If a building were a microscope,

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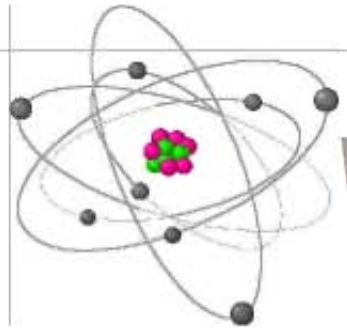
Fall 2009



What are the Atoms

and molecules

that a building sees?

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Fall 2009

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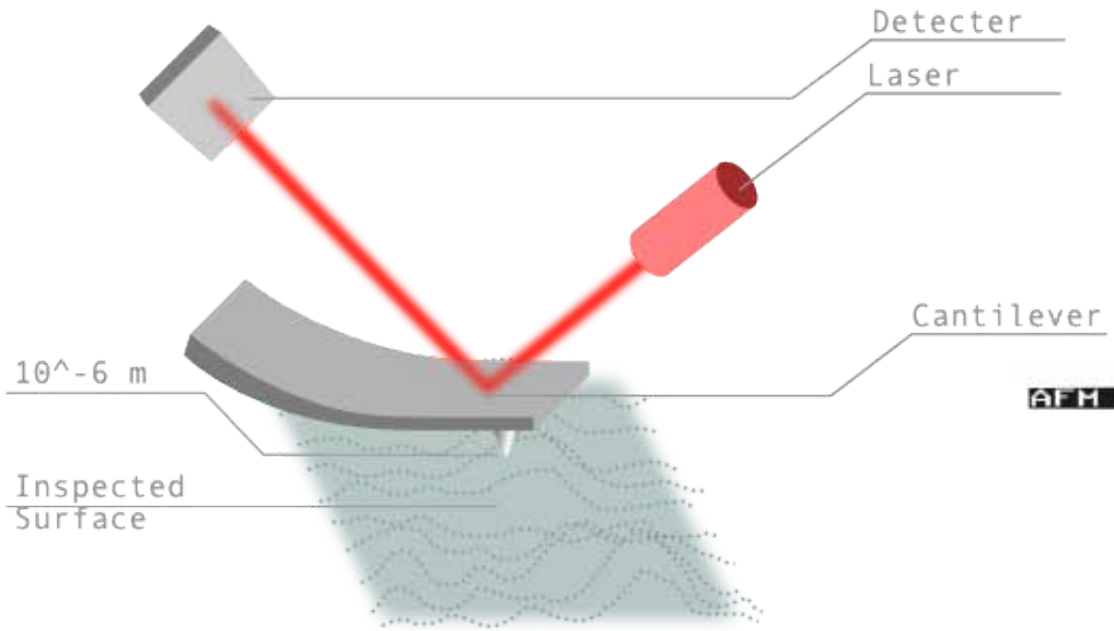
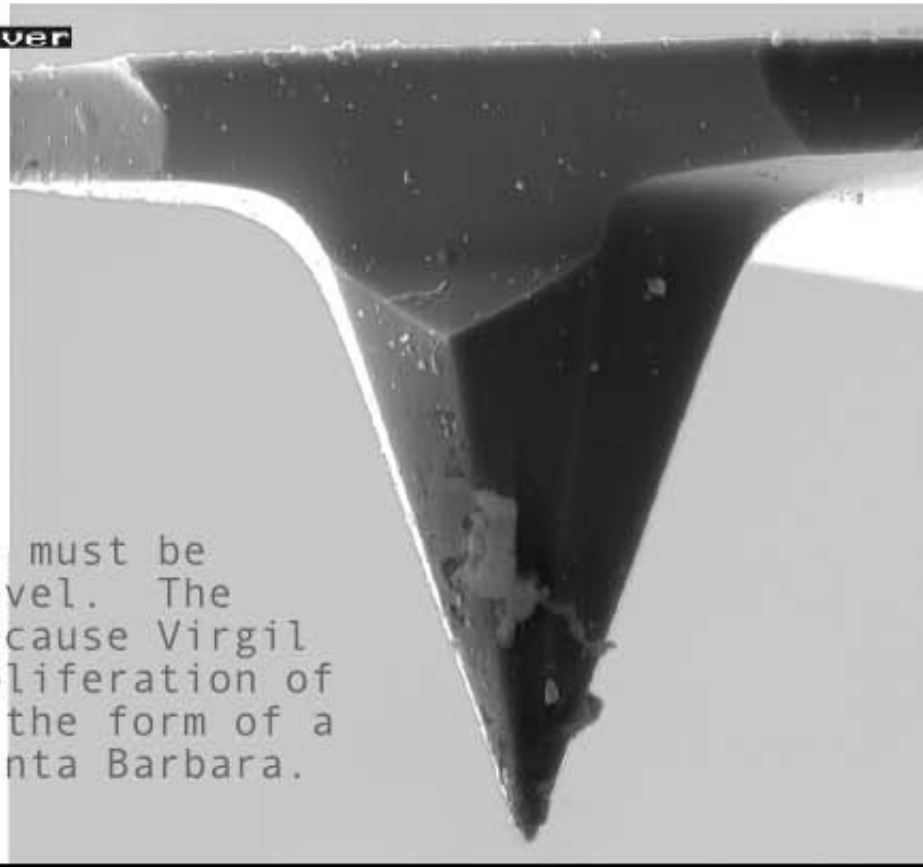
The Atomic Force Microscope



AFM Cantilever



Working and manipulated atoms at the atomic level must be predicated by the ability to see at the atomic level. The atomic force microscope provided that window. Because Virgil Elings was instrumental in the refinement and proliferation of these devices, it is fitting that the wall takes the form of a microscope into the nanotechnology field at UC Santa Barbara.

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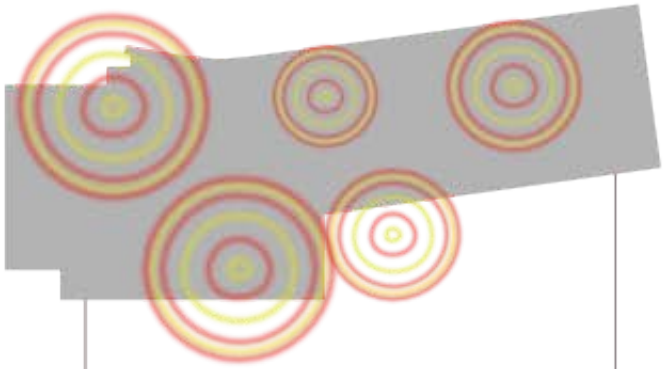
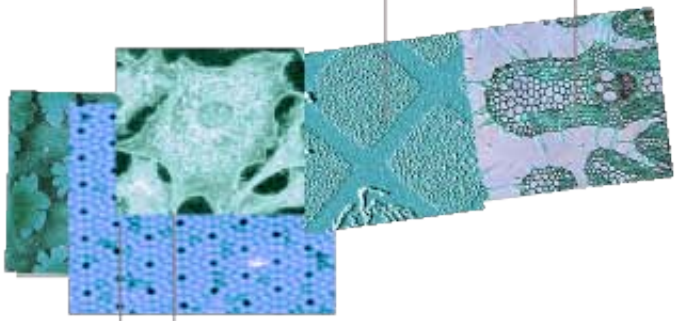
Display Modules

Module 1:
Social Microscope



Scanning for human Social Activity

Module 2:
Research Microscope

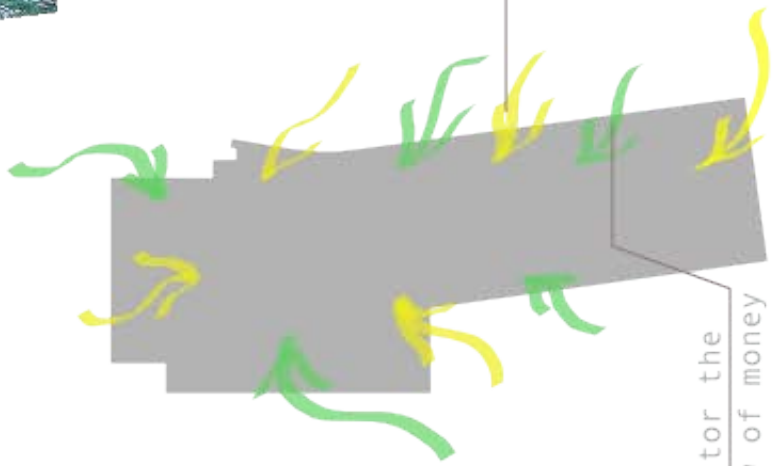


Displaying Research as it becomes available

Celebrating the symmetry of The atom

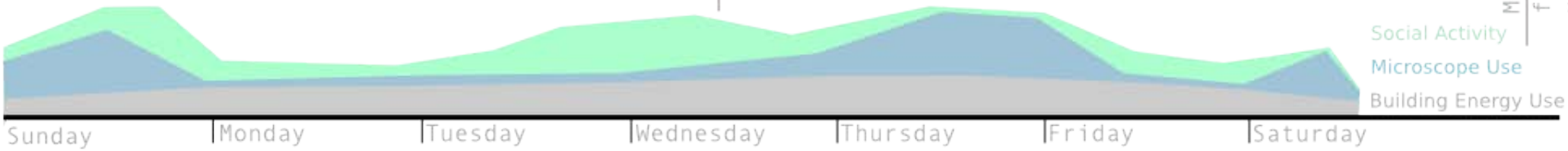
Research Past and Present

Module 3:
Consumption Microscope



Monitoring the flow of Energy into the building

Monitor the flow of money used for research



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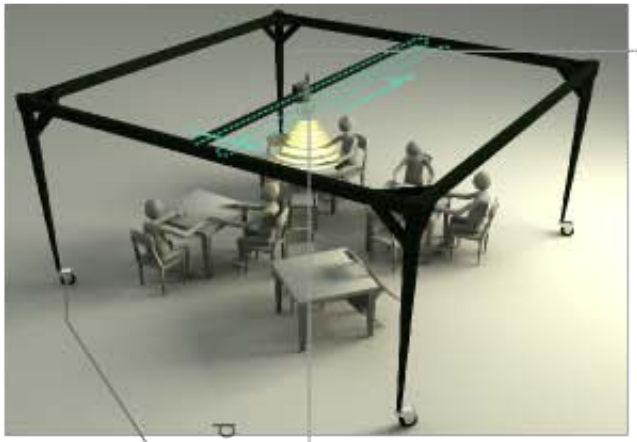
Module 1: Social Microscope



Engine
scans back
and forth at the rate
of 3-5 scans/day

As conversations occur and people footsteps fall, a resultant pattern will emerge

rollers for portabability and storage

Hyperbolic Bell for directional Sound Capture

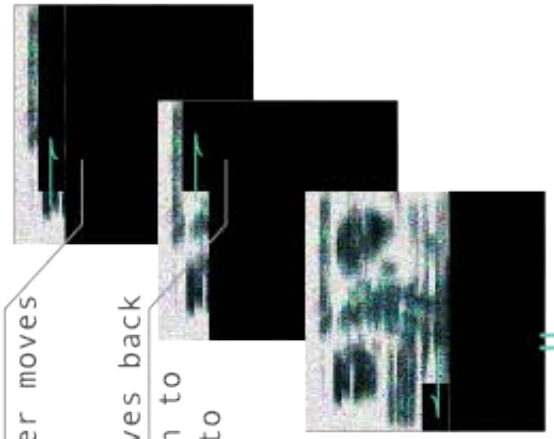
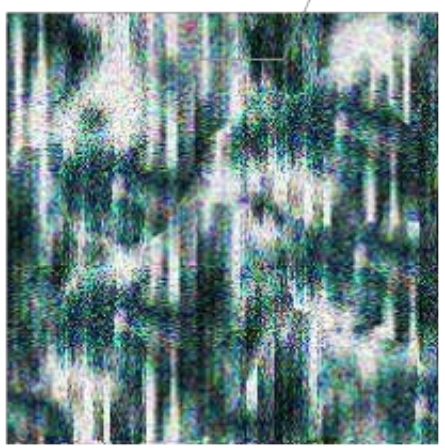


Image advances As scanner moves

Image moves back and forth to conform to scanner

Simulated Resultant Image



The social microscope is the social analogue of the acanning electron microscope. Where the latter detects the a material's surface through atomic forces, the diaphram in the social microscope is vibrated through changes in air pressure cause by social interaction, a microphone. It is designed to sweep an area and pick up its social resonance.

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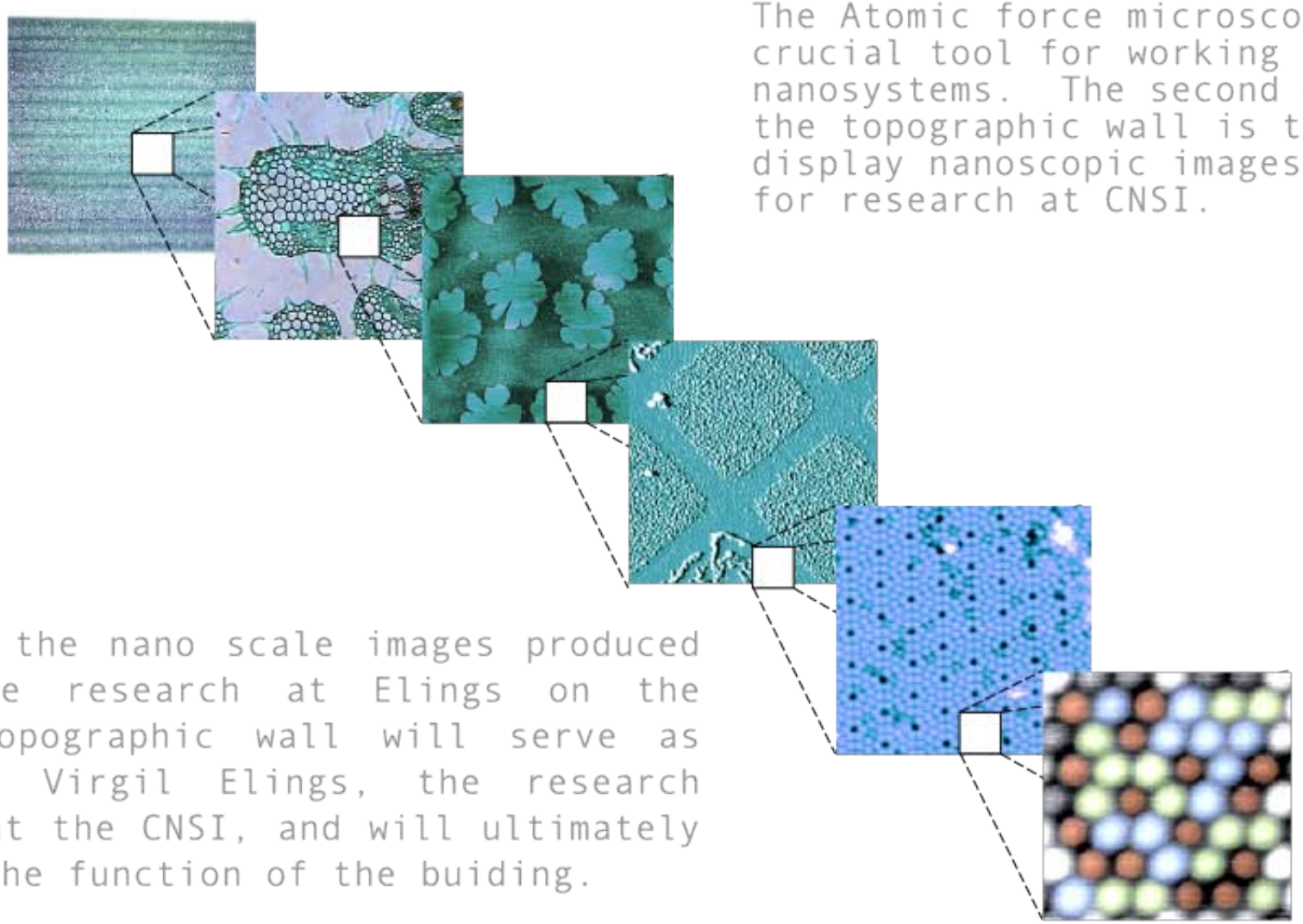
Module 2: Research Microscope



The Atomic force microscope is a crucial tool for working with nanosystems. The second module for the topographic wall is to simply display nanoscopic images produced for research at CNSI.

Display of the nano scale images produced through the research at Elings on the proposed Topographic wall will serve as tribute to Virgil Elings, the research performed at the CNSI, and will ultimately elucidate the function of the buiding.

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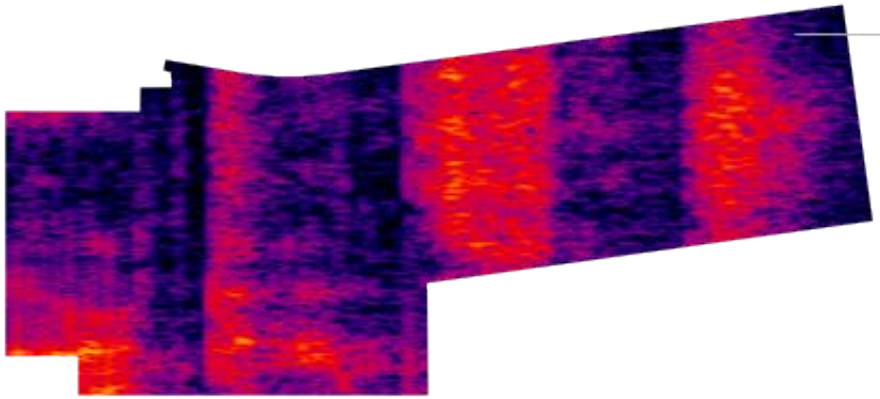
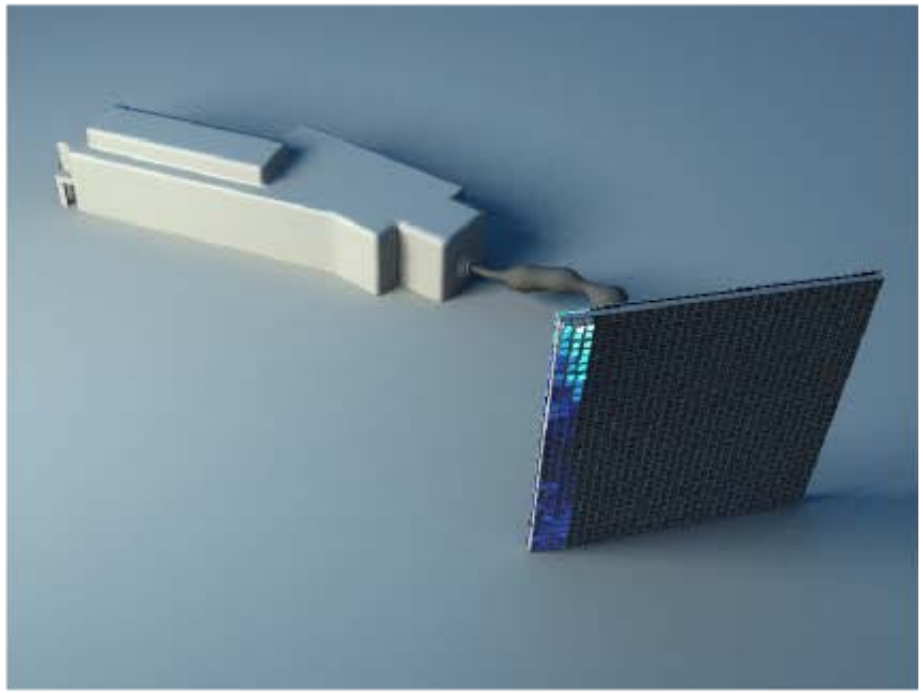
Module 3: Consumption Microscope

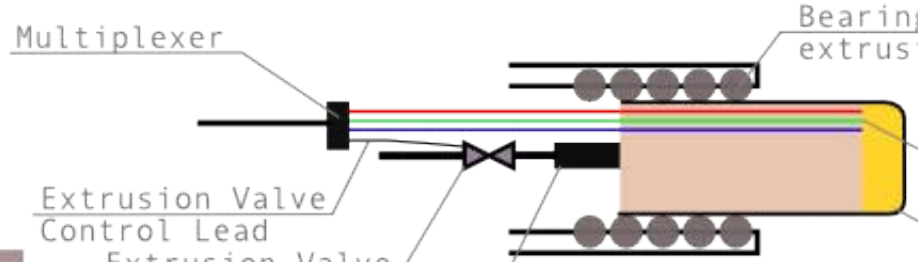


The goal is to develop an algorithm that visibly takes into account energy consumption and future energy saved through current reasearch of advanced materials.

Consumption is an integral part of the research process, whether it is amoney, energy, or time. Without efficient consumption research and progress could not occur. Consumption is an integral part of life in the CNSI. Therefore, consumption at Elings is worth putting under the microscope, in order to better understand the the



Mechanics of the Topographic Wall



piston pixel detail

lab microscopy data

electrical consumption data

social microscope microphone data

Proposed CNSI Lobby Kiosk

Lobby kiosk would allow viewers to interact with the current state of wall from the lobby of Elings

processing computer

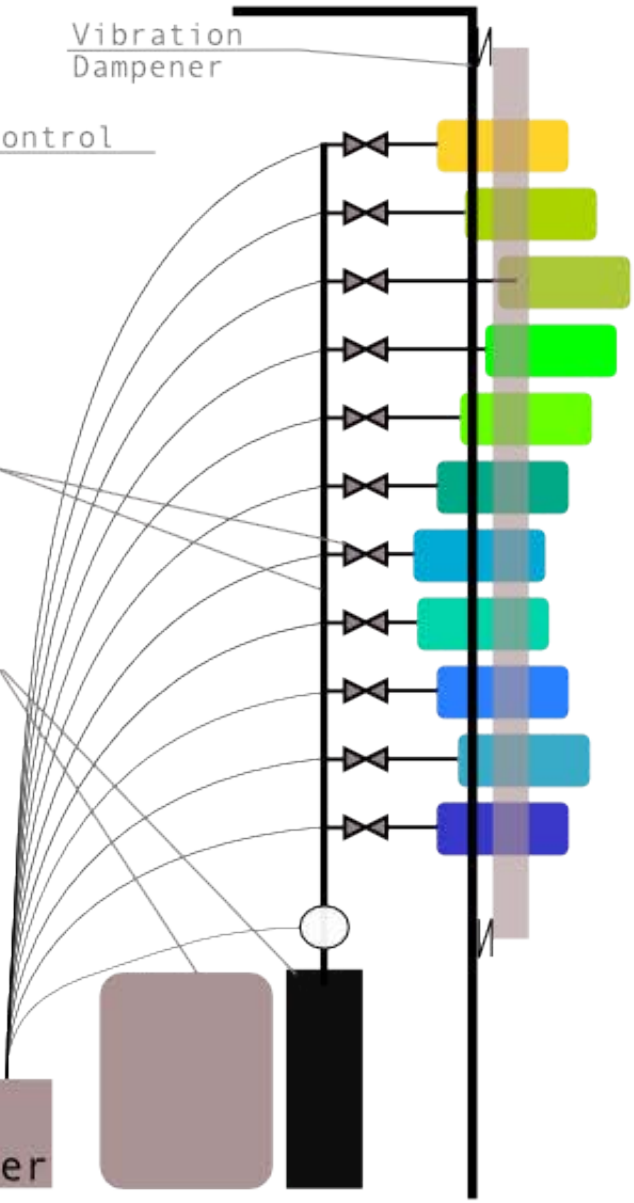
Processing computer computes the states of all valves then controls the master piston

wall microcontroller

Pistons are hydraulically connected- flow controlled by valve in front of piston

Air compressor and master piston head

Vibration Dampener



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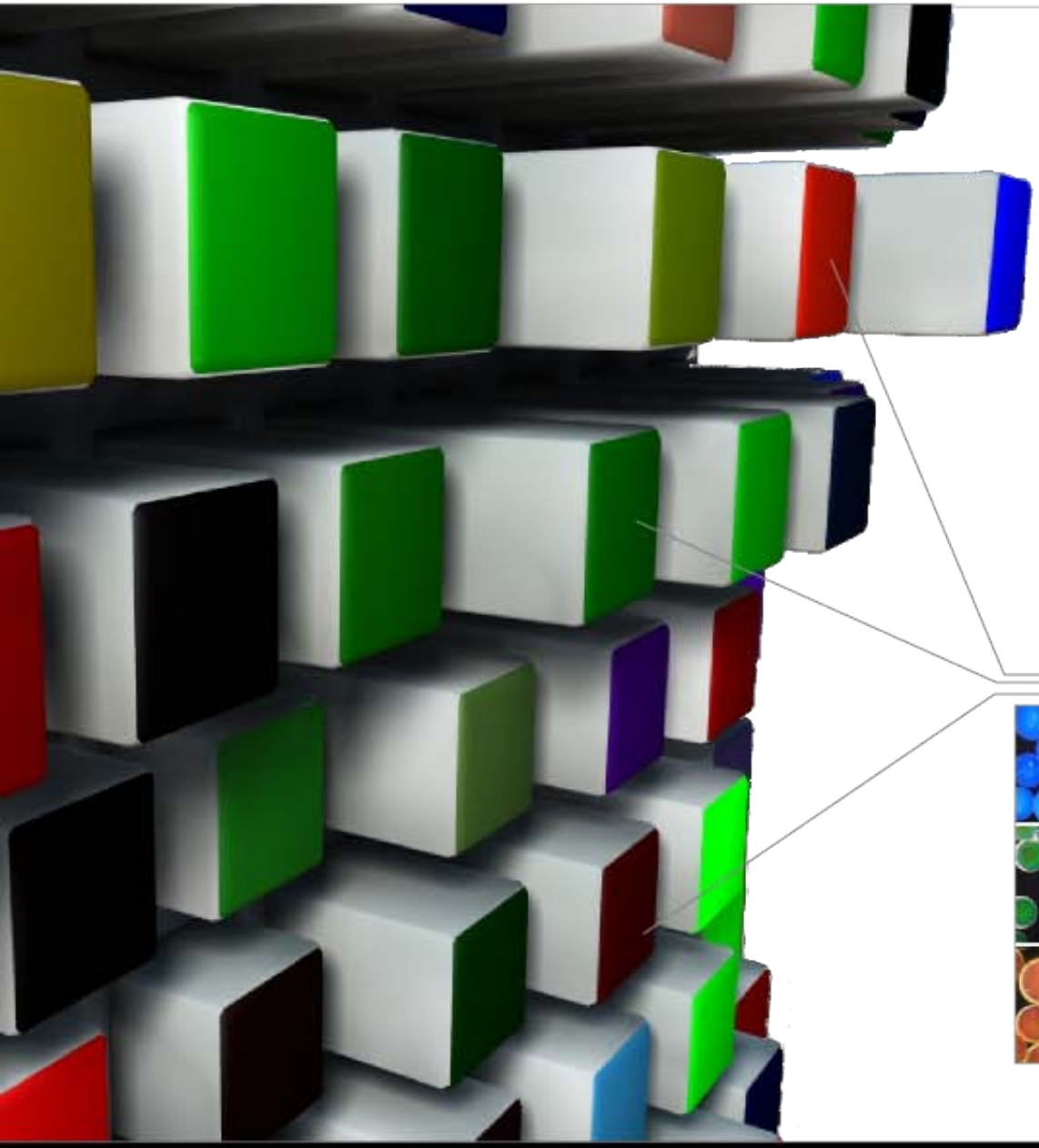
Materials and Alternate Configurations



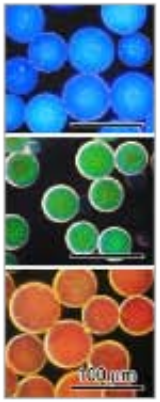
Alternate Materials

Array of silicon bubbles

Perforated extrusion

Lattice

Hexagonal Array



Pixel based on Bistable Magnetochromatic Microsphere display technology in which iron oxide nanoparticlesystem changes structure under a magnetic field

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