UNC Charlotte – Lee College of Engineering Senior Design Program
Company Information

Company Name	*Clickfold Plastics*	**Date Submitted**	*2/18/2021*
Project Title	*Automation of a Bevel Trim Station* **(CLICKFOLD_BEVEL)**	**Planned Starting Semester**	Fall 2021

Senior Design Project Description

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Project Title	*Automation of a Bevel Trim Station*	**Planned Starting Semester**	Fall 2021

Personnel

Typical teams will have 4-6 students, with engineering disciplines assigned based on the anticipated Scope of the Project.

Please provide your estimate of staffing in the below table. The Senior Design Committee will adjust as appropriate based on scope and discipline skills:

Discipline	**Number**	**Discipline**	**Number**
Mechanical	3	Electrical	1
Computer	1	Systems	
Other ( )			

Company and Project Overview:

Clickfold Plastics was founded in 2001 and is based in Charlotte, NC. The company specializes in a unique zero-tooling process that allows for just-in-time delivery of high-end fabricated plastic parts. Their focus is on simple product development, prototyping and cost effective production of plastic parts. Clickfold invests in the latest plastics machining technology and maintains a large inventory of material that allows customers to go from concept to production in less than a month.

Clickfold's products are used in a variety of industries and applications. Here are some product examples:

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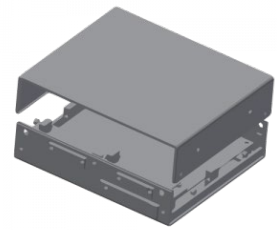
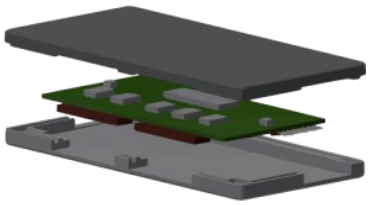
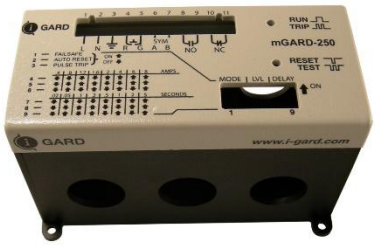


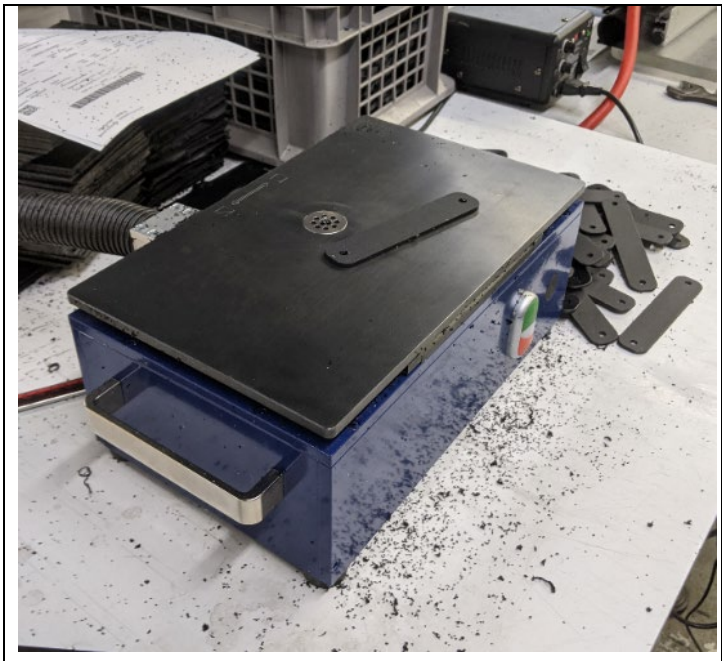




NCMEP
North Carolina
Manufacturing Extension Partnership

This project is partially supported by a grant from the NC Manufacturing Extension partnership, an organization the helps to support business and job growth for NC companies. To learn more about the NC MEP, click on this link: https://www.ncmep.org/.

Project Requirements:

Many of the plastic parts produced require a beveled edge. This is done as a manual secondary machining operation using a form of a router table:



This operation is very repetitive and lends itself well to being automated. The objective of the project is to design a way to have the beveling operation done by a machine. Team will survey the products that need this treatment and design a prototype automated machine that can accommodate different shape parts that are the same thickness. Parts accommodated will be based on what can be done within the team's budget and schedule.

Expected Deliverables/Results:

- Machine that can bevel edges on plastic parts with different dimensions, but common thickness of 1/8"
- Parts will be loaded into the machine and machine actuated and beveling operation completed by the machine.

- When operation is complete, part will be ejected without the operator having to come within 3" of the blade to remove the part.
- Actuation and operation should require both hands and both hands should be at least 5" from the cutting tool. When hands come off the actuation mechanism, the cutting head should stop within 0.5 seconds.
- Vacuum system should be included to capture plastic chips and allow repeated operation for 30 minutes before secondary machine clearing is required.
- Machine should maximize reuse of existing equipment.

Disposition of Deliverables at the End of the Project:

Hardware developed is the property of the Industry Supporter. The work product is displayed at the last Expo then immediately handed over to the supporter unless arrangements have been made to deliver at a future date.

List here any specific skills, requirements, specific courses, knowledge needed or suggested (If none please state none):

- Interest in machine design, control systems
- Travel to Industry Supporters site as required.