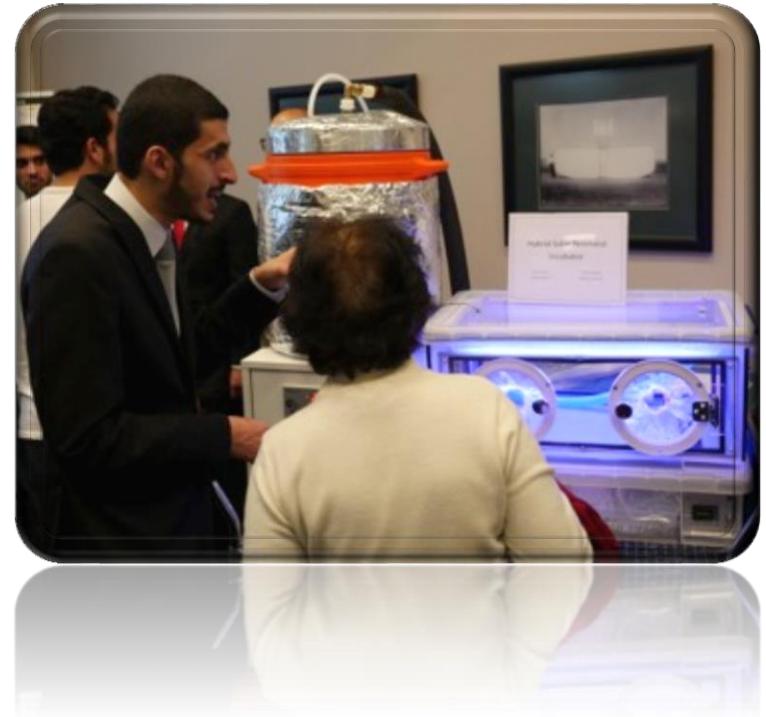


Acknowledgements

Industry Clients and Sponsors:

Air Force Research Laboratories (AFRL)
Beavercreek Chiropractic Clinic
Beville Engineering
Capital Health Hospice
D'Angelo Technologies LLC
Dayton Children's Medical Center
Discovery Lab Global
Fidelity Orthopedic Inc.
Kroger Inc.
Perduco Group
Prosthetic Design Inc.
Rio Grande Neurosciences

Biomedical, Industrial & Human Factors
and
Mechanical and Materials Engineering Departments



Senior Design Expo

April 22, 2017

**Biomedical Engineering Session I
Endeavor Room A
Moderator: Dr. Ramirez-Vick**

9:00AM - MORNING SESSION I:

Team 1: Hybrid Cooling Vest for Multiple Sclerosis Patients Advisor: Mr. Joseph D'Angelo
Ryan Clark, Shelley Gooden, James Mauer, Alaa Sada

Team 2: Classical Eyeblink Conditioning Apparatus
Advisor: Dr. Caroline Cao
Rachel Harris, Taylor Guay, Abdurahman Kahil, Munjed Milhelm

Team 3: Knee Brace with a Controller-Driven Locking Mechanism
Advisors: Mr. David Kender
Tin Do, Trung Do, Joanna Fadel, Francisca Fajardo

10:15-10:40AM Break for Project Displays

10:45 - MORNING SESSION II:

Team 4: Toluene Detection System
Advisor: Dr. Julie Skipper
Lazette Carter, Eric Cheatwood, Reem Hassan, Evan Helton

Team 5: Analysis of Cognition Using a COTS EEG Headset
Advisor: Dr. Julie Skipper
Aaron Johannes, Kevin Moy, Kelly Muterspaw, Elyse Patrick

Team 6: EEG Based Biofeedback Device
Advisor: Dr. Julie Skipper
Qamar Alsabi, Abdulrahman Binothman, Blake Ellender, Julietta Gomez, Riza Ingalls

12:00-1:30PM Lunch and Project Displays

1:30PM – AFTERNOON SESSION:

Team 7: Delivering Aerosols and Gases Generated in Occupational Environments to in-vitro Models
Advisor: Dr. Jeffrey Hudson
Peter Blake, Seth Guillozet, Alex Terry, Philip Thompson

Team 8: Smartphone-Oriented Cancer Screening System
Advisor: Dr. Ulas Sunar
Mohammed Alshagha, Mohammed Khan, Mohsin Khanzada, Seth Thomas

2:30-3:00PM Project Displays

**Mechanical & Materials Engineering Session I
Discovery Room A**

9:00AM - MORNING SESSION I:

Team 1: Self Navigating and Operating Winter Bulldozer for Obstructed Terrain (S.N.O.W.B.O.T.)
Advisor: Dr. Rory Roberts and Dr. Mitch Wolff
Nathan Fletcher, Mustafa Hanafy, Kevin Henkel, Tom Nguyen, Chukwunonso Okoh

Team 2: Smart Blinker for Autonomous Vehicles
Advisor: Dr. Daniel Young
Bader Alhazer, Hamzah Alsfar, Ian Litz, Benny Nezhad, Mohammad Rajab

Team 3: SAE Baja
Advisor: Dr. Craig Baudendistel
Kelsey Adams, Sung Cho, Stephen Hawkins, Aaron Kraemer, Luke Mesker, Derek Shaw

10:15-10:40AM Break for Project Displays

10:45 - MORNING SESSION II:

Team 4: NASA RMC
Advisor: Dr. Scott Thomas
Tyler Doerman, Ryan Hendrickson, Brian Shivers

Team 5: Walking Bike II
Advisor: Dr. Maher Amer
Brandon Gunter, Edward Kenoyer, Stefan Mangroo, Timothy Morell

Team 6: Army Training Robot I
Advisor: Mr. Dennis Hance
Mazen Alharbi, Marwan Alnafeie, Abdulaziz Alsubhi, Abdullah Aloufi

12:00-1:30PM Lunch and Project Displays

1:30PM – AFTERNOON SESSION:

Team 7: Selective Laser Melting
Advisor: Dr. Ahsan Mian
David Beal, Tony Carpenetti, James Rippeth, Allen Vaughan

Team 8: Basic 3D Printer
Dr. Ahsan Mian
Abdulaziz Alsairafi, Abdulmuhsen Aldashti, Eisa Alazemi, Mubarak Alothman

2:30-3:00PM Project Displays

**Mechanical & Materials Engineering Session II
Discovery Room B**

9:00AM - MORNING SESSION I:

Team 9: Walking Bike I

Advisor: Dr. Maher Amer

Ahmad Abdulraheem, Mohammad Alansari, Omar Allansari, Salim Almarzooqi, Huseen Madwah

Team 10: Climbing Wheel Chair

Advisor: Dr. Maher Amer

Abdulwahab Albanwan, Ebrahim Aldousari, Abdullah Almasad, Abdulaziz Alruqayyi, Abdulrahman Alsemaeil

Team 11: Army Training Robot III

Advisor: Mr. Dennis Hance

Abdulla Aldhaheri, Saad Aljemaz, Mohammad Almogahwi, Meshari Mahmoud

10:15-10:40AM Break for Project Displays

10:45 - MORNING SESSION II:

Team 12: Design of Solar Panel Mounting System

Advisor: Dr. James Menart

Ahmad Bugaith, Ben Colon

Team 13: Army Training Robot II

Advisor: Mr. Dennis Hance

Joel Albers, Mohammed Alramis, Aaron Galley, Casey Wittbrot

Team 14: Alternative Energy Washing Machine for Melawi

Advisor: Dr. Scott Thomas

Rebecca Gray, Nicholas Hatton, Karla Kosey, Amanda Lippolis, Samuel Salachak

12:00-1:30PM Lunch and Project Displays

1:30PM – AFTERNOON SESSION:

Team 15: Impact Testing of 3D Printed Parts

Advisor: Dr. Ahsan Mian and Dr. Raghavan Srinivasan

Erica Meadows, Leland Schultz, Quvaughn Watts, Daniel Woods

Team 16 : Design of a Friction Stir Welding Process

Advisor: Dr. Raghavan Srinivasan

Matthew Bostelman, Ian Boyd, Matthew Buschur, Steven Carson

2:30-3:00PM Project Displays

**Biomedical Engineering Session II
Endeavor Room C
Moderator: Ron Butcher**

9:00AM - MORNING SESSION I:

Team 9: Smart Foot

Advisor: Dr. Tarun Goswami

Samuel Deroy, Ronald Richardson, Sean Saffle, Jaspreet Singh

Team 10: Cross-Crawl Ambulatory Device

Advisor: Dr. Tarun Goswami

Courtney Ballard, Alexander Kreider, Vanessa Madrigal, Ashley Miller

Team 11: Physiologic Lumped Resistance and Compliance Elements to Model Arterial Vasculature

Advisor: Mr. Ben Schmitt

Sahar Alselami, Amjad Alzawad, Fadel Elaiw, Aaron Stokes, Taylor Wright

10:15-10:40AM Break for Project Displays

10:45 - MORNING SESSION II:

Team 12: Pediatric Chewing and Swallowing Device

Advisor: Dr. Joe Tritschler

Kaylee Eakins, Charles Harding, Cassondra Wallwey, Brittany Woods

Team 13: Unassisted Oral Cleaning Device (UOCD)

Advisor: Dr. Ping He

Michael Collier, Mary Farrow, Mikayla Padgitt, Skylar Rountree

Team 14: A Pressure Monitoring Device for External Abdominal Compression

Advisor: Dr. Ping He

Noor Alghaffi, Ghadeer Almaskeen, Abdulrizaq Alsomali, Riyadh Alzahrani, Alex Williams

12:00-1:30PM Lunch and Project Displays

1:30PM - AFTERNOON SESSION:

Team 15: Noninvasive Electrode Edge Effect Reduction and Description Strategy for Brain Stimulation

Advisor: Dr. Michael Weisend

Leah Burch, Cassidy Duckett, Daniel Marshall, Mason Vilardo

Team 16: Amputee Limb Scanner with iPad APP

Advisor: Dr. Michael Weisend

Fahad Alenazi, Khaled Alenzy, Saud Almutairi, Naif Alrasheedi

**Industrial and Systems Engineering
Endeavor Room B
Moderator: Dr. Mary Fendley**

9:00AM - MORNING SESSION I:

Team 01: Impact of Non-Unique Color Codes

Advisor: Dr. Mary Fendley

Sponsor: Beville Engineering

Amwaj Albahar, Abdullah Baqer, Abrar Farag, Kelly Heitkamp

Team 02: Perduco Group Forecasting Methods

Advisor: Dr. Xinhui Zhang

Sponsor: Perduco Group

Mshari Alsalah, Jessy Eid, Kaylee Greenawalt, Manhal Helou

Team 03: Algorithm for Real Time Airborne Chemical Measurement Data

Advisor: Dr. Mary Fendley

Sponsor: AFRL

Nathaniel Bare, Angela Hall, Mallorie Rybak, Jaclyn Seigal

Team 04: Kroger Call Center Scheduling

Advisor: Dr. Xinhui Zhang

Sponsor: Kroger Inc.

Mohammed Alenazi, Abdullah Almohatrish, Faisal Almutairi, Raad Alsharif, Fahad Boali

12:00-1:30PM Lunch and Project Displays

**Mechanical & Materials Engineering Session III
Atlantis Room A**

9:00AM - MORNING SESSION I:

Team 17: Complex Fluid Cell

Advisor: Dr. Maher Amer

Kaitlin Kollins, Nathan Sesar, Derek Smith

Team 18: Polymer Thin-Film Electrodes

Advisor: Dr. Maher Amer

Bridget Larson, Zach DeSonia, Aric Ross

Team 19: Waste Vegetable Oil Fuel System

Advisor: Dr. James Menart

Adam Ruiz, Austin Szekeacs, Eric-Paul Tatman, Joe Walker, Bo Whip

10:15-10:40AM Break for Project Displays

10:45 - MORNING SESSION II:

Team 20: Cryogenic Heat Exchanger

Advisor: Dr. Rory Roberts and Dr. Mitch Wolff

Michael Higgins, Gabe Loranger, Angelina McLaughlin, Ian Richards, Alex Stapleton

Team 21: APOP SOFC-Turbine Hybrid

Advisor: Dr. Rory Roberts, Dr. Scott Thomas and Dr. Mitch Wolff

Jacob Dickel, Bryan Eubanks, Keegan Justice, Joseph Peoples, Emma Veley

Team 22: Novel Double Blade Design

Advisor: Dr. Zifeng Yang

Saleh Alghamdi, Zyad Asiri, Robert Beedy, Chase Benning, Lee Blackford

12:00-1:30PM Lunch and Project Displays

1:30PM - AFTERNOON SESSION:

Team 23: Elastomeric 3D Printing

Advisor: Dr. Daniel Young

Jessica Burns, Cody Forsythe, Richare Pierce, Daniel Stipich

Team 24: Multi-Pass Welding Based 3D

Advisor: Dr. Raghavan Srinivasan

Aqeel Alsaihati, Renyssa Davis, Tyler McBeath, Isaac Stephens

2:30-3:00PM Project Displays