Senior Design Projects

All of the Lake Superior State University senior engineering and engineering technology bachelor's students are required to complete a challenging senior design project. The students work in multi-disciplinary teams and use a composite of their technical and general education courses to successfully complete these projects.

2020-21 Senior Projects Faculty Board

This group serves as advisors, overseers, and guides to help the teams through their overall process:

Joe Moening (Chair), Trevor Bryant, Jim Devaprasad, Robert Hildebrand, Zakaria Mahmud, Edo Sarda, Ron Throener, and Masoud Zarepoor

Special thanks to Laura Moening

The School of Engineering & Technology comprises:

- Computer Engineering
- Mechanical Engineering
- Electrical Eng Technology
- Electrical Engineering
- Robotics Engineering
- Manufacturing Eng Technology

For more information about LSSU's School of Engineering & Technology
www.lssu.edu/eng *or* 906-635-2207

Welcome to the School of Engineering & Technology

Presentation / Demonstration Schedule

Team ARS	*1:00 / 1:30*
Team LUCCI	*1:30 / 2:00*
Team SAGS	*2:00 / 2:30*
Team NACS	*2:30 / 3:00*
Team SITS	*3:00 / 3:30*

Presentations Link

https://lssu.zoom.us/j/97176438465

Demonstrations Link

https://lssu.zoom.us/j/98713960039

LAKE SUPERIOR STATE UNIVERSITY

The School of Engineering & Technology

presents the

Class of 2021

Senior Design Project Presentations & Demonstrations

Friday ● April 30, 2021

1:00 p.m. – 4:00 p.m.

via Zoom

https://lssu.zoom.us/j/97176438465

Team ARS

Presentation 1:00 Demonstration 1:30

Team Members: Erik Finley (ME), Nick MacArthur (ME/EE), Sadie DeWildt (EE), Zac Rougeau (CE), Cole Hyrsky (EET), Joshua Burk (EET)
Faculty Advisor: Dr. Edoardo Sarda **Company:** 4D Systems (Flint, MI) **Industrial Contact:** Philip Nicholson

Project Description: Team Augmented Robotic Systems (ARS) is tasked with expanding the capabilities of a prototype mobile robotic cell for 4D Systems, to demonstrate the benefits of integrating industrial internet of things (IIOT) software into robotic systems. These software solutions consist of live data tracking of production statistics (such as quality and quantity of products) and implementing augmented reality visuals to display information corresponding to the data collected.

Team LUCCI

Presentation 1:30 Demonstration 2:00

Team Members: Marissa Shook (CE), Daniell Koneska (ME), Christopher Gomez (ME), Nathan Denman (MfgET), Silas Whittington (EE)
Faculty Advisor: Professor Jim Devaprasad **Company:** Lake Superior State University **Industrial Contact:** Dr. Edoardo Sarda

Project Description: Laker Universal Collaborative Carts and Integration (LUCCI) has been tasked to expand Lake Superior State University's collaborative robotics program. Team LUCCI will complete the integration of the second FANUC CR7 collaborative robot and establish two new robotic carts with Universal UR5e robots. Demonstrations and labs will be created to showcase the robots, as well as create a learning opportunity for students in the collaborative robotics classes starting Spring of 2021.

Team SAGS

Presentation 2:00 Demonstration 2:30

Team Members: Lauren Niemiec (ME), Brennan Suddon (ME), Veronica Shull (ME), Bryan Wertz (EE)
Faculty Advisor: Dr. Robert Hildebrand **Company:** Lake Superior State University **Industrial Contacts:** Dr. David Baumann & Dr. Edoardo Sarda

Project Description: This is a research-oriented project that further develops a hydroacoustic method, based on reverberation, to detect and map oil spills obscured by ice cover in bodies of water such as the Great Lakes. Some of the research will focus upon the acoustic method itself (e.g., suitable sound sources for maritime environments, refining the signal processing techniques, ambient noise studies in the lakes, further scale model testing with physical conditions further varied from that in previous work). The research will combine experimental, numerical (simulation), and analytical approaches.

Team NACS

Presentation 2:30 Demonstration 3:00

Team Members: Jared Blumenthal (EE), Luke Brcic (ME), Joshua Burk (EET), Brandon Lytle (ME), Kendal Miller-Mather (ME), Melody Perrin (ME)
Faculty Advisor: Dr. Masoud Zarepoor **Company:** Textron Aviation (Wichita, KS) **Industrial Contacts:** Ben Woods and Wyatt Smrcka

Project Description: Team NACS designed and built an Automated Hose Cutting System(AHCS) contained within an industrial cart for Textron Aviation. With this project, a single operator can load the hose into the system, set the desired length in an HMI, and the system will feed the hose through and cut it to the desired length. The system is designed to be totally enclosed and automated making it a safe and efficient solution for operators that need to make multiple cuts of hose.

Team SITS

Presentation 3:00 Demonstration 3:30

Team Members: Ryan Graham (EE), Curtis White (ME), Cole Hyrsky (EET), Connor Reppuhn (ME/RE), Jacob Pittsley (EE)
Faculty Advisor: Dr. Zakariah Mahmud **Company:** ESYS Automation (Auburn Hills, MI) **Industrial Contact:** Mark Compton

Project Description: Team Superior Innovation and Training Solutions (SITS) will be collaborating with ESYS Automation to design and build a training cart controlled by a PLC utilizing Siemens architecture. To display the cart's functionality in an engineering setting, team SITS will design a test program. In addition, team SITS will collaborate with ESYS engineers to design a sorting tray for use on a machine under development.