People's Choice Award

PROSTHETIC LINER DONNING DEVICE

This project focused on designing a device to aid lower limb amputees in donning their prosthetic liner. The device will ensure that the liner sits flush against the limb, properly aligns the pin, and enables those with low hand dexterity, vision, or flexibility to don their liner independently.

Sponsor: Lisa Huffman
Sponsor Organization: Biological & Agricultural Engineering Department

Team Members:
Matthew Guthrie – Mechanical Engineering
Allyson Labrum – Mechanical Engineering
Jennifer Rainey – Biological & Agricultural Engineering
Jordan Simonson – Biological & Agricultural Engineering
Samantha Sutherland – Biological & Agricultural Engineering

Faculty Adviser: Thomas Hess
Mentor(s): Matt Kologi, Chris Ohlinger

Awards for Excellence in Poster Presentation

OWSLEY CANAL BRIDGE

This project will select a culvert to replace the Owsley Canal Bridge near Mud Lake, Idaho. The design will involve traffic re-routing during construction, hydrologic analysis of the water in the canal, hydraulic analysis for culvert selection, pavement analysis and highway design of the new roadway above the culvert.

Sponsor: Michael McKee
Sponsor Organization: Idaho Transportation Department

Team Members:
John Cozens – Civil Engineering
Derek Probst – Civil Engineering
Mitch Skiles – Civil Engineering
Arthur Thomas – Civil Engineering

Faculty Adviser(s): Fritz Fiedler

#YOCO (YOU-ONLY-COAT-ONCE)

Magnesium alloys have a lower density than aluminum but are more susceptible to corrosion. In order to increase feasibility the magnesium alloys were anodized with NH4F. The effectiveness of the coating was tested using electrochemistry/weight loss to determine its effect on corrosion resistance.

Sponsor: Krishnan Raja
Sponsor Organization: University of Idaho Materials Engineering Department

Team Members:
Zach Campbell – Chemical & Materials Engineering
Diane Edwards – Chemical & Materials Engineering
Adam Grebil – Chemical & Materials Engineering
Quinn MacPherson – Chemical & Materials Engineering

Faculty Adviser(s): David Drown and Krishnan Raja

LED VIDEO PLAYER

This project allows the user to play videos on an array of 32x32 pixel LED panels.

Sponsor: Robert Rinker
Sponsor Organization: Computer Science Department

Team Members:
Alex Eklund – Computer Science
Tell O'Neal – Computer Science

Faculty Adviser(s): Bruce Bolden and Robert Rinker

Awards for Excellence in Booth Presentation

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Jordan Simonson – Biological & Agricultural Engineering
Samantha Sutherland – Biological & Agricultural Engineering

Faculty Adviser: Thomas Hess
Mentor(s): Matt Kologi, Chris Ohlinger

SOLAR POWERED WATER FILTRATION

Developed in collaboration with Orphans to Ambassadors, our design project is a solar powered water filtration unit designed to be implemented in rainwater catchment systems. The design will provide clean, safe, pathogen-free water to remote orphanages that are without readily available power sources.

Sponsor: Jake Gentry
Sponsor Organization: Orphans to Ambassadors

Team Members:
Amy Cox – Biological & Agricultural Engineering
Tyler Marines – Mechanical Engineering
Kyle Rainer – Biological & Agricultural Engineering
Sharon Strom – Biological & Agricultural Engineering
Nick Stroud – Mechanical Engineering

Faculty Adviser: Thomas Hess

DYNAMIC COMMERCIAL FISHERY CLEANING SYSTEM

Fine particulate in the raceway is easily re-suspended during cleaning operations. Our objective is to design an automated cleaning system with little maintenance to reduce fine particulate from accumulating in raceways without sacrificing flow rates to maintain fish health through computational and experimental analyses.

Sponsor Organization: Clear Springs Inc.

Team Members:
Levi Dawes – Biological & Agricultural Engineering
Matt Francis – Biological & Agricultural Engineering
Jeremiah Schroeder – Mechanical Engineering
Kate Wicher – Biological & Agricultural Engineering

Faculty Adviser: Tao Xing
Mentor: Jeremy Cuddihy

CLEANROOM CLEANING ROBOT

Design and construct a system that can be used autonomously to spray sanitization solutions on the floor of a cleanroom used in the production of clinical drug products.

Sponsor: Chad Schrader
Sponsor Organization: Revalesio Corporation

Team Members:
Gregory Atkinson – Mechanical Engineering
Justin Herrick – Mechanical Engineering
Nathan Pueschel – Mechanical Engineering
Nicholas Rodriguez – Electrical & Computer Engineering

Faculty Adviser: Dan Cordon
Mentor: Jeremy Cuddihy

COGENERATION TURBINE

The design goal for the UI Cogeneration Turbine team was to conduct a feasibility analysis for utilizing the campus steam plant to generate power in addition to supplying campus heat. The second semester goal was to perform an economic analysis of the project.

Sponsor: Scott Smith
Sponsor Organization: University of Idaho Steam Plant

Team Members:
Chris Anderson – Biological & Agricultural Engineering
Chad Dunkel – Biological & Agricultural Engineering
Donald Haines – Electrical & Computer Engineering
Ryan Oliver – Electrical & Computer Engineering

Faculty Adviser(s): Tao Xing, Steve Beyerlein, Herb Hess
Mentor(s): Amrit Dahal

IMPROVED DRINKING WATER TREATMENT FOR SMALL COMMUNITIES USING ELECTROCOAGULATION

Electrocoagulation treats water by creating flocculent with contaminants which allows for easy separation. The goal of this project is to demonstrate the economic value of this technology and its ability to treat multiple contaminants simultaneously. In particular, this will benefit small communities which have difficulty in providing adequate water treatment.

Sponsor: WERC
Sponsor Organization: New Mexico State University

Team Members:
Ben Carleton – Chemical & Materials Engineering
Arnold Pelayo – Chemical & Materials Engineering
Kelli Quist – Chemical & Materials Engineering
Sidney Suggs – Chemical & Materials Engineering

Faculty Adviser: David Drown
Mentor: David MacPherson

Awards for Excellence in Technical Session Presentation

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Ryan Oliver – Electrical & Computer Engineering

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Sponsor Organization: Orphans to Ambassadors

Team Members:
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Tyler Marines – Mechanical Engineering
Kyle Rainer – Biological & Agricultural Engineering
Sharon Strom – Biological & Agricultural Engineering
Nick Stroud – Mechanical Engineering

Faculty Adviser: Thomas Hess

ORCHARD PICKER POSITIONING PLATFORM

We are designing a prototype that will aid orchard workers in picking and pruning apple and pear trees. Our goal is to speed up the picking and pruning process by using a leveling platform that moves up and down. The platform will make picking safer by removing the ladder hazard.

Sponsor: Joe Rumble
Sponsor Organization: Rumble Orchards

Team Members:
Cole Lewis – Mechanical Engineering
Spencer Marquis – Mechanical Engineering
Sydney Osterloh – Mechanical Engineering
Jordan Schwers – Biological & Agricultural Engineering

Faculty Adviser(s): Steve Beyerlein, Edwin Odom
Mentor: David Eld

STROKE REHABILITATION ROBOT – ROBOTIC ARM ASSIST

Assisting TECNALIA's venture in designing a rehabilitation robot to aid in stroke victim's recovery. The mission is to design and build a gripping, wrist rotation, and arm elevation mechanism and a computer interface to depict the state of these mechanisms to extend the functionality of the existing rehabilitation

robot.

Sponsor: Joel Perry
Sponsor Organization: TECHNALIA

Team Members:
Joe Osborn – Mechanical Engineering
Roman Pacheco – Electrical & Computer Engineering
Brenden Staab – Biological & Agricultural Engineering
Kadrie Swanson – Biological & Agricultural Engineering
Steven Witkoe – Mechanical Engineering

Faculty Adviser: Matthew Riley
Mentor: Jon Teske

SUNSHINE ISLAND: A FLOATING SOLAR CELL

A floating solar cell unit has been developed to generate power for a mining site. The unit will be placed on a tailings pond and have single axis solar tracking for better efficiency. The bench scale model will consist of a single unit that will create a fraction of what the full scale model will demand.

Sponsor Organization: WERC

Team Members:
Michael Cron – Chemical & Materials Engineering
St. John Richardson – Chemical & Materials Engineering
Kelsey VanderWaal – Chemical & Materials Engineering
Breanna Wong – Chemical & Materials Engineering

Faculty Adviser: David Drown
Mentor(s): David MacPher and Charles Cornwall

FROM FREEWAY TO FRAGRANCE: RECOVERING LIMONENE FROM RECYCLED TIRES

Every year millions of tires reach the end of their usable life. To reduce the number of tires that end up in landfills, Reklaim Inc., has developed a way to convert used tires into carbon black, a chemical product in high demand. Currently, Reklaim's process has two byproducts: a gas used to fuel the plant and an oil rich in hydrocarbons. Our goal was to economically design a process to separate the oil into the most profitable commodities based on Reklaim's process and financial workup.

Sponsor Organization: Capstone Technology Corporation

Team Members:
Tianna Drew – Chemical & Materials Engineering
Amanda Eagle – Chemical & Materials Engineering

Brice Sumner – Chemical & Materials Engineering
Sara Sumner – Chemical & Materials Engineering

Faculty Adviser(s): Mark Roll and David Drown
Mentor: David MacPherson

CLEANROOM CLEANING ROBOT

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