INDUSTRIAL SOLUTIONS LABORATORY

Company Information

Company Name	*Bosch Power Tools*	**Date Submitted**	*4/28/2022*
Project Title	*Design of a Solder Reel Straightener Machine* **(BOSCH_REEL)**	**Planned Starting Semester**	*Fall 2022*

Senior Design Project Description

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	2
Computer	1	Systems	

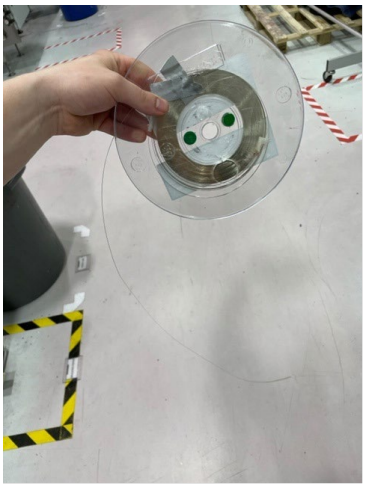
Company and Project Overview:

The Power Tools Division of the Bosch Group is the world market leader for power tools and power tool accessories. Bosch Tool Corporation's plant in Lincolnton, NC focuses primarily on the manufacturing of power tool blades such as circular saw blade, reciprocating saw blade, and other accessories such as sander belts, Dremel bits and other rotary tools. This project is related to the production of circular saw blades.

Project Requirements:

For circular saw blade production, carbide tips are brazed onto the body of the blade using solder and flux. The solder comes to us in reels and is always wavy and not straight.

Solder Reel Example:



Solder Reel feeding into brazing machine:

It is important that the solder feeds into the machine as straight as possible to avoid any errors in the brazing process.

The objective of this project is to design a solder straightening station that will unwind the reels of solder, straighten it, and then wind it back up onto the reel.

Expected Deliverables/Results:

- A mechanical design that will straighten the reels of solder that are shipped to us, that also is capable of being fully automated and will fit on a tabletop
- A working prototype that is capable of consistently producing straight solder reels
- Training video for how to operate and maintain the machine
- All drawings, BOM's and software provided.

Disposition of Deliverables at the End of the Project:

Students are graded based on their display and presentation of their team's work product. It is mandatory that they exhibit at the Expo, so if the work product was tested at the supporter's location, it must be returned to campus for the Expo. After the expo, the team and supporter should arrange the handover of the work product to the industry supporter. This handover must be concluded within 7 days of the Expo.

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

- Interest in controls and automation design
- Team will be required to travel to the Bosch facility in Lincolnton, NC. Travel will be reimbursable by following the procedures in the Purchasing lecture.