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Andrew Gorodetsky's Individual Contribution Page

Fall 2011

I am a member of the Inlet Manifold - Fabrication Team and the Turbidimeter team. For the Inlet Manifold team, we spent the semester working on a way to devise a cheap and easy method to mold PVC pipe to the dimensions of the diffuser tubes that has been designed for the plant. After testing several methods out, we determined that boiling a pot of water was the cheapest way to heat PVC pipe and it heated the pipe to a hot enough temperature to that it is very malleable. Once the PVC pipe was heated, a quick and easy way needed to be devised to mold the pipe from a circle to a rectangle with width of 1 cm. Two methods were tested throughout the semester. The first method tested was to shove the heated PVC pipe onto a mold so that it would gradually be stretched out into a rectangle once it was fully placed on the mold. The other method was to put a jack system into the heated PVC pipe so that a lever could be pressed down to stretch the PVC pipe to the dimensions of the rectangle. While both of these systems worked, the mold was a lot easier to use and a steel mold was made as the final product. Using this mold along with boiling water, several diffuser tubes could be made in a matter of minutes.

While on the Turbidimeter team for the Fall 2011 semester, we worked to make the current turbidimeter able to read to lower NTU levels such as 5 or 1 NTUs by making the light path through the turbidimeter longer. Our first attempt was to use a set of mirrors on the turbidimeter so that the light traveling along it would double and allow us to read to lower NTU levels. However, this proved to be difficult to construct and expensive. Therefore, we decided to try different variations in colors of light being used and to vary the length of the HDPE block. Several tests were run throughout the semester using white, blue, and red lights along with the normal HDPE block and one double the normal length. After analysis of the data, we determined that a turbidimeter using the double HDPE block along with a blue LED can measure down to 5 NTUs if the original design was made a couple centimeters longer.