



UNC CHARLOTTE

The WILLIAM STATES LEE COLLEGE of ENGINEERING

Senior Design Project Description

Company Name	Winbro Group Technologies	Date Submitted	7/16/2018
Project Title	Design of Electrode Loading Station (WIN_LOAD)	Planned Starting Semester	Fall 2018

Personnel

Typical teams will have 4-6 students, with engineering disciplines assigned based on the anticipated Scope of the Project. 250 hours are expected per person.

Complete the following table if this information is known, otherwise the Senior Design Committee will develop based on the project scope:

Discipline	Number	Discipline	Number
Mechanical	3	Electrical	1
Computer	1	Systems	0
Other ()			

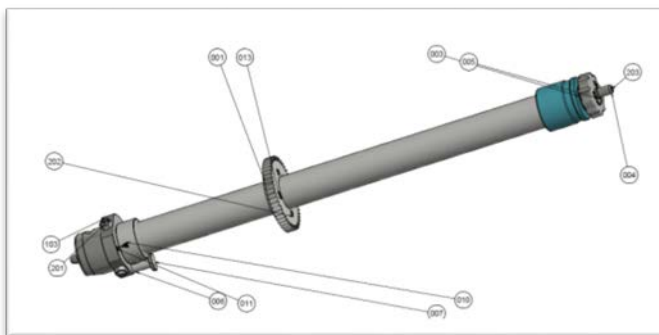
Company and Project Overview:

Provide background information about the company, and an overview about the context for the project.

Our EDM process requires small brass tubes (electrodes) to be loaded into our tools, typically ranging 0.25 mm (0.010 in) to 1 mm (0.040 in). These tubes are very fragile and cannot be bent while loading them into our tools. Our senior design project would like the students to design a hopper that can hold a large quantity of tubes and then can load one tube at a time into our tool.

Our tool has 12 to 48 empty barrels that each requires one single electrode to be loaded. We would need confirmation that there is an electrode in each barrel and confirm that there is only one.

Winbro's Tool



Electrodes



Project Requirements:

This is a more detailed description of the design problem, project objectives and the desired output – describing the scope and specifications for what the project team will actually be designing and producing.

Design Problem:

Currently this is a very manual process when a person needs to load 48 electrodes into our tool without bending them and ensuring each barrel is filled with only one electrode. Each of our machines can hold 6 tools resulting in 288 electrodes needing to be manual loaded to run parts.

Project Objectives:

Automate this process by having a system that can load the electrodes into our tools and verify that it has been loaded properly. This will result in improved quality along with cost savings from manual labor.

Expected Deliverables/Results:

- *Bulletized list of all deliverables that the team is to provide to the supporter at the end of the project. Be specific here to avoid misunderstandings.*

Winbro to Provide:

- Electrodes – quantity to be determined
- Tools for loading electrode
- Cognex Camera if needed

UNCC Deliverables

- Functioning tool loading station
 - Hopper to load electrodes
 - Rotary to spin our tool to each barrel location
 - Software that verifies tool is loaded
- Report out confirming electrodes are loaded and only one loaded

Disposition of Deliverables at the End of the Project:

Hardware developed is the property of the Industry Supporter. Please specify what disposition you would like for the hardware developed by the Project team. Typically 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, knowledge needed or suggested (If none please state none):

- Mechanical – will need to configure hopper / rotary
- Electrical / Software / – will need to move the rotary and program verification (assuming vision system) to output report.