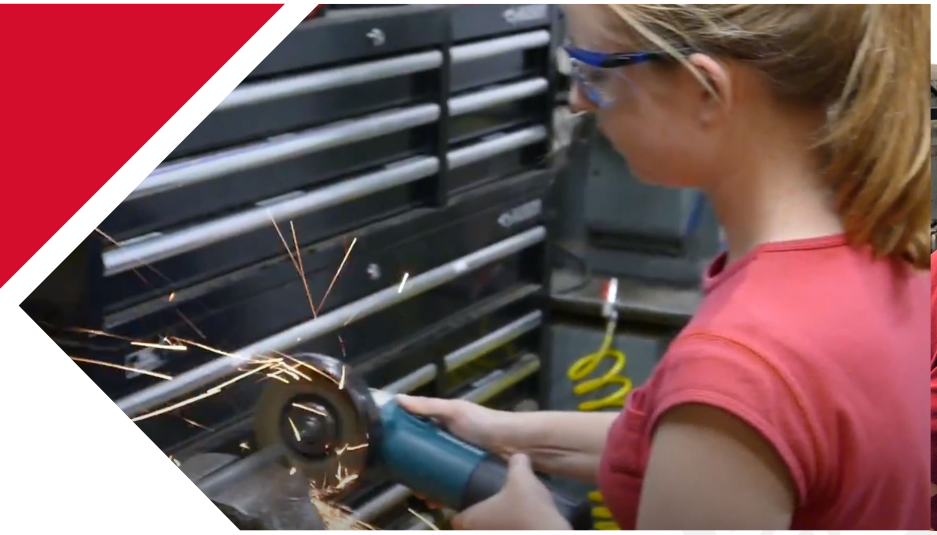
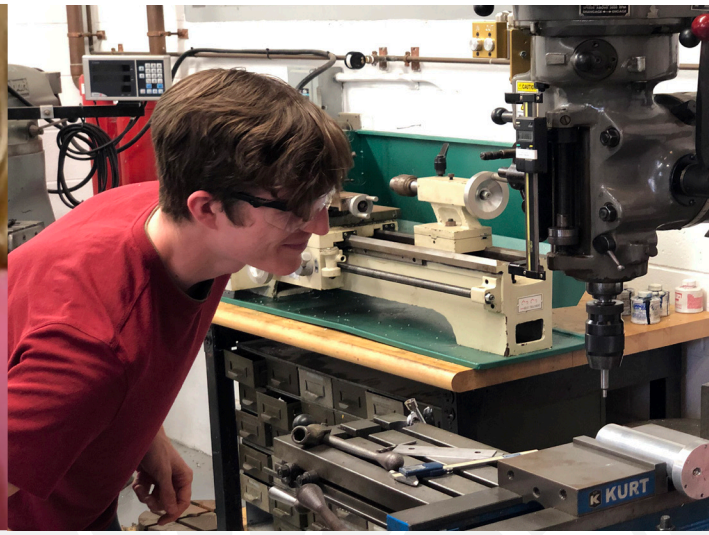


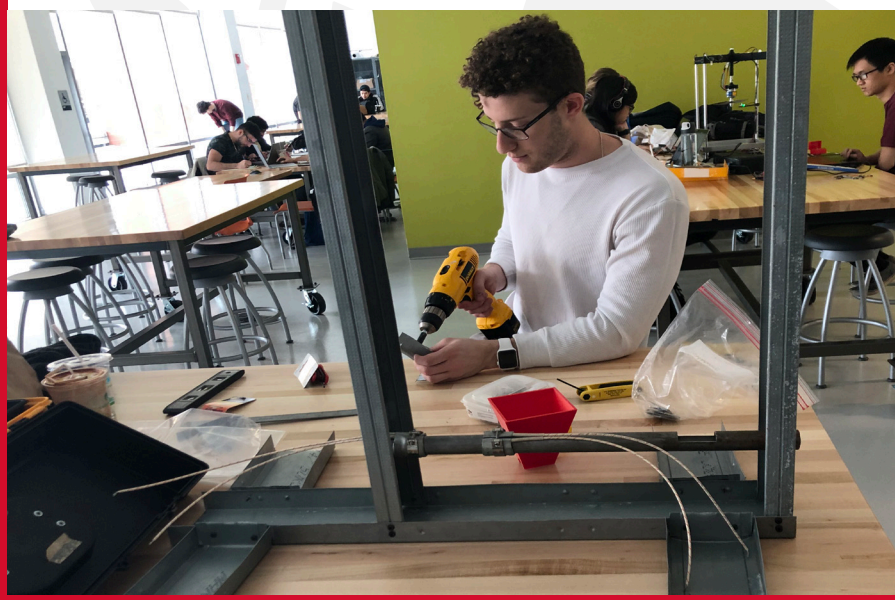


Mechanical and Aerospace Engineering
2020 Design and Manufacturing Expo
May 13, 2020

RUTGERS
School of Engineering

RUTGERS
Mechanical and Aerospace Engineering

Course Coordinators	Prof. Assimina A. Pelegri Prof. Xi Gu
Teaching Assistants	Paul Ferri Jonathan Shi Hang Zhang
Senior Project Administrator Design Specialists	Dr. Basily Basily Mr. John Petrowski Mr. Milan Simonovic
Seminar Speakers	Dr. Jerry Shan *Rutgers MAE* Mr. Alejandro Ruiz *Rutgers REHS* Dr. Richard Dool *Rutgers School of Communication and Information* Dr. Paul Shang *Naval Surface Warfare Center* Dr. Alexey Titovich *Naval Surface Warfare Center* Mr. Alex Perotti *Naval Surface Warfare Center* Ms. Cassidy Gonzalez-Morabito *Naval Surface Warfare Center* Dr. Hannah L. Dailey *Lehigh University* Mr. Dimitris Dimopoulos *Berg Pipe* Mr. Eric Evdokimoff *Zurich Services Corporation* Mr. Ken Johnson *Lockheed Martin (Ret.)* Mr. Merrill Edmonds *Rutgers MAE* Dr. Mukesh M. Patel *Rutgers Business School* Mr. Hariharan Vijayakumar *Rutgers MAE & Aersys Inc.* Mr. Vallab Nayak *Rutgers ISE & Aersys Inc.*



NOTE FROM THE CHAIR

This is a very special year for all of us, we have been challenged by unprecedented circumstances at every level of our lives. The continuity of our Senior Projects at the most critical phase of fabrication were just one of these challenges. I am extremely proud of the collective and individual responses of students, faculty, and staff to overcome these unique conditions with ingenuity, passion, and sense of a community. We are also very grateful to all judges for their sustained commitment and participation in this event. We are all looking forward to the 2020 Virtual Expo to highlight the year-long effort of our Seniors in designing and manufacturing their capstone projects.

The Mechanical and Aerospace Engineering Department is a vibrant academic community offering two undergraduate degrees in Mechanical Engineering and Aerospace Engineering, in addition to graduate/advanced programs leading to MS, MEng and PhD degrees. Our 30+ full-time faculty members educate more than 750 undergraduate and 160 graduate students. Our Department is one of the largest and oldest units in the School of Engineering, having been founded in 1908. Today, our programs rank on the top 40 Graduate Engineering Programs in the nation, according to U.S. News and World Report. Our exciting and multidisciplinary research portfolio is advancing research in a variety of scientific and technological areas, including nanostructures, autonomous robotics, electro-hydrodynamics, fluid interactions, energy science, and advanced materials.

Our community of students, faculty, alumni, and industry partners is devoted to collaborative work at the highest standards of research and innovation. Every faculty member is dedicated to helping our students achieve success through teaching excellence and an exciting array of research projects. Students have access to a wide range of classes that train them in the core principles of mechanical and aerospace engineering. They have the opportunity to participate in research projects as undergraduates, allowing them to gain experience in real-world applications comparable to research conducted by industry.

Excellence in teaching is a priority for our faculty members who take seriously their role as educators, training students to be problem solvers and innovators. Our faculty has achieved distinction among their peers and as fellows of professional engineering societies, including the American Society of Mechanical Engineers (ASME), American Physical Society (APS), Acoustical Society of America (ASA), and the American Academy of Mechanics (AAM).

Our warm welcome to our 2020 Mechanical and Aerospace Engineering Expo!

Alberto Cuitiño, Ph.D.
Professor and Chair
Department of Mechanical and Aerospace Engineering

NOTE FROM THE COORDINATOR

Dear students, parents, and friends,

I would like to take this opportunity to welcome you to the Mechanical and Aerospace Engineering Department at Rutgers! In the following pages, you will find the Senior Design projects for AY 2019-20. During these projects, students have the opportunity to work with industry members as well as faculty, gaining experience in real-world engineering. Many of these projects can lead to new technologies or other innovations outside of academia and they help our students transition to life after graduation. This year was different...

This year was marked by the Covid 19 pandemic. We had to stop the in-person teaching and start remote lecturing. The students had to leave campus and classrooms, the machine shop got deserted, and Weeks Hall design studios were empty with half-cooked projects on the benches. This year will never be forgotten. Although some of us got sick, depressed, and upset with the unfairness of the situation, we ALL pulled together, supported each other, finished the classes, shared our homes and rooms and studying corners, communicated, innovated, designed, build. We persevered!

My message this year is profoundly personal and addressed to you, OUR SENIORS. I have had the honor of knowing you all, spent time with you in the class, reviewed every single one of your grades, and heard your stories. I want to say that I am very proud of you and what you have accomplished under these difficult circumstances. I know that for a lot of you, this was not easy, but again you raised to the situation and you showed how innovative, entrepreneur, and resourceful our young MAE engineers are.

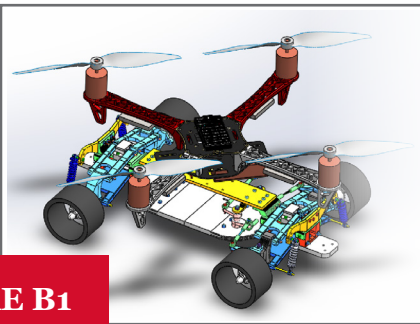
This brochure is a record of your achievements! Congratulations!

Assimina A. Pelegri, Ph.D.
Professor and Undergradate Program Director
Department of Mechanical and Aerospace Engineering

DESIGN AND MANUFACTURING PROJECTS

LAND-AIR HYBRID VEHICLE

AEROSPACE DESIGN PROJECT



Faculty Advisor
Prof. Xiaoli Bai

Group Members
Tyler J Becker
Tanumaya Bhowmik
David Ezrapour
Brian R Jeziorski
Nikita Persikov
Botond Szabo

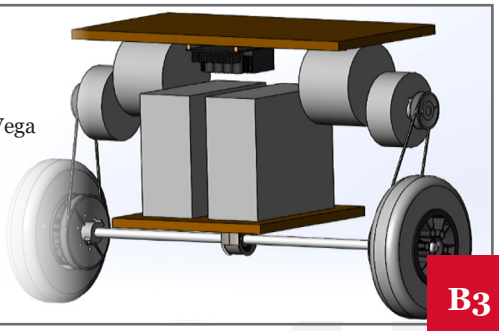
AE B1

This drone is designed for air and ground travel. It is powerful enough to carry up to two kilograms of payload/equipment to use for missions involving traversal of complex spaces, such as caves.

MOTORIZED WHEELCHAIR KIT

Faculty Advisor
Prof. Haim Baruh

Group Members
Anthony Gallardo-Vega
Josue A Rivera
Mihir D Shah

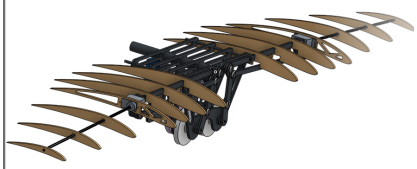


B3

Our kit is a cheaper motorized wheelchair option when compared to the other products in the market. By creating a specialized pulley system, a wheelchair can but pushed with the kit still attached.

MECHANICAL BIRD

AEROSPACE DESIGN PROJECT



Faculty Advisor
Prof. Prosenjit Bagchi

Group Members
Matthew J Adams
Alvin K Chen
James Greaves
Jason Ni
Tin-Wei O'Boyle
Andrew P Stirnweis

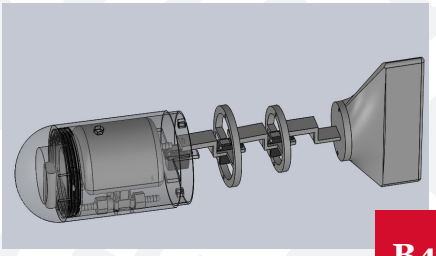
AE B2

The goal of our project is to produce thrust and lift by the various motions of a bird wing. This includes the initial flapping, bending of the elbow, and tilting of the wing tips.

BIOMECHANICAL FISH

Faculty Advisor
Prof. Prosenjit Bagchi

Group Members
Samuel C Bannon
Stephen G Cafiero
Nicholas C Francis
Parth S Patel
Jordan G Perrone



B4

A robot that mimics the movement of a real fish using undulatory forces created by torque from the tail and uses a dynamically changing density to rise and fall in the water.

DRONES IN TANDEM

AEROSPACE DESIGN PROJECT

Faculty Advisor
Prof. Haim Baruh

Group Members
Alan A Esquivel
Moorly Mehta
Darshan M Patel
Vaibhav K Patel
Steve Tereschuk

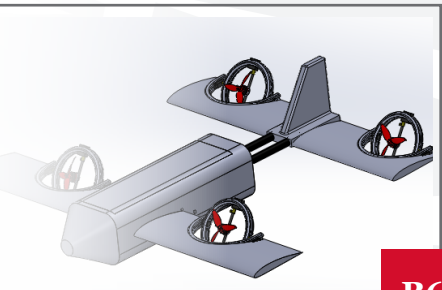
AE B3

The goal is to have a secondary drone perform the same flight commands that a main drone, preferably remote controlled, is executing.

SMALL-SCALE FLYING CAR

Faculty Advisor
Prof. Laurent Burlion

Group Members
Samuel R Bright
Kevin P Callaghan
Brendan C Dowling
Jake T Fitzpatrick
Nathan Reetz
Arthur Suchodola



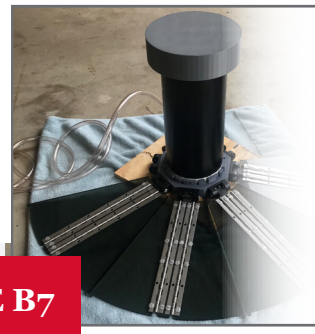
B6

Our project is a small scale VTOL aircraft that is capable of transitioning from quadcopter-like takeoff to agile fixed-wing aircraft. The aircraft is controlled by thrust vectoring four biaxial gimbal motor mounts.

DESIGN AND MANUFACTURING PROJECTS

HYBRID LUNAR INFLATABLE STRUCTURE

AEROSPACE DESIGN PROJECT



Faculty Advisor
Prof. Haym Benaroya

Group Members
Brian J Comerford
Joel Damron
Matthew J Lopes
Raymond P Martin
Timothy P Nuber

AE B7

A Hybrid Lunar Inflatable habitat designed to function as an early Lunar base in a series of Moon missions to develop a Lunar colony. The model built demonstrates the deployment of the structure, including inflation.

DRONE HUNTER

Faculty Advisor
Prof. Laurent Burlion

Group Members
Hamza E Abdeen
John D Barreira
Natalie G Carchi
Samuel S Haleva
Trevor Rokoski

AEROSPACE DESIGN PROJECT

AE BD

A drone that navigates to a target drone autonomously and captures it, and then carries it to a designated location. The target drone is recognized using a thermal camera.

MULTI-MODE HYBRID DRONE DELIVERY SYSTEM

AEROSPACE DESIGN PROJECT

Faculty Advisor
Prof. Onur Bilgen

Group Members
Muhammed N Erol
Johny M Khalaf
Ibrahim A Khalifa
Muhammad M Khan
Andrew M Petersen

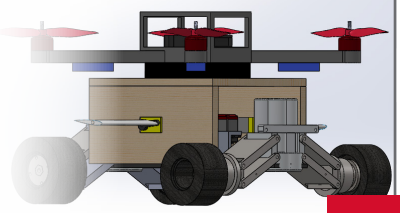
AE BA

This project aims to create a collaborative multi-UAV system, powered by a multi-mode and novel navigation system, to enable power-efficient and automated last-mile package delivery.

SMALL SCALE FLYING CAR

Faculty Advisor
Prof. Laurent Burlion

Group Members
Zachary W Billingham
Matthew K Branch
Shaina R Cotter
William C Cundiff
Jaimin Nayee
Hiralkumar R Patel

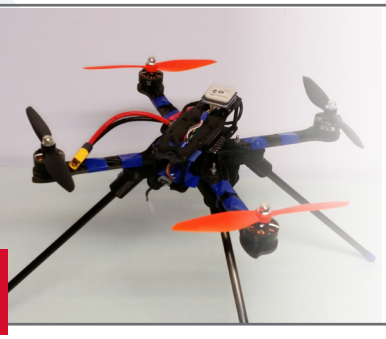


AEROSPACE DESIGN PROJECT

AE BE

A small-scale, new-age flying car. It has VTOL capabilities for agility, and increased take off efficiency. It also has an attached wing to better perform on long-distance flights.

ZERO-G DRONE



Faculty Advisor
Prof. Onur Bilgen

Group Members
Richard E Cavanaugh
Anu S Daniel
Ciera L Fedell
Steve D Hermida
Lauren J Malara
Taylor A Reck
Ava R Zawacki

BB

The Zero-G Drone creates a microgravity testing environment for a small payload. This is achieved with a custom designed drone and an accelerated free-fall flight profile.

VOICE CONTROLLED PROSTHETIC HAND

Faculty Advisor
Prof. Kimberly Cook-Chennault

Group Members
Despina Antonatos
Derrick J Bejarano
Sarah H Hassanein
Jannat Javed
Hailey D Oberheim
Sara M Selim

C4

The drone population is increasing with a need for a better way to maintain multiple drones in a single docking station. Drones will be able to be released and fly on command from docking station.

DESIGN AND MANUFACTURING PROJECTS

3D-PRINTED PROSTHETIC HAND WITH ARCHERY ATTACHMENT MECHANISM

Faculty Advisor
Prof. Kimberly Cook-Chennault

Group Members
Sara Atzbi
Samantha A Moure
Cloie Jei L Mungcal
Jacob A Saporito
Lucas D Scozzarro
Jose C Trivino

C5

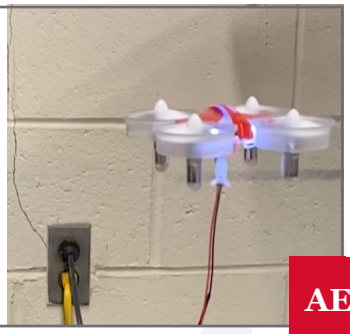
A 3D-printed prosthetic hand based on the e-NABLE Phoenix Hand v2 model which has been modified to house a mechanism that allows the user to draw/release a bow & arrow.

TETHERED DRONES

AEROSPACE DESIGN PROJECT

Faculty Advisor
Prof. F. Javier Diez-Garias

Group Members
Daniel O Bamimore
George Galkin
Enock H Rey



AE D2

Our project sends high-voltage power through a very thin and lightweight tether to a drone. This tether has its length and tension carefully managed with a computerized base station.

IM TILTED

AEROSPACE DESIGN PROJECT

Faculty Advisor
Prof. Edward DeMauro

Group Members
Jung J Park
Ruchita Sinha
Ange A Tape
Jonathan Tsai

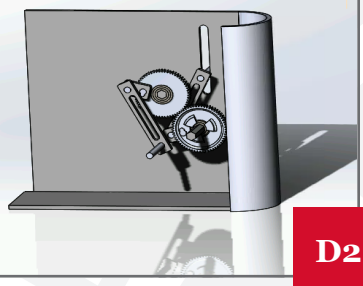
AE D1

The electrical vertical take off and landing vehicle (eVTOLs) will be the future of delivery and continue pushing the technological advancement of delivery systems.

FLAPPING WING ENERGY HARVESTER

Faculty Advisor
Prof. Mitsunori Denda

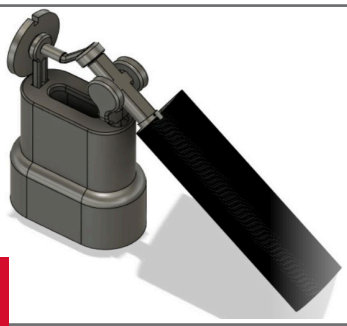
Group Members
Weicai Chen
Zhiyi Chen
Qingyun Hong
Yining Pan
Wei Chao Wang



D2

The two goals of the project are to design a more stable and easily calibrated schlieren system and to create a new control code in LabView that is clear and well commented.

FLAPPING WING ENERGY HARVESTER



Faculty Advisor
Prof. Mitsunori Denda

Group Members
Richard G Chung
Manfred Germain
Raymond C Lorenz
Minhtri D Nguyen
Jose A Ramirez

D1

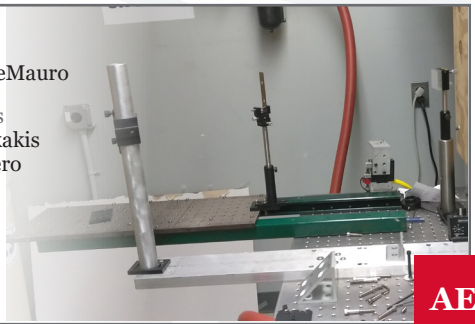
Using mostly 3D printed parts, it is our goal to create a wing energy harvester that mimics the flapping motion of a bird to generate renewable energy.

JET THRUST LABORATORY: DESIGN OF A NEW SCHLIEREN SYSTEM AND CONTROL CODE

AEROSPACE DESIGN PROJECT

Faculty Advisor
Prof. Edward DeMauro

Group Members
George Gianoukakis
Edwin R Guerrero

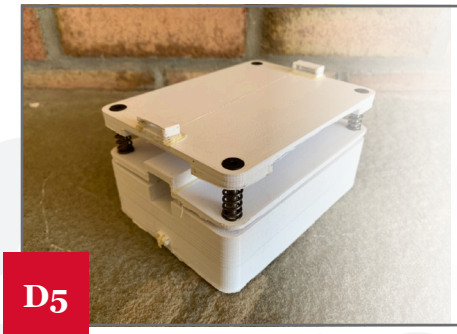


AE D3

The two goals of the project are to design a more stable and easily calibrated schlieren system and to create a new control code in LabView that is clear and well commented.

DESIGN AND MANUFACTURING PROJECTS

BICYCLE THERAPY WITH VIRTUAL REALITY



D5

Faculty Advisor
Prof. German Drazer

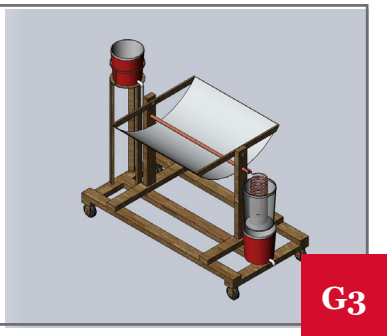
Group Members
Stephanie Cordoba
Ihsan Gun
Yair Pineda
Yousef Z Salman
Rana H Srouji
Brendan D Warren

Bicycle physiotherapy for patients suffering from leg, knee, or hip injuries with a virtual reality software displayed on a monitor to provide feedback to their movement.

PORTABLE SOLAR DESALINATION DEVICE

Faculty Advisor
Prof. Zhixiong (James) Guo

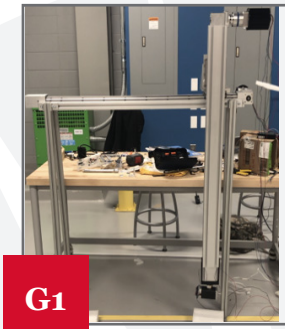
Group Members
Edgar S Argudo
Julia A Esposito
Alexa Garrido
Tom E Kusoffsky
Cyril Nwako
Renee J Tournoux



G3

This device uses a parabolic trough to reflect sunlight onto a pipe filled with sea or brackish water. This water then exits the pipe as steam and is condensed, leaving drinkable water.

AUTOMATED GANTRY SYSTEM



G1

Faculty Advisor
Prof. Xi Gu

Group Members
Pedro E Castro
Jacob M Effron
Ahmed M Menshawy
Gabriel A Reis
Santiago Ruiz-Chanci
Theresa A Stapleton
Christian P Young

An automated gantry system operating from an ArduinoMEGA, allows for an electromagnet to pick and place objects with bi-directional output from two stainless steel actuators.

FLEXIBLE SOLAR PANELS

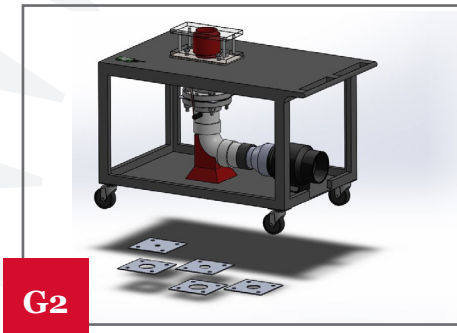
Faculty Advisor
Prof. Zhixiong (James) Guo

Group Members
Navruz B Baum
Varun Bose
Bonnie F DeAlmeida
Matthew J Fusella
Anthony P Scalia
Scott V Yashay

G4

Flexible solar panels provide a source of renewable energy for curved or uneven structures. The design encompasses high efficiency cells with latent heat cooling to ensure a thin flexible design does not sacrifice power efficiency.

PORTABLE FLOW BENCH



G2

Faculty Advisor
Prof. Xi Gu

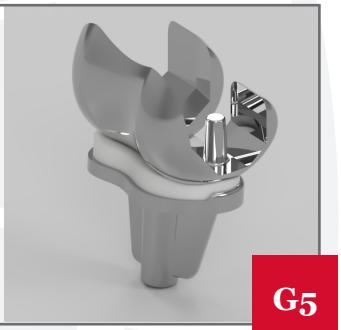
Group Members
Demosthenes M Backos
Nicholas Brostow
Martin A Hluchy
Jared M Leahy

Our project is a flow bench that can be moved easily. Orifice plates can be changed in a matter of minutes, and the discharge coefficient will be read out on LCD screen.

3D PRINTING OF A CUSTOMIZED KNEE IMPLANT

Faculty Advisor
Prof. Yuebin Guo

Group Members
Justin S Du
Bryce A Griffin
Kevin J Penaga
Shadidur Rahman
Matthew M Santoianni



G5

Implemented additive manufacturing techniques to determine the viability of a customized knee implant. Designed to optimize contact surface conformity and reduce material wear rate for the patient.

DESIGN AND MANUFACTURING PROJECTS

WIND BEANS

J1

Faculty Advisor
Prof. Yogesh Jaluria

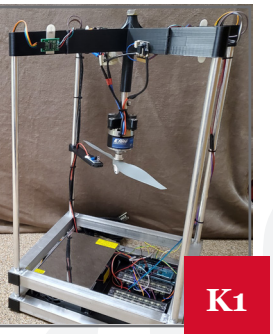
Group Members
Matthew A Christian
Jaskirat Kaur
Christopher C Lyons
Christof R Rapp
Trevor J Teehan
Feodor Tsabrov
Lauren Wougk

This project features a hydroponic system which is powered by a team designed and built wind turbine. Any excess energy created by the turbine is recycled by means of a water wheel.

DESIGN OF A TABLETOP ELECTRIC MOTOR THRUST STAND

Faculty Advisor
Prof. Doyle D. Knight

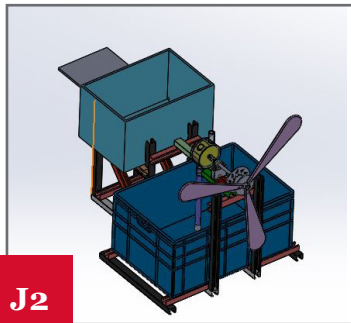
Group Members
Caesar M Chukrallah
Ryan B Devone
Jillian V Maling
Eleana N Niedzwiecki
Alexander E Scaler
Kevin Yang



K1

We are designing and fabricating a tabletop test stand for electric motors to measure thrust, RPM, and power. A LabView interface houses the controls and displays captured data to be saved and exported.

WIND ME OVER



J2

Faculty Advisor
Prof. Yogesh Jaluria

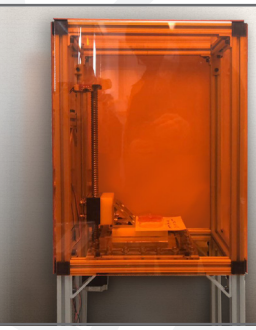
Group Members
Austin A Carroll
Christopher M Conti
Damani Y Jagdath
Jaewook Jung
Noor U Mahmood
Samuel M Rosen
Samruth Vennapusala

Our project will utilize a wind turbine to directly drive a rotary water pump. The pump will store water in a tank and will be electronically controlled to flow through an irrigation system.

CERAMIC DLP 3D PRINTER

Faculty Advisor
Prof. Howon Lee

Group Members
Brian Y Lai
Thomas G McGovern
Pranav Sabanayagam
Forest S Song
Gefei Su
Jahaan Turkhud

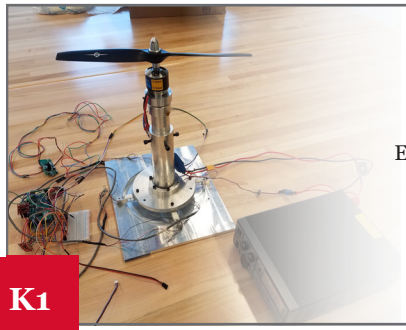


L1

Using digital light projection, our printer is capable of 3D printing ceramic parts with higher density than current commercial options, resulting in parts with less shrinkage and porosity post-sintering.

RC MOTOR THRUST TEST STAND

AEROSPACE DESIGN PROJECT



AE K1

Faculty Advisor
Prof. Doyle D. Knight

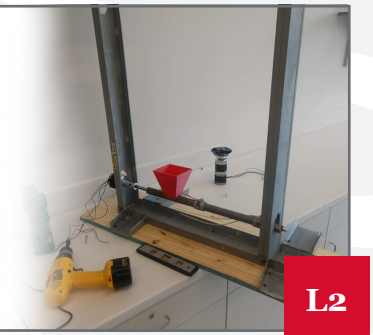
Group Members
Elizabeth K Foster-Krim
Lara B Hirsch
Shivarth N Popat
Franco N Ruiz
Gary E Simmons
Jack Thompson

Tabletop test stand to download real time thrust (in the range of 5 to 20 Nt), input electric power, and rpm data of an RC motor and propeller.

RECYCLABLE PLASTIC 3D PRINTER

Faculty Advisor
Prof. Howon Lee

Group Members
Paarth R Koushik
Arthur Nahas
Alec J Pizarro
Michael Vinciguerra

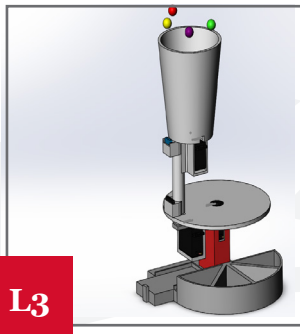


L2

Three step design to create commercial grade 3D filament to be input to a 3D printer for demonstration, including shredder and heating chamber.

DESIGN AND MANUFACTURING PROJECTS

COLOR SORTER



Faculty Advisor
Prof. Hao Lin

Group Members
Jessica K McAdams
Joseph D Minio
Arpeet K Patel
Aslan J Pugh

L3

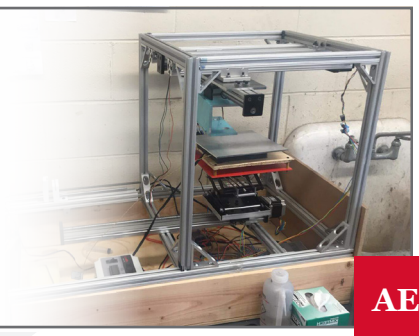
An automated sorter that sorts candy by color using two Arduinos, three Servos, two RGB sensors, and multiple 3D prints.

ADDITIVE MANUFACTURING OF SMART MATERIAL COMPOSITES WITH VARIABLE STIFFNESS

AEROSPACE DESIGN PROJECT

Faculty Advisor
Prof. Rajiv Malhotra

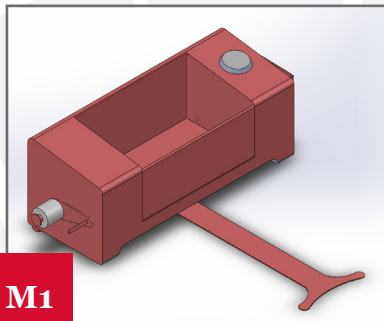
Group Members
Jeremy R Cleeman
Dakota Diaz
Charles E Elliott
Diego Neira
Patryk Wojnar



AE M5

A 3-D printer with capabilities to print, sinter, and cure circuits and structural components inside of PDMS to allow for flexible movement with varying stiffness inside of a robot.

CUSTOM BANDAGE



Faculty Advisor
Prof. Aaron Mazzeo

Group Members
Christopher S Long
Matthew J Seeley
Alec E Vidal
Tianhao Wei

M1

This system is designed to import a smartphone image from the user and creates a bandage of custom size and shape that correlates to the dimensions and location of the wound.

RUTGERS FORMULA RACING FATIGUE TESTER

Faculty Advisor
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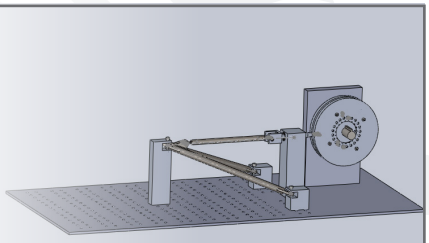
Group Members
Michael A Albacete
Madeline M Bowne
Raymond Chiu (ECE)
Michael L Fabiano
Sefa C Ocak
Gilberto M Rubio
Dennis W Villani



P1

The RFR Fatigue Tester will help test, validate, and iterate designs of critical components that are exceedingly difficult to simulate. This data will be used to improve vehicle maintenance and the team's design score.

OPTICAL TORQUE MEASURING DEVICE

Faculty Advisor
Prof. Michael Muller

Group Members
Hunter M Grimes
Michael K Sunga
Jack C Teasdale
Kevin P Tierney

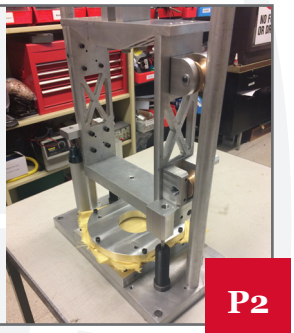
M3

Optical Torque Measuring Device that industries could put on their engines and motors to determine the efficiency to help prevent engine and motor failure.

HIGH-SPEED DATA ACQUISITION

Faculty Advisor
Prof. Assimina A. Pelegri

Group Members
Anthony Parfilko
Glenn Michael B Pe
Alexander Radulescu
Daniel P Recchione
Reece John E Ronquillo
Winston Tran

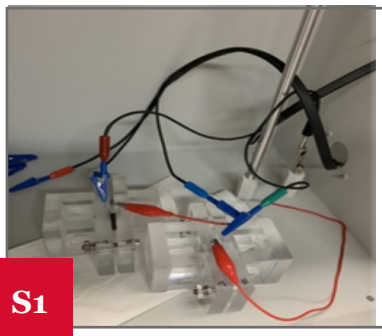


P2

The impact tester will be able to record the force response of a test material under a high-speed impact using fine adjustments to the initial energy input, momentum, and force applied.

DESIGN AND MANUFACTURING PROJECTS

BLUE ENERGY



S1

Faculty Advisor
Prof. Jerry Shan

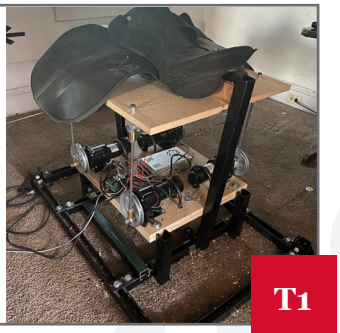
Group Members
Matthew D Binder
Julian A Korduba
Andrew F Leibowitz
Michelle D Lubitz
Dolapo T Ogunsami
Benjamin R Rengulbai
Dylan M Scallo

The salinity gradient between freshwater and saltwater is an untapped source of renewable energy. Boron-nitride nanotube (BNNT) membranes double the energy created between this gradient. This project demonstrates the capabilities of BNNT-membranes to power devices.

EQUINE SIMULATOR FOR HIPPOTHERAPY AND RIDER TRAINING

Faculty Advisor
Prof. Stephen Tse

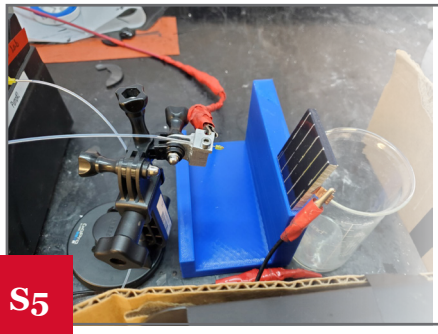
Group Members
Kevin M Bauer
Jeremy A Berkowitz
Sammy Soubany
Liam J White



T1

This project aims to create a system to recreate the movements of a horse such as the walk, trot, canter, and gallop. This mechanism can be used for hippotherapy and teaching new riders.baffle design

SCRATCH REPAIR VIA ELECTROSPRAY DEPOSITION



S5

Faculty Advisor
Prof. Jonathan Singer

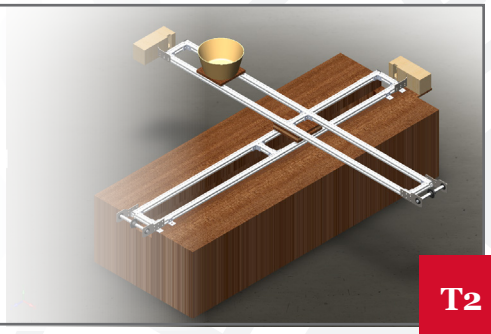
Group Members
Kaede D Barringer
Kyle J Buznitsky
Landon T Cordova
Parthiv A Desai
Mahatru Krishnamurthy

This project aims to use the well-documented process of electrospray deposition and apply it to automotive scratches as an improved scratch repair process, saving labor, time, and money.

2D BALL CATCHING ROBOT

Faculty Advisor
Prof. Stephen Tse

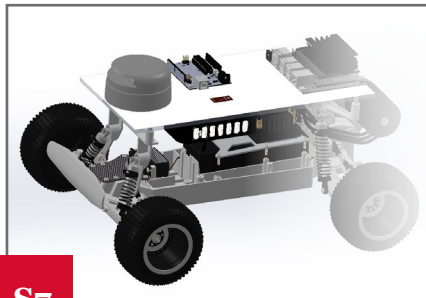
Group Members
Daniel Adelman
Albert D Kraus
Devin T Lorusso
Brandon W Nguyen
Andrew J Petrone



T2

A catching system designed and outfitted to detect incoming projectiles and calculates its spatial coordinates and trajectory and sequentially moves a catching bucket to securely receive the object within its 2D catching range.

AUTONOMOUS CAR



S7

Faculty Advisor
Prof. Annalisa Scacchioli

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Robert C Bridgman
David M Crinite
Ryan D Henson
Yongdae Kim
Esvinder Singh
Anthony M Vacca

Our project consists of designing and building a 1/10th scale autonomous racecar. The car will be able to conplete a racetrack using no human input.

LIGHTWEIGHT, HIGH-STRENGTH CYLINDRICAL PRESSURE VESSEL, REINFORCED WITH CARBON FIBER EPOXY FOR CRYOGENIC APPLICATIONS

AEROSPACE DESIGN PROJECT

Faculty Advisor
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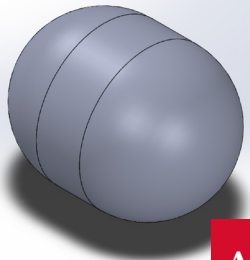
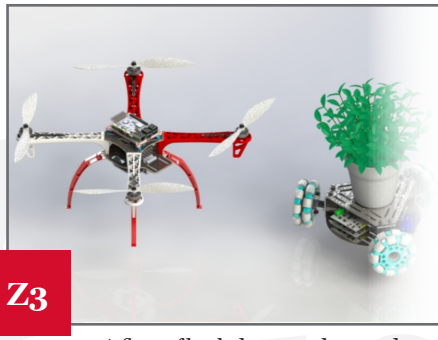
Anjali Jothi
Andrew G Olivares
Pratul Rachakonda
William L Sitar
Vivek M Vidyarthi



AE W2

A lightweight, high-strength, cylindrical pressure vessel containing a stainless steel inner wall, wrapped with a carbon fiber epoxy outlay to withstand cryogenic temperatures. Includes anti-slosh baffle design for rigidity.

A MULTI-DIMENSIONAL FLEET OF INTELLIGENT MOBILE PLANTS FOR UNKNOWN TERRITORY EXPLORATION



Faculty Advisor
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Group Members
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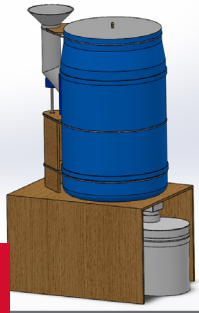
Israel I Jackson
Justin A Raymundo
Albert Tran (ECE)
Hariharan Vijaykumar
Simon Zhou

Z3

A fleet of both drone and ground rovers built and programmed with the purpose of safely transporting plants through unexplored territories.

AUTOMATED BIOGAS SOLUTION



Faculty Advisor
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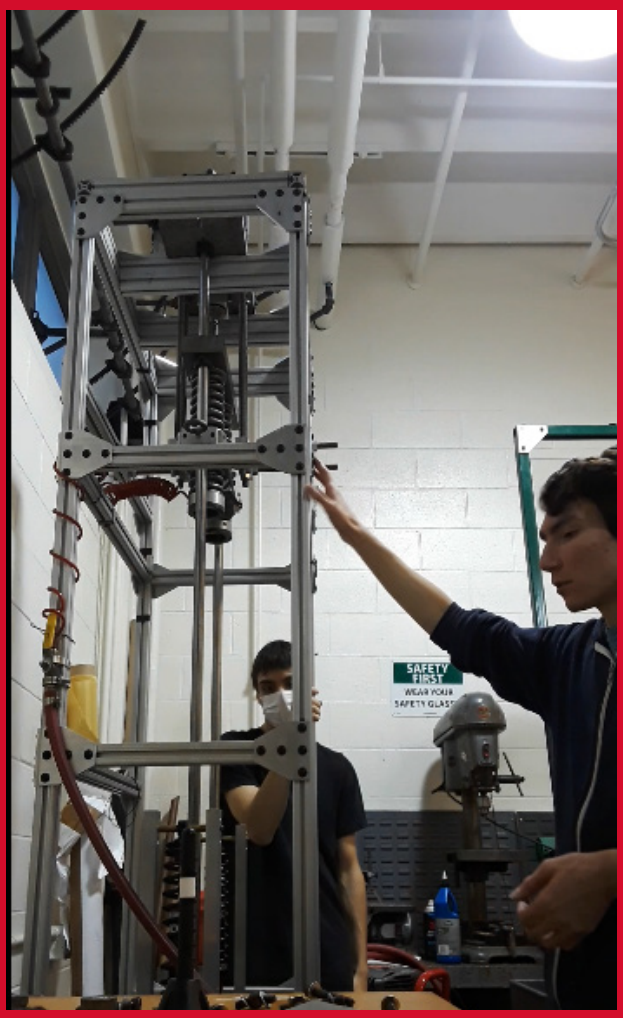
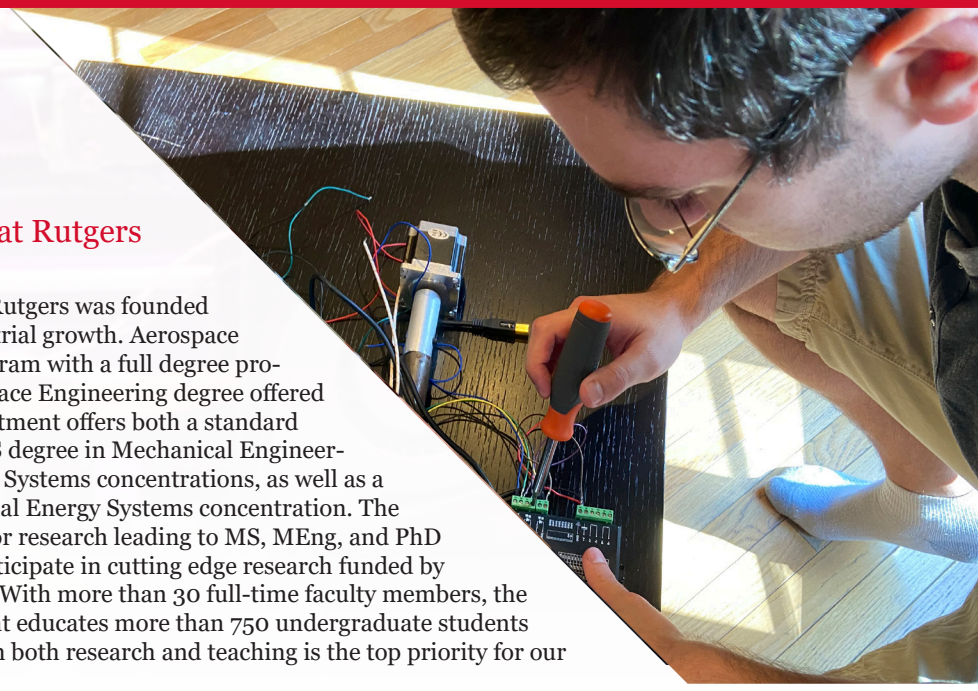
Andrew P DelRocini
Cora C LoPresti
Jessica L Olson
Jasmine A Sawaged
Saifil Vahora

Z4

Automated anaerobic digestion system for commercial scale repurposing of food waste into fertilizer and biogas through the use of anaerobic digestion.



Cover Photos
All group members listed left to right, top to bottom.
Front top: Jaskirat Kaur, Lauren Wougk, Feodor Tsabrov
Front bottom left: Madeline Bowne
Front bottom right: Gary Simmons
Front inside: Arthur Nahas
Back inside top: Albert Kraus, Andrew Petrone
Back inside bottom: Alexander Radulescu, Daniel Recchione
Back: Michael Vinciguerra



Mechanical & Aerospace Engineering at Rutgers

The Department of Mechanical Engineering at Rutgers was founded in 1908 with a focus on driving the country's industrial growth. Aerospace Engineering was added in 1965 as a certificate program with a full degree program established in 2015. It is now the only Aerospace Engineering degree offered among New Jersey's public universities. The Department offers both a standard Mechanical Engineering curriculum leading to a BS degree in Mechanical Engineering with optional Aerospace Engineering or Energy Systems concentrations, as well as a BS degree in Aerospace Engineering with an optional Energy Systems concentration. The Department has state of the art laboratories used for research leading to MS, MEng, and PhD degrees. Undergraduate and graduate students participate in cutting edge research funded by federal and state agencies, and industrial partners. With more than 30 full-time faculty members, the Mechanical and Aerospace Engineering Department educates more than 750 undergraduate students and more than 160 graduate students. Excellence in both research and teaching is the top priority for our faculty.

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