Sternheimer Award Proposal

The purpose of this project is to create a long lasting, affordable, and marketable device that displays the Rayleigh-Taylor instability in a visually pleasing manner. Consumers will want to display this device in their homes as an art or show piece. This device will demonstrate the Rayleigh-Taylor instability in a visually pleasing way. The Rayleigh Taylor instability is the interaction of two immiscible liquids of differing densities such as oil and water. The difference in density between the liquids, as well as gravity and buoyancy forces acting on the liquids cause them to interact with each other. This project takes advantage of the pleasing patterns that form when the two fluids interact.

A close comparison to this project would be the Lava Lamp, a device that also utilizes buoyancy and density for aesthetic purposes. This project seeks to innovate the principles of the lava lamp, while taking it a step further. The Rayleigh-Taylor instability has many options and forms it can take, it can also be manipulated to optimize pleasure for the user. In addition, the use of fluid motion and dynamics as art is rare. This project takes engineering principles and applies them to the world of art. The commercialization and success of this product may also spur others to explore fluid phenomenon for artistic purposes.

The end goal of this project is to create something new and innovative. The blending of engineering and art is not common. This device’s user will enjoy seeing the aesthetically pleasing patterns that it creates. Art and visual appeal can often touch the primal expressions of human experience. This device will not only give artists a bigger tool box to create with, it will also introduce new expressionary forms into the average consumer’s life and home.
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