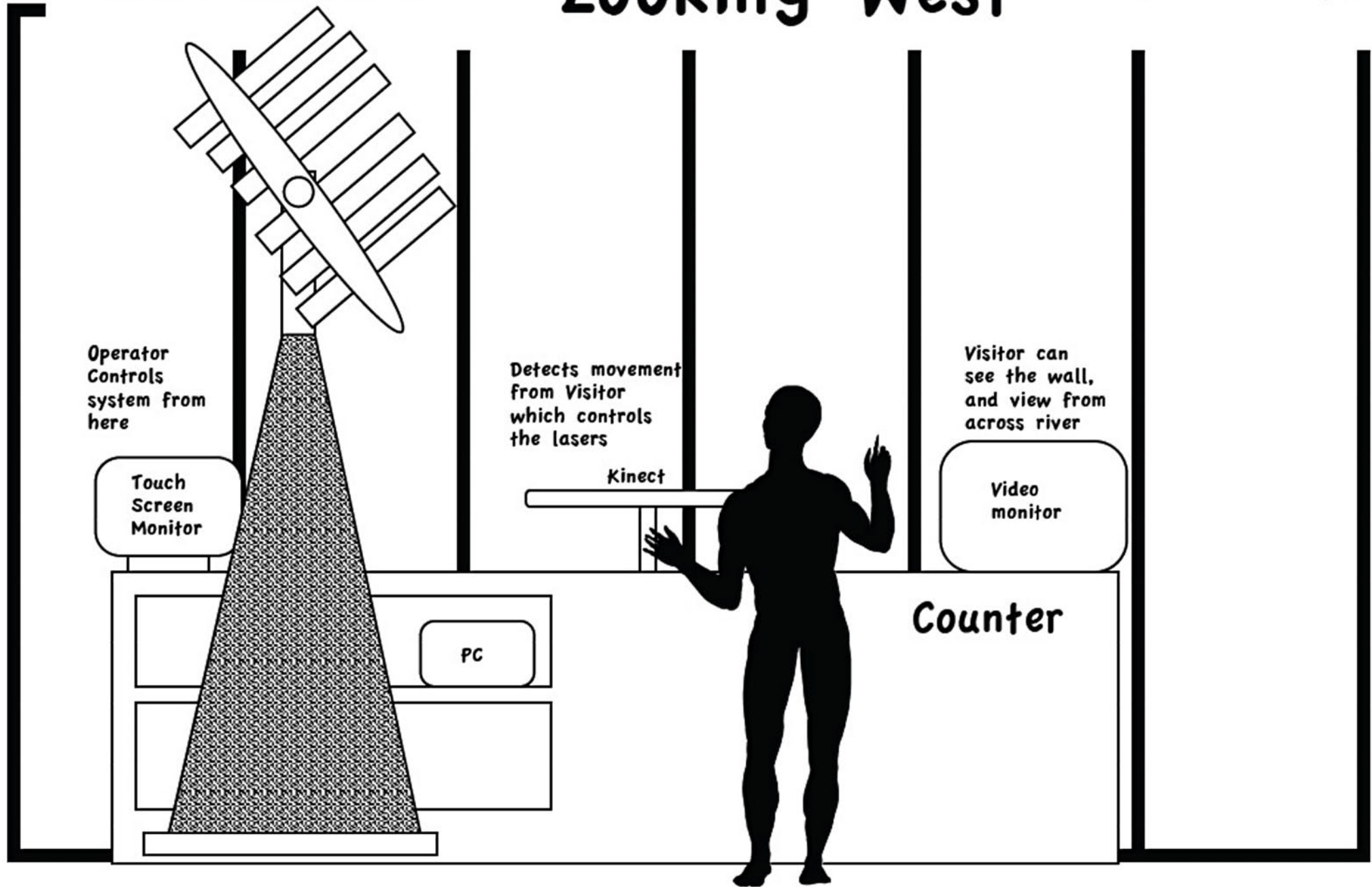
This is an early version, which was used to make the demo photos seen throughout this book.

The part shown is encased in a cylindrical housing for use.

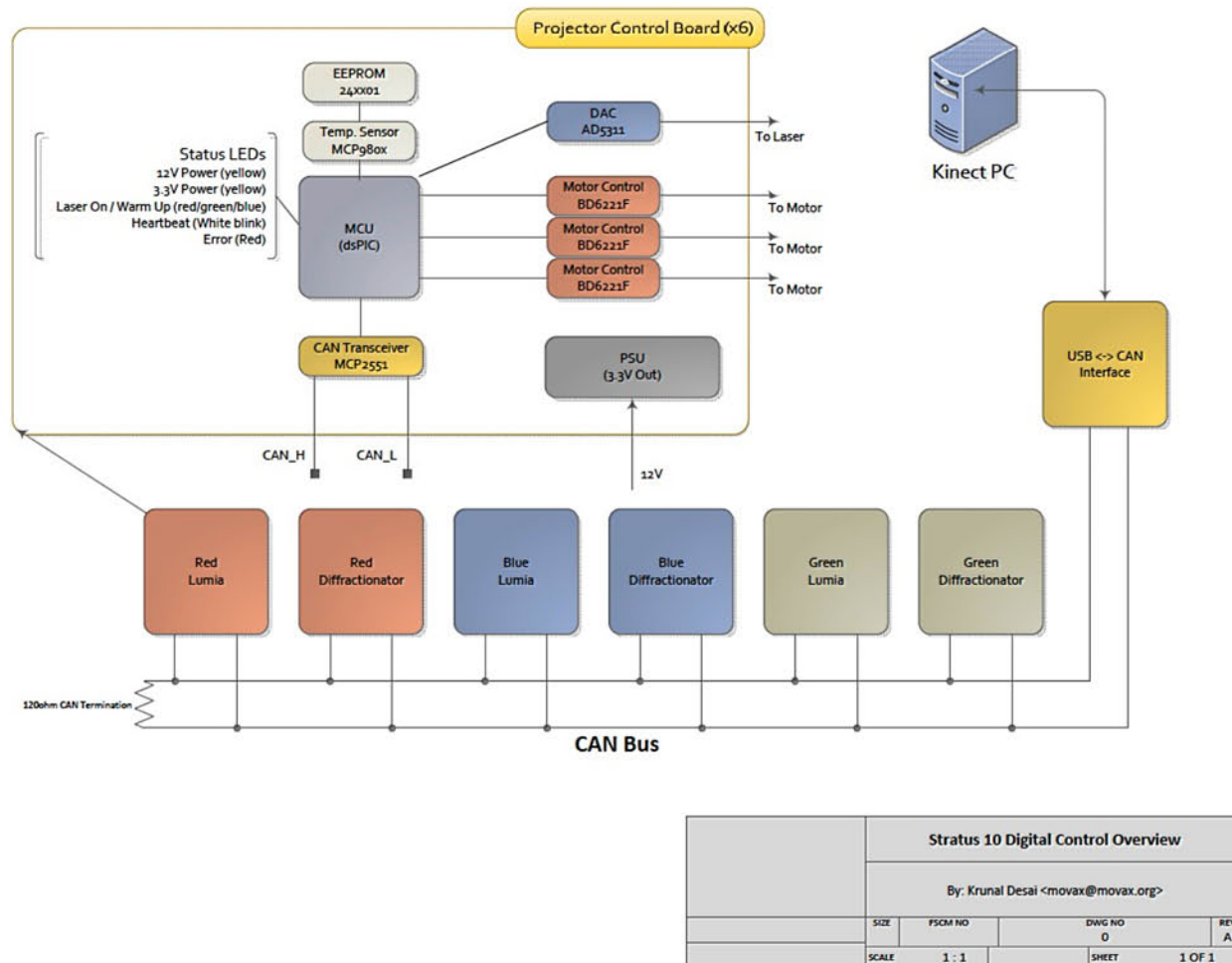
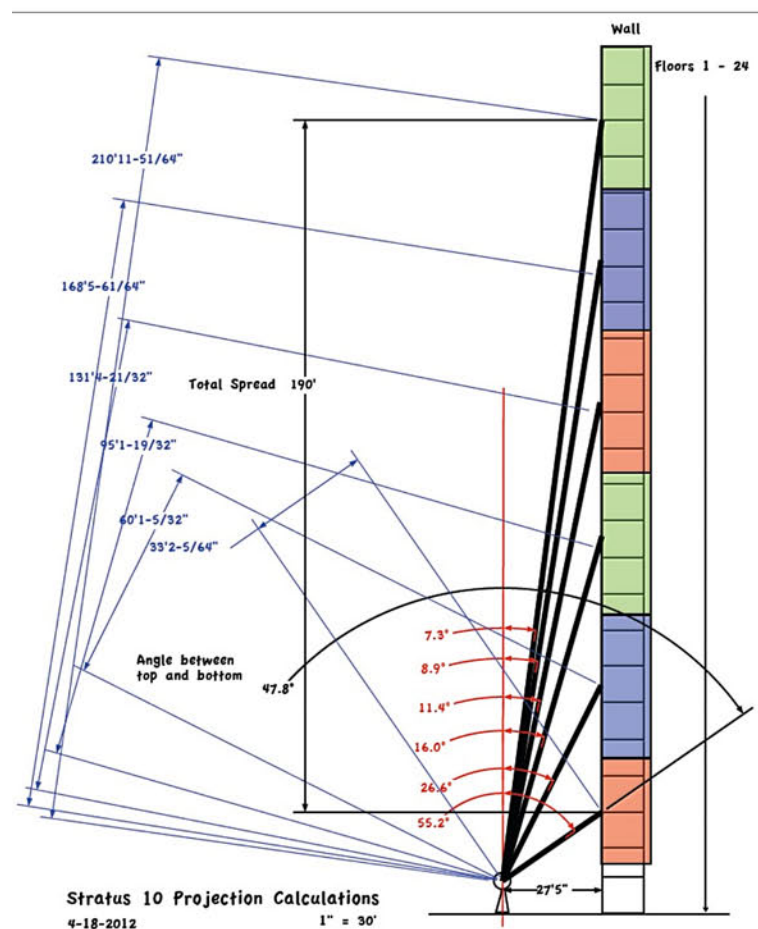


Looking West

Projection
Wall



A diagram of the set up. The projector is at the left. The artist stands by this, monitoring the activity of the controlling computer. The visitor stands in the middle, moving in front of the Kinect sensor to control the display.



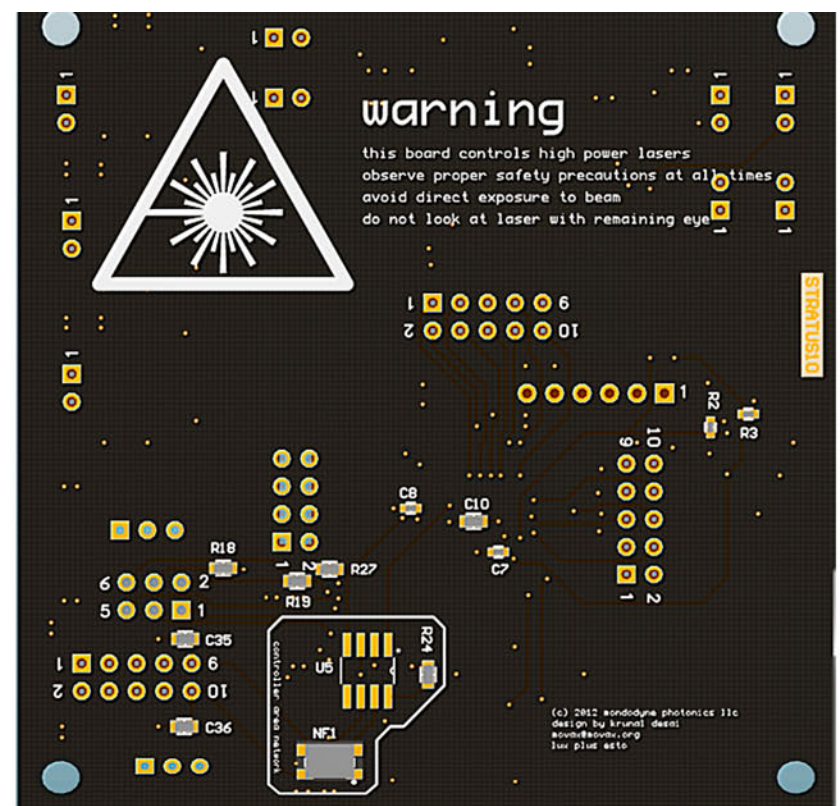
Some of the technical drawings used in the development of Stratus 10. Our digital electronics engineer, Krunal Desai, designed the drawing on the right.

More Technical Details

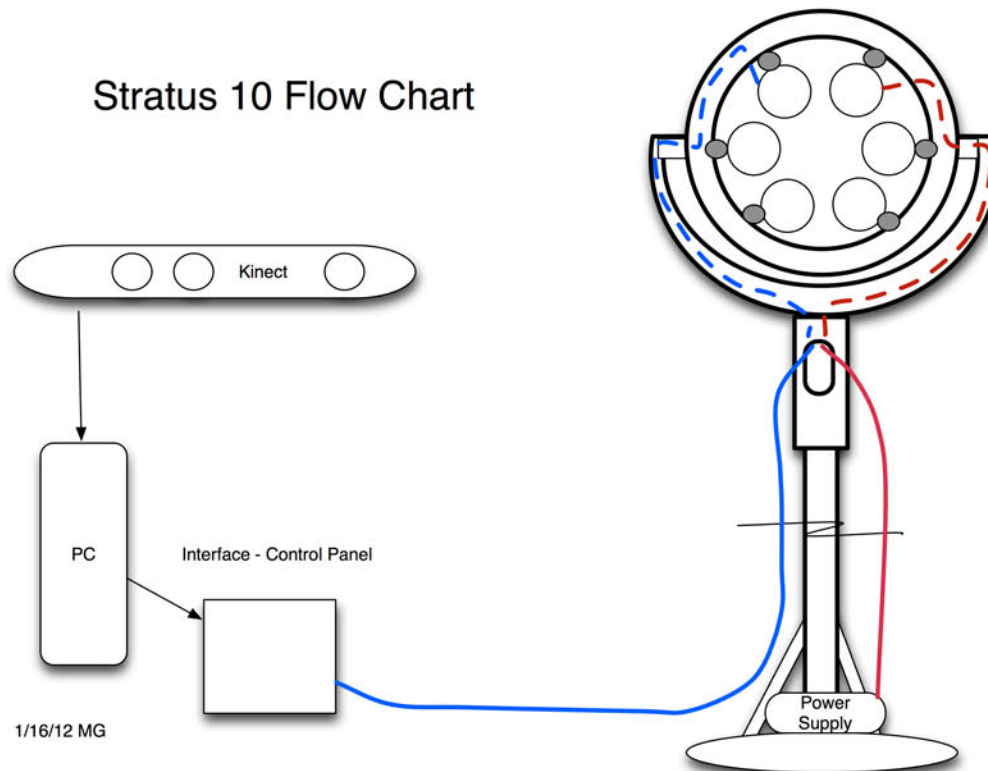
On the right is the custom-designed 4-layer circuit board that will be included in each individual laser cannon. These control the brightness of the lasers and the speed of the moving elements, and are controlled in turn from the custom programming running on the PC.

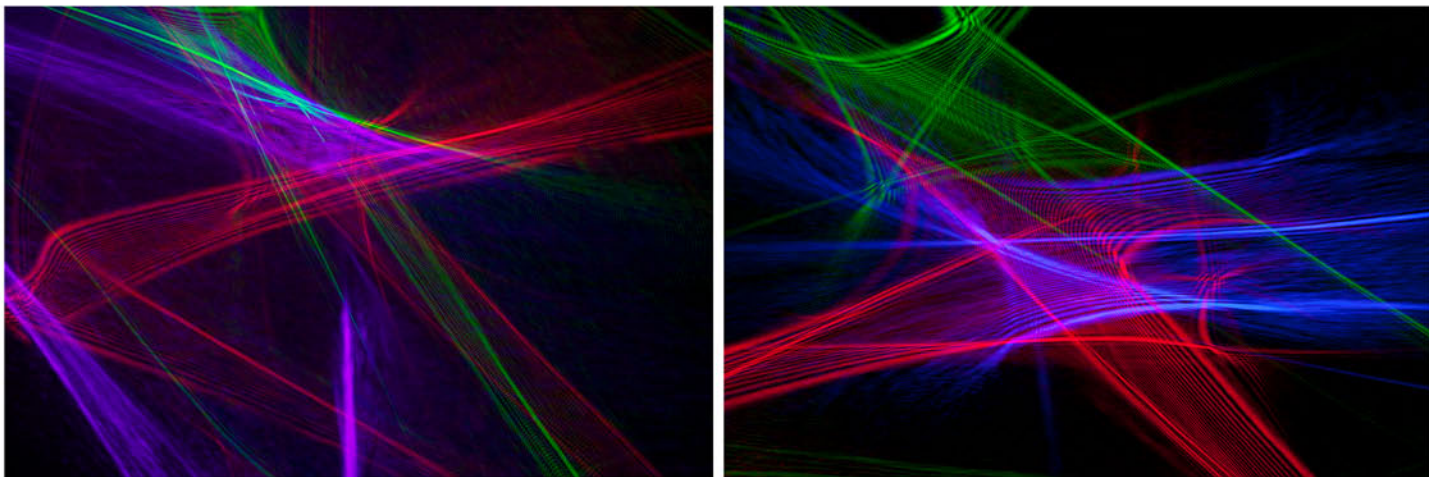
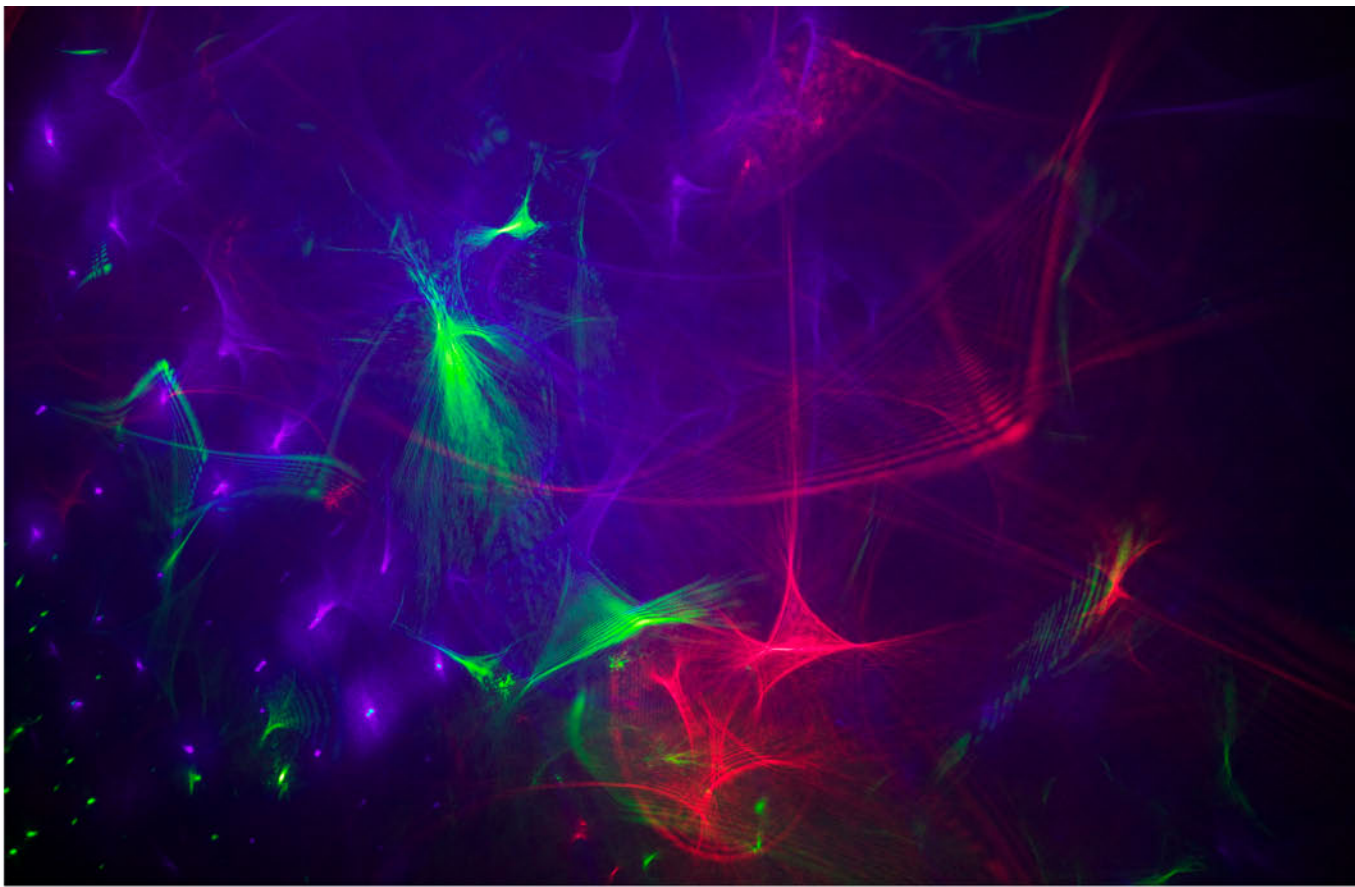
The PC picks up control signals from the Kinect sensor, which is monitoring the movements of the visitor.

The drawing below shows this signal flow.



Stratus 10 Flow Chart





Photos of various aspects of the kinetic laser display.

