INDUSTRIAL SOLUTIONS LABORATORY

Company Information

Company Name	*Michelin Aircraft Tire Company*	**Date Submitted**	*05/11/2022*
Project Title	*Virtual Reality Tire Builder Training* **(MICHELIN_VR)**	**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	1	Electrical	
Computer	3	Systems	

Company and Project Overview:

Michelin Aircraft Tire Company's US11 Facility in Norwood, NC produces bias aircraft tires. The plant manufactures complex tires on machines that require detailed tasks to generate a finished product. Due to the current world-wide issues of turnover and job retention, plus increasing supply chain needs, we are hiring at a rapid rate. The need to expedite the training process is crucial to the success of our facility. We believe that a virtual reality training program would help to reduce the time to competency in our facility.

Project Requirements:

Provide a virtual reality solution to assist in the training of a tire builder. The solution should imitate the shop floor and take the trainee through a detailed step by step process of building a tire. The overall goal would be that when the trainee engages with the actual machine, all they need to learn is how to physically handle the tire building components in the real world.

Expected Deliverables/Results:

- Virtual reality system to include all required hardware and software
- 1-2 Tire Dimension Simulations

- Written instructions on how to use, modify, and troubleshoot the system
- Copy of all program files, drawing files, project files, etc.
- Bill of materials for all hardware and software used

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):

- 3D Rendering and Programing
- Basic electrical circuits
- Computer/Electrical Engineering
- Interest in virtual reality
- Ability to travel to the Norwood NC Michelin facility