



## SENIOR DESIGN ORGANIZATION SYNOPSIS – SPRING 2013

### SUB FOLDING MACHINE

### A PROJECT SPONSORED BY MR. NORMAN WARTMAN

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A good portion of machines that are fabricated in today's society are generally created to fulfill a need. This project is not an exception to this statement. One of the main purposes of designing this system is to reduce a tedious, time consuming task that is nonetheless necessary in the workplace today. In doing so, our hope is that this improvement will allow employees of these various businesses to instead focus their attention to other tasks that could make them more efficient. In addition to easing the process, we aim to utilize technology to expand the life of the end product.

Typical corporate sandwich shops today are generally laid out to function as small assembly lines. In this process, the customer is given the choice of bread, meat and vegetables and then asked to decide between various condiments. Once the customer is satisfied with their choice, it is then wrapped and packaged. Although assembly lines have proven to be efficient historically, the wrapping and packaging of the sandwich does not add additional value to the end product. It is merely a necessary task so the customer may take their sandwich "on-the-go". It is this particular area that is of interest to us.

We believe we can not only automate this step in the assembly line, but can actually turn this seemingly tedious task into a value adding task. The idea is relatively simple; research vacuum sealing technology and incorporate it into an automated process. The use of vacuum sealed bags is beneficial. It will keep the aroma of the sandwich from taking over the refrigerator should the customer not finish the entire sandwich in one sitting, as well as allow the freshness to be preserved for a longer period of time. The second challenge is to incorporate a conveyor-type system that will feed the sandwiches into the vacuum bags for packaging. This is the most important step, for this will ultimately enable the employee to perform other tasks adding efficiency to the overall process.

This project is multi-faceted in that it has business challenges in addition to the engineering and governmental challenges presented. This added complexity is brought on by the product's marketability and interaction with the consumer public. Meaning, the ultimate design and development of the solution must take into account aesthetics as well as ease-of-use, all the while remaining compliant with governmental regulations.