This past summer, I worked at Innotec in Zeeland, MI. Innotec is a local company that does high volume manufacturing for a variety of industries, predominantly automotive. It has a fast paced and hands on work environment.

My internship included running machines, making machine improvements, automated machine design and build, developing machine concepts and prototypes.

Abstract

This past summer, I worked at Innotec in Zeeland, MI. Innotec is a local company that does high volume manufacturing for a variety of industries, predominantly automotive. It has a fast paced and hands on work environment.

My internship included running machines, making machine improvements, automated machine design and build, developing machine concepts and prototypes.

Results

I learned about the basics of manufacturing, machine design, automation, welding, and machining. Two valuable aspects of high volume manufacturing I learned about were the cost of downtime and the pay-off rates of projects. It is amazing how much machines can cost and how necessary it is to keep them going to distribute those costs over many parts. I was astounded when I got the approval to spend a few hundred dollars just to make some prototypes for automating a part packing system.

Projects

Automated Packing System

My first project was to design a highly consistent, automated system to load parts coming off a machine into plastic totes for shipping. This involved many measurements, sketches, design reviews, drawings on AutoCAD, ordering, and assembling machine components. See Figure 1 & 2.

Automated Spray Booth

My second main project involved modifying a spray booth to make it automated for production. An elevated chain system was run through a series of chambers in which was built automated spray guns, infrared heaters, and ultra violet lamps. See Figure 3.

Alternative Method for Coating Prototype

My third main project was to develop a concept, draw up designs, and build a prototype for an alternative method for coating parts. A simpler, cheaper, and more consistent method for coating parts was proposed, so another intern and I were asked to develop it. It was a rotating wheel that dipped the parts into liquid coating, then ran them past UV lamps to cure the coating. See Figure 5 & 6.