Capstone Design Expo

Spring 2023

Georgia Tech
Capstone
Design Expo

April 25, 2023
McCamish Pavilion
Atlanta, Georgia

Dear Capstone Design Expo Judges and Guests:

Georgia Tech opened its doors in 1888 with mechanical engineering being its only degree-granting program during the Institute's first eight years. Mechanical Engineering (ME) grew from the original shop or trade culture to a professional curriculum with experimental laboratories and multi-disciplinary challenges. Today, with almost 3,000 students, the Woodruff School is the largest mechanical engineering program in the U.S., graduating over 600 bachelor's degrees, 200 master's degrees, and 65+ doctoral degrees each year. From its early beginning and throughout the Woodruff School's history, one thing has always remained constant: excellence in creating and building products, devices, and systems that make the world a better place!

As part of our relentless drive for excellence, the Woodruff School embarked on an ambitious journey to create a renaissance in engineering education and make its undergraduate program among the very best in the world. Part of this initiative was to reintegrate and supercharge the "create-innovate-design-build" stem of the curriculum. Over the last decade, the Woodruff School has encouraged and enabled all its students to engage in hardware prototyping for validation of their Capstone Design projects. The School continues to provide a variety of resources, including access to state of the art machines, expertise, and assembly space to all its students, through the newly renovated Flowers Invention Studio, the Montgomery Machining Mall, the ME Electronics Shop, and the IDEA Lab – all housed in a contiguous space on the second floor of the MRDC building. This state-of-the-art facility has helped foster the maker culture on campus and support numerous collaborative cross-disciplinary design and innovation projects. Given these facilities, it is not surprising that the Woodruff School also leads the drive for multi-disciplinary Capstone teams, and we can point with pride to strong partnerships with Industrial Design, Computer Sciences, Biomedical Engineering, and Electrical and Computer Engineering.

The Capstone Design Expo, which was started by the Woodruff School over a decade ago, is now held twice per year and attracts several thousand attendees to Georgia Tech to evaluate and celebrate our students' accomplishments. The Spring 2023 Expo will feature 190 teams from 11 different schools. Of those, 20 teams are ME, four teams are NRE, and over 50 other interdisciplinary teams include ME students. More than half of the teams have an external sponsor in the form of a company, entrepreneur or non-profit organization supporting their project. A special CREATE-X section focused on supporting entrepreneurial teams will also pitch their startup ideas at the expo.

Going forward we seek to build on our vision and proven record of accomplishment to advance engineering education and to significantly enhance the quality of our graduates as they enter the workforce. We thank you profoundly for joining us on this journey and for your continuous support in educating mechanical engineering graduates who will have tremendous impact and provide positive change in our world. Come see for yourself and let me welcome you to the Georgia Tech Capstone Design Expo!

Amit S. Jariwala
Director, Georgia Tech Capstone Design Expo
Director of Design & Innovation, Woodruff School of Mechanical Engineering

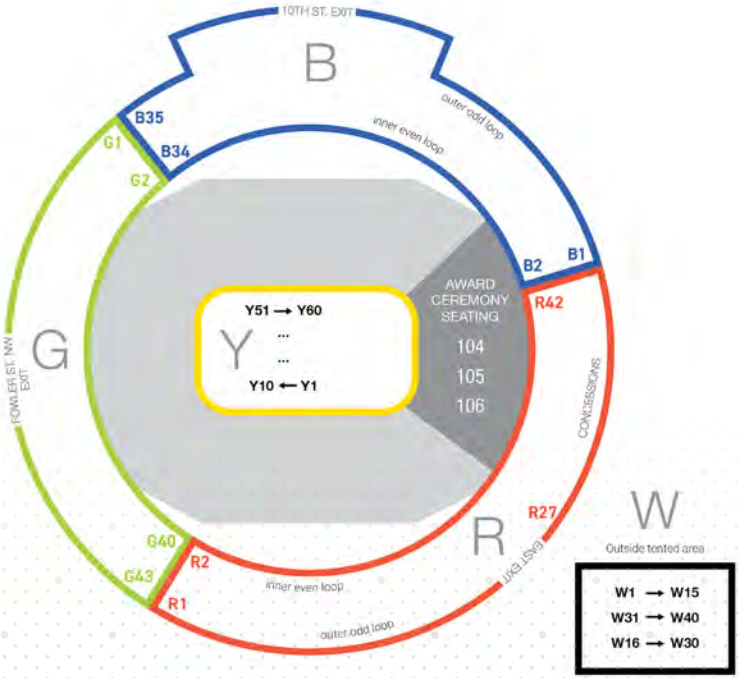
Capstone Design Expo

The Georgia Tech Capstone Design Expo is one of the largest student design expos in the United States, showcasing student innovations designed and built during the Capstone Design Course. Students work in teams to solve industry problems, develop innovative tools to assist researchers, or work on their own entrepreneurial ideas.

Past expos have produced projects that have yielded significant results for industry sponsors, saving them upwards of millions of dollars in research and development costs. The networking experience for students gives them the opportunity to make a lasting first impression on potential employers; some have walked away with an invitation to visit a potential employment opportunity with some of the sponsors. This booklet features teams from the Woodruff School of Mechanical Engineering.

http://mecapstone.gatech.edu/

Expo Layout Map



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Woodruff School Teams

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**This list shows teams that comprise of students majoring in mechanical engineering and nuclear and radiological engineering.*

R3

MODDLE BOTTLE

The Moddle Bottle

CONSUMER PRODUCTS

SPONSOR
N/A

ADVISOR
Denis Tsygankov

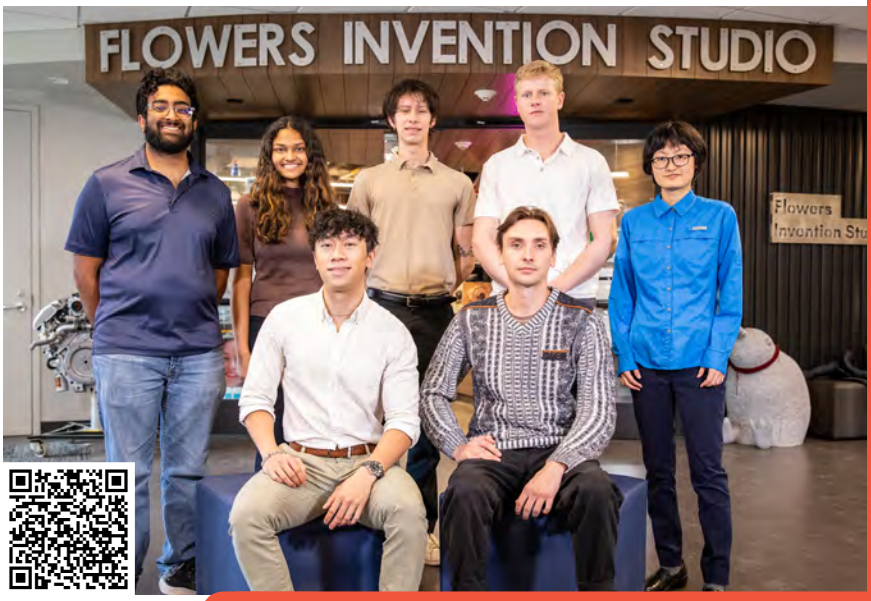
MEMBERS
Kelsey Brew
Kyrsten Davis
Cheryl Hwang
Camille Jones
Josh Kim
Miles Pearlstein
Alicia Suarez
Theodoros Zournatzis

DESCRIPTION
Team Moddle Bottle's project is focused on developing a novel smart baby bottle with heating, insulation, volume-tracking, and UV-C disinfecting functionalities.

PRIMARY EMAIL CONTACT
tzournatzis3@gatech.edu

LONO

Lono: Smart Sprinkler System



ENTREPRENEURIAL

SPONSOR
N/A

ADVISOR
Karthikeyan Sundaresan

MEMBERS
Celine Chan
Kavya Golamaru
Mehul Gupta
Quin Kieu
Valerii Kulagin
Jordan Sanchez
Henry Stewart

DESCRIPTION
Lono's project is focused on creating an IOT residential sprinkler controller with smart soil moisture sensing.

PRIMARY EMAIL CONTACT
laird.stewart@gatech.edu

FISSION CHIPS

Sample Folding Mechanism Subsystem Design Challenge for a next generation Radionuclide Sampler/An

INDUSTRIAL TOOLING/MANUFACTURING

SPONSOR
Pacific Northwest National Laboratory (PNNL)

ADVISOR
Dr. Sprigle

MEMBERS
John David Breazeale
William Cuthbertson
Matthew Ellett
Yueh-Ju Hsieh
Lauren Sigut
James Tsangarides

DESCRIPTION
Fission Chips' project is focused on improving the current RASA (Radionuclide Aerosol Sampler/ Analyzer) by developing a subsystem that packages samples of aluminized mylar to a reduced size suitable for the radioactive aerosol monitoring systems run by PNNL and other global labs.

PRIMARY EMAIL CONTACT
lsigut3@gatech.edu

THE PCB FABRICATORS

Engineering Design Education Kit

MECHATRONICS/ROBOTICS

SPONSOR
Tim Brothers

ADVISORS
Tim Brothers
Amit Jariwala

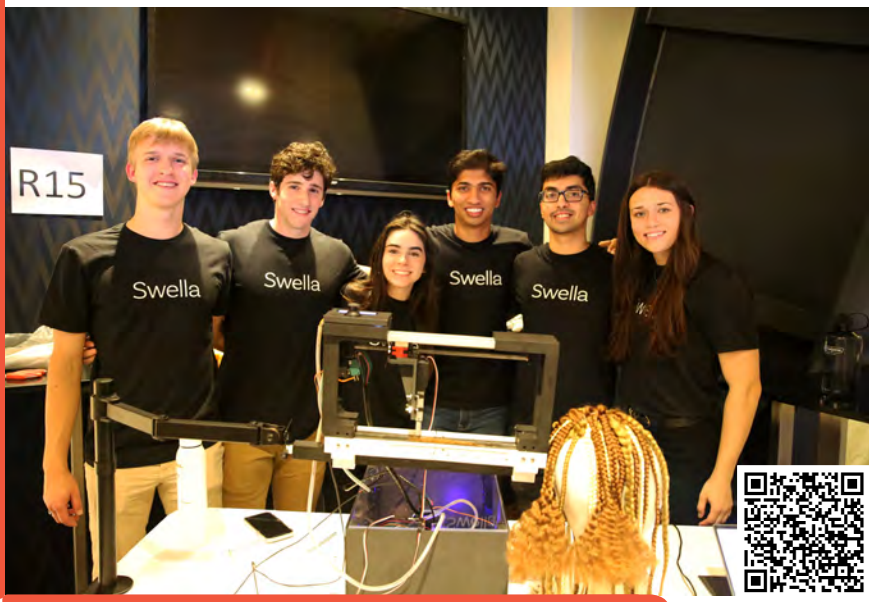
MEMBERS
Nasir Christian
Jeffrey Garbacik
Jason Hwu
Hyochang Kim
Jason Quesenberry
Tanvi Reddy

DESCRIPTION
The PCB Fabricators' project is focused on designing a Personally Coded Box (PCB), a locked box whose combination can be coded personally by younger children through visual coding software like Scratch.

PRIMARY EMAIL CONTACT
jquesenberry7@gatech.edu

TEAM UNRAVL

The Unravl Device



CONSUMER PRODUCTS

SPONSOR
Swella, Inc.

ADVISOR
Tequila Harris

MEMBERS
John Bowman
Varun Godbole
Athrey Gonella
Natacha Ramioulle
Lindsey Rodrigues
Joel Saaskilahti

DESCRIPTION
Team Unravl's project is focused on the Unravl Device, which enables salons to automatically unbraid box braids of varying diameters quickly, safely, and without discomfort to the stylist or the individual whose braids are being removed.

PRIMARY EMAIL CONTACT
lrodrigues7@gatech.edu

BLINDSPOTTED

BlindSpotted

CONSUMER PRODUCTS

SPONSOR
N/A

ADVISOR
Seong-Hee Kim

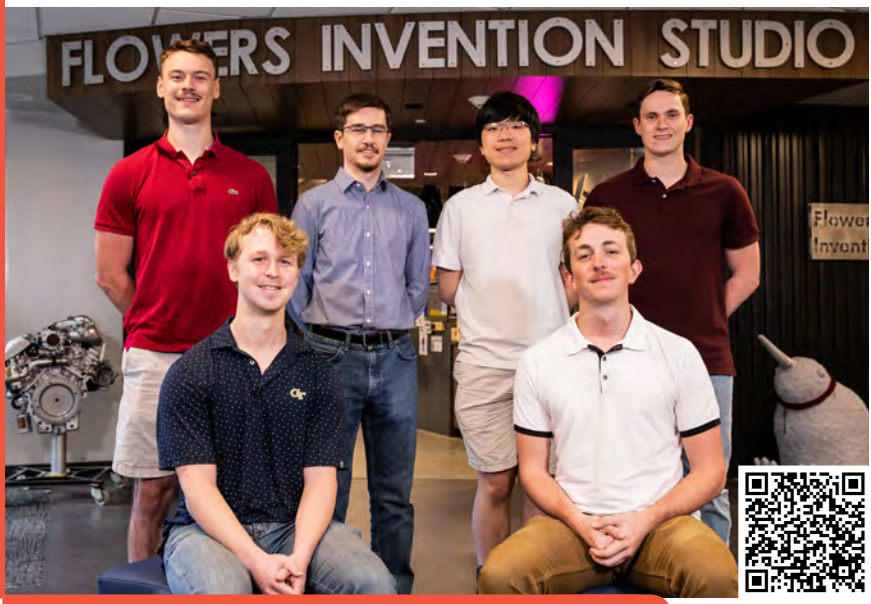
MEMBERS
Hayden Brown
Chris Burgett
Griffin Gillespie
Sydney Hahn
Allison Larson
Allison Leyden
Kristina Lymperis
Sean Nima

DESCRIPTION
BlindSpotted's project is focused on creating a blind spot detection system that is easily installed, wireless, universal, and inexpensive to improve drivers' safety while changing lanes.

PRIMARY EMAIL CONTACT
alarson8@gatech.edu

1 ELECTRON

SF ammunition counter (belt fed)



AEROSPACE/AUTOMOTIVE

SPONSOR
HAF A4L/Tesseract

ADVISOR
Mike Tinskey

MEMBERS
Zuhao Lin
Luc Livio
Frank Malone
Robert Manville
Patrick McElligott
Luke Shackelford

DESCRIPTION
1 Electron's project is focused on designing a device that takes an input of spent/not spent casings and automatically counts the casings by caliber while also separating the spent casings from the not spent casings.

PRIMARY EMAIL CONTACT
CapstoneElectronSpring23@groups.gatech.edu

FTGSTW

Advanced Heads Up Display & Control for Delivery Vehicle

AEROSPACE/AUTOMOTIVE

SPONSOR
Wayne Li

ADVISOR
Wayne Li

MEMBERS
Kate Blake
Shohom Bose-Bandyopadhyay
Steven Davidoff
Jordan John
Julie Mittelstedt
Noah Sitar

DESCRIPTION
FTGSTW's project is focused on designing, demonstrating, and testing a user interface for semi-autonomous drone delivery with a fleet of up to 20 drones using two programmable haptic knobs and a transparent OLED HD display.

PRIMARY EMAIL CONTACT
jmittelstedt3@gatech.edu

MANIFESTATION

Adaptive shoulder support for palanquin porters

SUSTAINABILITY

SPONSOR
Devesh Ranjan

ADVISOR
Amit Jariwala

MEMBERS
Connor Campbell
Anna Hardy
Christopher Hellgoth
Michelle Jenkin
Andrew Nazzari
Byron Reasoner

DESCRIPTION
Manifestation's project is focused on developing a simple, yet effective solution to redesign part of the palanquin, the whole palanquin, or design an addition to the palanquin to reduce shoulder pain for porters.

PRIMARY EMAIL CONTACT
anazzari@gatech.edu

SCAR

Low-Cost Easy to Manufacture Ablative Material for Liquid Rocket Thrust Chamber Assembly

AEROSPACE/AUTOMOTIVE

SPONSOR
N/A

ADVISOR
Jianxin Jiao

MEMBERS
Benjamin Airdo
Camden Carlson
James Cipolletti
Lucas Duarte
Colin Fessler
Gabriel Graves

DESCRIPTION
Structural Castable Ablative Rockets' project is focused on solving the heat problem of liquid rocket engines with a thrust chamber assembly made completely out of ablative materials, integrating the injector, thrust chamber, and nozzle in one while maintaining low cost and easy manufacturing methods.

PRIMARY EMAIL CONTACT
camden@gatech.edu

THE MAGIC MEN

Rapidly Deployable Vehicle Camouflage

MECHATRONICS/ROBOTICS

SPONSOR
Marne Innovation Center – U.S. Army 3ID

ADVISOR
Mike Tinskey

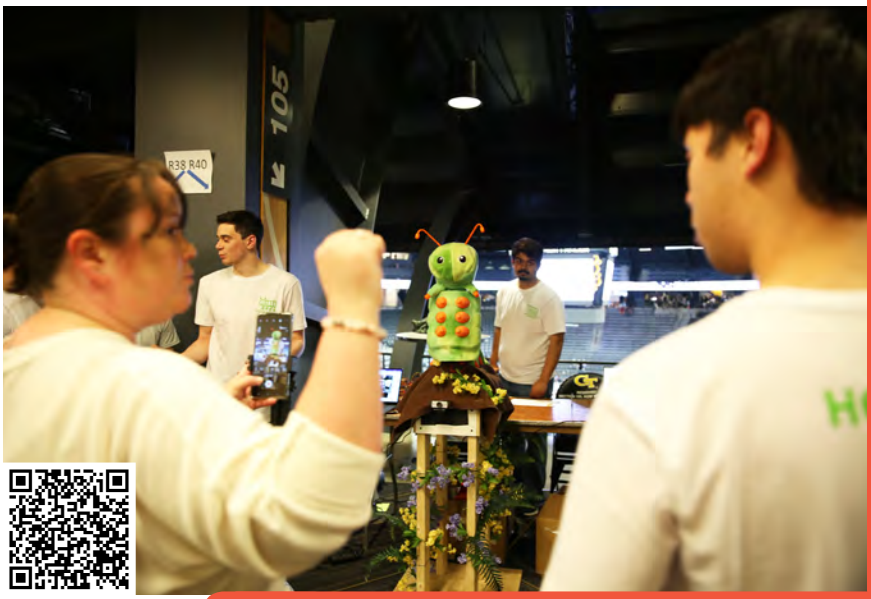
MEMBERS
David Cheek
William Davidson
Gavin Goodier
Wasiq Kabir
Jacob Smith
Oliver Whitehead

DESCRIPTION
The Magic Men's project is focused on designing a new, low-cost deployment mechanism for the Army's current camouflage system that can be used with less time and minimally trained U.S. Army soldiers.

PRIMARY EMAIL CONTACT
wkabir3@gatech.edu

THE CULT OF FRED

Curious Interactive Caterpillar



MECHATRONICS/ROBOTICS

SPONSOR
Mary Ann Weitnauer

ADVISOR
Tequila Harris

MEMBERS
John Trung Hoang
Brendan Hudgins
George Madathany
Samuel Morstein
Gabriella Wong

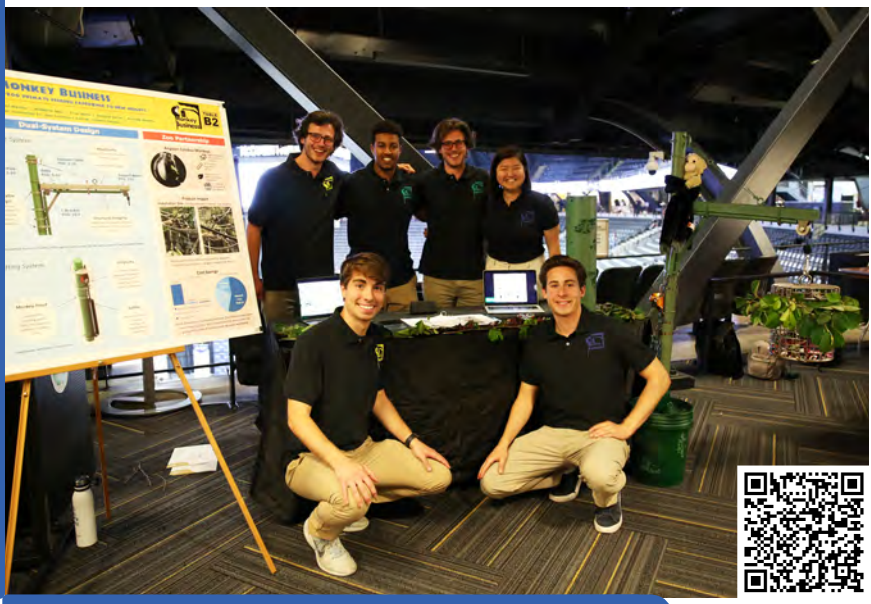
DESCRIPTION
The Cult of Fred's project is focused on the Curious Interactive Caterpillar, an innovative animatronic character created as part of an interactive art installation. The Curious Interactive Caterpillar will emote and communicate with the viewer and interest children in STEAM concepts.

PRIMARY EMAIL CONTACT
bhudgins3@gatech.edu

B2

MONKEY BUSINESS

Arboreal Primate Feeding System



SUSTAINABILITY

SPONSOR
Zoo Atlanta

ADVISOR
Stephen Sprigle

MEMBERS
Louis Cardot
Mathias Hadgu
Andrew Kell
Charles Orth
Samuel Orth
Margaret Zhang

DESCRIPTION
Monkey Business' project is focused on designing a low-cost arboreal feeder that allows zookeepers at Zoo Atlanta to safely, easily, and reliably provide food to their Angolan colobus monkeys arboreally so that the animals can feed without requiring them to come to the ground.

PRIMARY EMAIL CONTACT
corth6@gatech.edu

TEAM COMET

Joggled Class Divider

AEROSPACE/AUTOMOTIVE

SPONSOR
Boeing

ADVISOR
Tequila Harris

MEMBERS
Audrija Bhattacharjee
Yifan Jin
Peiru Li
Chaeyeon Park
Manvi Virippil
Emily Williams

DESCRIPTION
Team Comet's project is focused on designing and validating a joggled class divider for a commercial aircraft that reduces manufacturing time, weight, and cost while also improving quality.

PRIMARY EMAIL CONTACT
Emily.williams@gatech.edu

MOVE

Social Dance Near Me

ENTREPRENEURIAL

SPONSOR
CREATE-X

ADVISOR
Dan Forsyth

MEMBERS
Liam Aenlle
Nicole Diaz
Tessa Haynes
Vibhav Kumar
Sameer Sridhar

DESCRIPTION
MOVE's project is focused on creating Digitizing Dance: A Centralized Social Dance Event Locator web application for the niche market of social dancers and event organizers worldwide.

PRIMARY EMAIL CONTACT
ndiaz31@gatech.edu

BURRRISTA

Pour Over Coffee Chiller

CONSUMER PRODUCTS

SPONSOR
CREATE-X

ADVISOR
Mike Tinskey

MEMBERS
Sam Bass
Brian Feldman
Eric Gustafson
Mitchell Henderlong
Sadie Moxley
Marko Stepniczka
Farhan Virani

DESCRIPTION
Burrrista's project is focused on creating the Burrrista Pour Over Chiller to brew high quality, no-wait iced coffee that retains all flavors of traditional pour over methods.

PRIMARY EMAIL CONTACT
bfeldman3@gatech.edu

RECUPERATE

reCUPerate

SUSTAINABILITY

SPONSOR
N/A

ADVISOR
Mike Tinskey

MEMBERS
Anna Daugherty
Kiyono McDonald
Lauren Paulson
Fatima Sheriff
Bethany Sumner
Hector Torres

DESCRIPTION
reCUPerate's project is focused on tackling contamination at one of its' sources: single-use plastic cups.

PRIMARY EMAIL CONTACT
adaugherty7@gatech.edu

WOODRUFF WONDERS

Pressure Control Attachment

INDUSTRIAL TOOLING/MANUFACTURING

SPONSOR
CocoaTown LLC

ADVISOR
David MacNair

MEMBERS
Gabriela Blooming
Janie Edgar
Lindsay Nyquist
Billie O'bryant
Sai Varanasi

DESCRIPTION
Woodruff Wonders' project is focused on creating a pressure control attachment for a chocolate grinder.

PRIMARY EMAIL CONTACT
billiefo31@gmail.com

AVENGERS DISASSEMBLE!

Automated data capture device for use in Design to Value (DFMA)

INDUSTRIAL TOOLING/MANUFACTURING

SPONSOR
McKinsey & Company

ADVISOR
Hassan Rashidi

MEMBERS
Zaineb Abdeally
Rowena Xue Min Chin
Darren Kosen
Paul Matesevac
Cornelius Mulia
Christopher Page

DESCRIPTION
Avengers Disassemble!'s project is focused on creating a solution to automate McKinsey & Company's current teardown data collection process, decrease the time cost, and increase the overall opportunity for improvement in the DFMA analysis.

PRIMARY EMAIL CONTACT
zabdeally3@gatech.edu

THE AQUANAUTS

Development of Swarm Autonomous Underwater Vehicle (MicroFloats)

MECHATRONICS/ROBOTICS

SPONSOR
Georgia Tech

ADVISORS
Michael West
Amit Jariwala

MEMBERS
Zachary Crawford
Louis Grady
Eric Licona
Alexander Patino
Christopher Zuo

DESCRIPTION
The Aquanauts' project is focused on building a swarm of autonomous underwater robots that collect ocean data.

PRIMARY EMAIL CONTACT
lgrady6@gatech.edu

MECHANICAL ENGI-PEERS

Dron't Worry

AEROSPACE/AUTOMOTIVE

SPONSOR
Mike Tinskey

ADVISOR
Mike Tinskey

MEMBERS
Taylor Blanchard
Robert Churchill
Tyler Dvorin
Ben Kuperschmid
Annamarie Martin
Samuel Walters

DESCRIPTION
Mechanical Engi-Peers' project is focused on developing an impact absorption system for noncommercial drone applications.

PRIMARY EMAIL CONTACT
tblanchard7@gatech.edu

CSNER

Assistive muscle-recovery exoskeleton

BIOENGINEERING

SPONSOR
N/A

ADVISOR
Stephen Sprigle

MEMBERS
Sophie Ayoung-Chee
Caleb Chang
Raphael Cheng
Ethan Ng
Natalie Ng

DESCRIPTION
CSNER's project is focused on creating an affordable and intuitive device to help patients with a Manual Muscle Testing Grade of 2 meet their rehabilitation goals of increased muscle strength and range of motion in the shoulder during self-guided exercises at home.

PRIMARY EMAIL CONTACT
nng37@gatech.edu

CARAR

Automotive Heads-Up Display

AEROSPACE/AUTOMOTIVE

SPONSOR
N/A

ADVISORS
Craig Forest
Rodrigo Borela
Mercedes Gonzalez

MEMBERS
Jack Broadhead
John Paul Caprara
Lucas Keeton
Shihui Liu
Daniel McHale
Chibuogo Mojekwu
Pearce Strickland
John Walraven

DESCRIPTION
CarAR's project is focused on creating an automotive heads-up display that can be paired with common mobile phone applications and supported with a button input mechanism.

PRIMARY EMAIL CONTACT
lkeeton6@gatech.edu

CNRRT

Nekton-Autonomous Under-ice Vehicle

MECHATRONICS/ROBOTICS

SPONSOR
Georgia Tech

ADVISORS
Michael West
Amit Jariwala

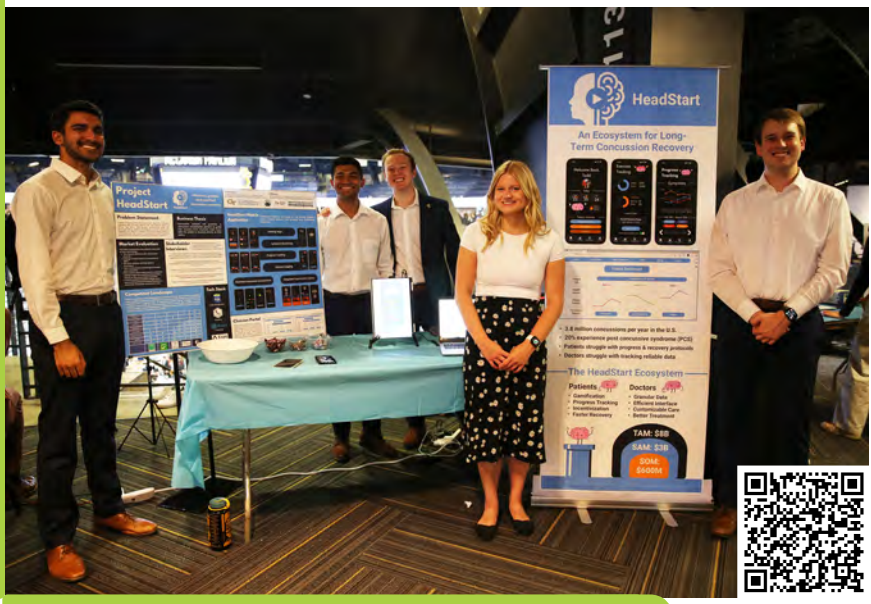
MEMBERS
Raul Avila-Orozco
Ryan Berry
Cody Borovsky
Narendra Narine
Toby Schipper

DESCRIPTION
CNRRT's project is focused on designing and fabricating an Autonomous Underwater Vehicle (AUV) named Nekton to explore and research icy regions on Earth.

PRIMARY EMAIL CONTACT
ravilaorozco3@gatech.edu

HEADSTART

Mobile Ecosystem for Concussion Recovery



BIOENGINEERING

SPONSOR
N/A

ADVISOR
Todd Sulchek

MEMBERS
Joseph Ashley
Anna Terese Aucoin
Drew Bailey
Rohan Banerjee
Arshad Mandani
William McCaffrey
Allie Riddell

DESCRIPTION
HeadStart's project is focused on creating an app that empowers long-term concussion patients to take control of their recovery by providing a trackable and gamified experience, and provides doctors with the data they need to make better decisions and manage their suite of patients more efficiently than ever before.

PRIMARY EMAIL CONTACT
dbailey49@gatech.edu

SCALABLE HYDROPONIC SYSTEM

Modular Hydroponic Management System

SUSTAINABILITY

SPONSOR
N/A

ADVISOR
William Smith

MEMBERS
Amreen Charania
Dennis Harrison
Stephen Hellier
Louis Lammers
Harsha Tambareni
Xiang Zhao

DESCRIPTION
Scalable Hydroponic System's project is focused on solving the lack of scalable and manageable hydroponic solutions for growing fresh produce at home.

PRIMARY EMAIL CONTACT
htambareni3@gatech.edu

NOVUX

StimuLight

CONSUMER PRODUCTS

SPONSOR
N/A

ADVISOR
Jennifer Hasler

MEMBERS
Grant Adams
Rayan Dabbagh
Addison Elliott
Mohamed Ahmed Ghanem
Niam Morar
Rohith Nibhanupudi
Christopher Oh

DESCRIPTION
Novux's project is focused on creating an easy to install, affordable, and immersive system that enhances a user's working environment through light.

PRIMARY EMAIL CONTACT
niam.morar@gatech.edu

MIAB

SwimOptics

CONSUMER PRODUCTS

SPONSOR
N/A

ADVISOR
Jianxin Jiao

MEMBERS
Imane El Barodi
Atticus Cohen
Morgan Johnson
Benne Wagner

DESCRIPTION
MIAB's project is focused on developing an intelligent tracking system that follows a swimmer's instant speed and provides support for multi-angle filming when mounted with any existing underwater camera such as GoPro or PoolSide.

PRIMARY EMAIL CONTACT
Atticus@gatech.edu

Y10

FRESH FAÇADES

Design of a Simplified anchoring system for fast installation of Facade Elements

INDUSTRIAL TOOLING/MANUFACTURING

SPONSOR
Kawneer

ADVISOR
Hassan Rashidi

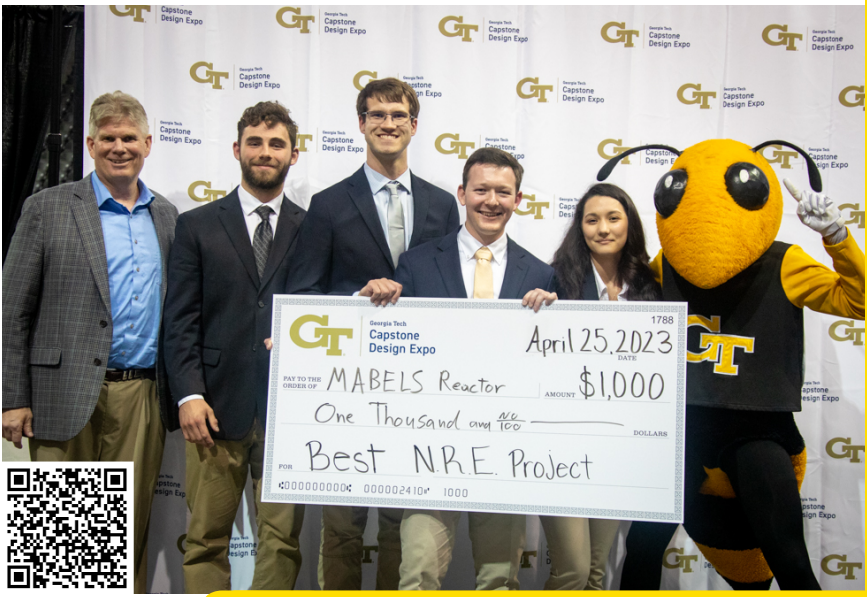
MEMBERS
Ian Bunker
Samuel Butler
Duncan Hemauer
Benjamin Hudson
Adam Jaafar
Dima Tretiak

DESCRIPTION
Fresh Façades' project is focused on designing a new type of simplified anchoring system for the façade elements that can provide a fast and efficient installation.

PRIMARY EMAIL CONTACT
ajaafar6@gatech.edu

MABELS REACTOR

Modular and Breeding Liquid Salt Reactor



NUCLEAR ENGINEERING

SPONSOR
N/A

ADVISOR
Bojan Petrovic

MEMBERS
Alex Collier
Caleb Corliss
Nathan Grund
Tim Shuster

DESCRIPTION
MABELS Reactor's project is focused on creating a ~700 MWth small modular molten salt reactor (SMMSR) with Th232 fuel salt dissolved in FLiBe salt that breeds fissile U233 fuel during operation with online refueling and fission product processing.

PRIMARY EMAIL CONTACT
acollier31@gatech.edu

Y14

PACE

PACE tempo trainer

INDUSTRIAL TOOLING/MANUFACTURING

SPONSOR
N/A

ADVISOR
Denis Tsygankov

MEMBERS
Calvin Abdallah
Robert Huey
Julius Ish
Nick Kezios
Max Rothman
Lilly Sitver

DESCRIPTION
PACE's project is focused on designing a compact, innovative wearable device that regulates and boosts swimmers' overall performance.

PRIMARY EMAIL CONTACT
lsitver@gatech.edu

YARA

Yara

SUSTAINABILITY

SPONSOR
N/A

ADVISOR
Rodrigo Borela

MEMBERS
William Cero
Connor Koelsch
Joseph Mathias
Rob Schleusner
Charles Wronski

DESCRIPTION
Yara's project is focused on creating a platform to help individuals reduce their water footprint and positively impact the water crisis.

PRIMARY EMAIL CONTACT
willcero@gatech.edu

Y29

COFFIN

Cask Design and Offline Processing via Fluorination and Impurity Absorption for MSR Nuclear Waste

NUCLEAR ENGINEERING

SPONSOR
N/A

ADVISOR
Bojan Petrovic

MEMBERS
Gracie Eccleston
Jana Shade
Zach Welchel
Caryanne Wilson

DESCRIPTION
COFFIN's project is focused on designing a waste processing and storage system for molten salt reactors that adheres to federal regulations.

PRIMARY EMAIL CONTACT
jshade6@gatech.edu

FLAIR

Flourine Lithium beryllium Assembled at site Integrated micro Reactor

NUCLEAR ENGINEERING

SPONSOR
N/A

ADVISOR
Bojan Petrovic

MEMBERS
Vidor Lujan
Divyanshu Sharma
Jacob Smith
Sam Taylor

DESCRIPTION
FLAIR's project is focused on developing a conceptual design for a 10 MWth molten salt reactor.

PRIMARY EMAIL CONTACT
jsmith818@gatech.edu

RADIOLOGICAL ENGINEERING/ DETECTION SYSTEMS

Neutronic Detection Systems for Molten Salt Flow Loop

NUCLEAR ENGINEERING

SPONSOR
N/A

ADVISOR
Bojan Petrovic

MEMBERS
Andrew Blair
Gunnar Eklund
Steven Muller

DESCRIPTION
Radiological Engineering/ Detection Systems' project is focused on using delayed neutron and gamma activated fluoride within a molten salt reactor to determine the flow and power throughout core.

PRIMARY EMAIL CONTACT
smuller32@gatech.edu

SCREW'S LOOSE

Magnetically Actuated Microfluidic Control Device

BIOENGINEERING

SPONSOR
Vernay Laboratories, Inc.

ADVISOR
Todd Sulchek

MEMBERS
Sami Al-Aidy
Michael Baugh
Camila Gonzalez
Alyssa Gordon
Connor Sims
Thomas Winegarden

DESCRIPTION
Screw's Loose's project is focused on creating a proof of concept prototype for a directional control valve for Vernay Laboratories.

PRIMARY EMAIL CONTACT
twinegarden3@gatech.edu

SKATE MEE TO THE MOON

Sustainable Pedestrian Skate Initiative

SUSTAINABILITY

SPONSOR
N/A

ADVISOR
David MacNair

MEMBERS
Tanner Beard
Brooks Benton
Woods Burton
Shuaizheng Feng
Byungwook Jeon
Qize Tao

DESCRIPTION
Skate MEE to the Moon's project is focused on solving common issues experienced by skateboarders/longboarders who use their boards for commuting average distances of 5-8 miles.

PRIMARY EMAIL CONTACT
brooks.t.benton@gmail.com

HAZLO CO.

Soft, Flexible, and Smart Medical Check Valve Assembly

BIOENGINEERING

SPONSOR
Vernay Laboratories, Inc.

ADVISOR
Todd Sulchek

MEMBERS
Carlota Hernandez Alvarado
Maya Diaz Brannon
Cristina Carbonell
Henry Chance
Paola Montemayor Flores

DESCRIPTION
Hazlo Co.'s project is focused on redesigning one of Vernay Laboratories' check valves to make the housing softer to the touch (comfortable) to protect the patient.

PRIMARY EMAIL CONTACT
mbrannon7@gatech.edu

W1

COOP'S TROUPE

Batting Buddy

CONSUMER PRODUCTS

SPONSOR
Brink Product Development LLC. (DBA: Daddio Time) Company

ADVISOR
Tequila Harris

MEMBERS
Aidan Albers
Jessie Barre
Catherine Boyd
Thomas Hayes
Oscar Powell
Ainsley Ronco

DESCRIPTION
Coop's Troupe's project is focused on developing an engaging and fun product to help teach kids ages 3-6 the fundamentals of a T-ball swing, without the crazy expenses of baseball or softball training equipment, or the boring mundane design of a simple T-ball stand.

PRIMARY EMAIL CONTACT
opowell9@gatech.edu

MYCHARGE

myCharge

ENTREPRENEURIAL

SPONSOR
CREATE-X

ADVISOR
David Anderson

MEMBERS
Yu Chang
Shivam Patel
Katelyn Provost
Emily Tan
Charlotte Wehner

DESCRIPTION
myCharge's project is focused on creating an outdoor electric scooter charging station to safely and securely charge personal electric scooters.

PRIMARY EMAIL CONTACT
cwehner3@gatech.edu

W4

THE BEAN TEAM

Develop a low-cost cocoa butter press to extract cocoa butter from cocoa beans

SUSTAINABILITY

SPONSOR
Inno Concepts Inc.
dba CocoaTown.com

ADVISOR
Tequila Harris

MEMBERS
Grant Anderson
German Ortega
William Parsons
Cade Tyler
Jacques Wang
Mesum Zaidi

DESCRIPTION
The Bean Team's project is focused on creating a low cost cocoa butter extraction method for use in the origin countries of cocoa beans.

PRIMARY EMAIL CONTACT
ganderson47@gatech.edu

TEXTILE TITANS

Device development to classify fiber elements and extract non-fiber elements from textiles

SUSTAINABILITY

SPONSOR
Celestial Theory

ADVISOR
Jianxin Jiao

MEMBERS
Jingchu Chen
Yongsong Huang
Sukhun Lee
Alexander Lu
Camryn Quam
Nachuan You

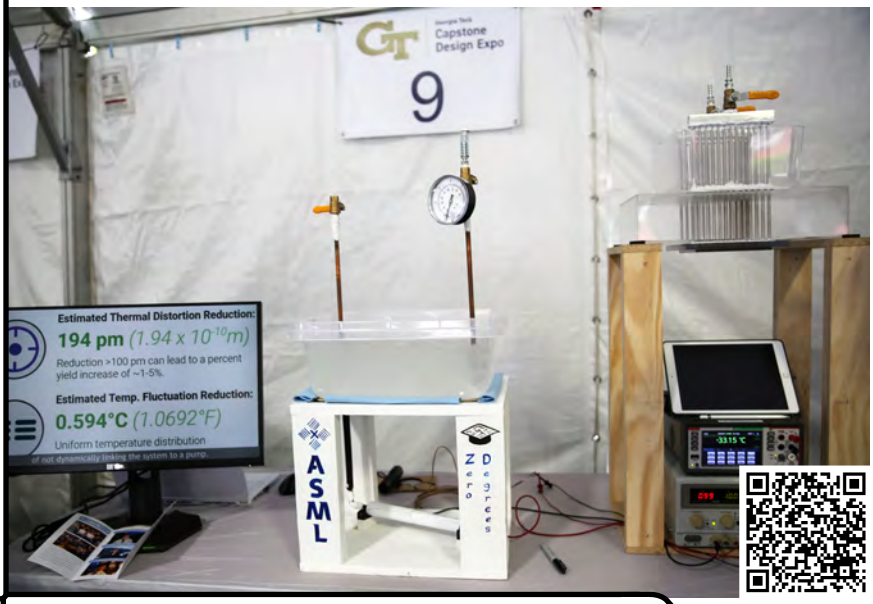
DESCRIPTION
Textile Titans' project is focused on developing a device to classify fiber elements and extract non-fiber elements from textiles.

PRIMARY EMAIL CONTACT
nyou@gatech.edu

W9

ZERO DEGREES

Quiet cooling alternatives to direct water cooling of magnetically levitated nano-precise scannin



INDUSTRIAL TOOLING/MANUFACTURING

SPONSOR
ASML

ADVISOR
Hassan Rashidi

MEMBERS
Michael Chen
Martin Damyanov
Benjamin Guo
Miguel Menezes
Donghyeok Roh
William Shute

DESCRIPTION
Zero Degrees' project is focused on designing a phase change cooling system to maintain the reticle stage of ASML's EUV Lithography machine at a uniform, precise temperature.

PRIMARY EMAIL CONTACT
mchen436@gatech.edu

LINEUS TRIMMER TIPS

Ryobi String Trimmer Low Line Detection

CONSUMER PRODUCTS

SPONSOR
TTI

ADVISOR
Jianxin Jiao

MEMBERS
Daniel Elkin
Teodor Johnson
Eunseo Kim
Tige Kinsey
Hyuk Bin Kwon
Edward Rhee

DESCRIPTION
LINEus Trimmer Tips' project is focused on creating a system that will warn Ryobi users when their line is low while using line trimmer products.

PRIMARY EMAIL CONTACT
ekim403@gatech.edu

W14

WORK N' PROGRESS

Mechanical Linkage for Multi-Drone System

AEROSPACE/AUTOMOTIVE

SPONSOR
Mike Tinskey

ADVISOR
Mike Tinskey

MEMBERS
Justin Chow
Natasha Najmi
Brian Liang
Bowen Xiang

DESCRIPTION
Work n' Progress' project is focused on introducing a mechanical linkage between a swarm of drones to allow for the efficient and easy use of multiple drones to cooperatively lift a heavy payload without having to waste energy maintaining separation between drones within a swarm.

PRIMARY EMAIL CONTACT
bxiang31@gatech.edu

ABOVE AVERAGE

Knockout Machine

INDUSTRIAL TOOLING/MANUFACTURING

SPONSOR
Tie Down, Inc

ADVISORS
David Citrin
Amit Jariwala

MEMBERS
Aqil Kassam
David Knight
Fernando Rodriguez
Yung Chak Anson Tsang
Claire Young
Jeffrey Yu

DESCRIPTION
Above Average's project is focused on designing an automated process that replaces the manual removal for 90% of the commonly encountered sheet metal parts in sheet metal parts manufacturing.

PRIMARY EMAIL CONTACT
cyoung301@gatech.edu

W17

THE KNOCKOUTS

The Knockout Machine

INDUSTRIAL TOOLING/MANUFACTURING

SPONSOR
Tie Down, Inc

ADVISOR
Hassan Rashidi

MEMBERS
Thomas Bruner
Eemil Harkonen
Peter Macron
Shawn McKelvey
Nicholas Schierle
John Travnik

DESCRIPTION
The Knockouts' project is focused on creating a machine that increases the speed and efficiency of the "Knockout" process in laser cut sheet metal fabrication services.

PRIMARY EMAIL CONTACT
smckelvey7@gatech.edu

GOOD VIBES

Ryobi Blower Fan Imbalance Detection

INDUSTRIAL TOOLING/MANUFACTURING

SPONSOR
TTI

ADVISOR
Jianxin Jiao

MEMBERS
Jack Do
William Freidank
Ricardo Santamaria-Sarcos
Christian Sims

DESCRIPTION
Good Vibes' project is focused on designing and prototyping a compact vibration monitoring and shut-off subsystem for integration with Ryobi's line of electric hand tools.

PRIMARY EMAIL CONTACT
jdo40@gatech.edu

W21

CAP-STONE

Adaptive Cornhole for SCI Patients

BIOENGINEERING

SPONSOR
Craig H. Neilsen Foundation

ADVISOR
Stephen Sprigle

MEMBERS
Jenna Holland
Adrian Neoh
Zachary Vermeulen
Alexander Wheeler
Tyler Young

DESCRIPTION
Cap-Stone's project is focused on creating innovative, modular, and fun assistive devices to allow patients with spinal cord injuries to play cornhole as an aspect of their physical therapy.

PRIMARY EMAIL CONTACT
tyoung@gatech.edu

THUNDERJACKETS

Submerged Heat Pipe Condenser Heat Pump Water Heater

INDUSTRIAL TOOLING/MANUFACTURING

SPONSOR
Rheem Manufacturing

ADVISOR
Hassan Rashidi

MEMBERS
Taekwon Choi
Brice Diomande
Daniel Galligan
Juan Munoz
Sebastian Zapata Nunez
Triston Valadez

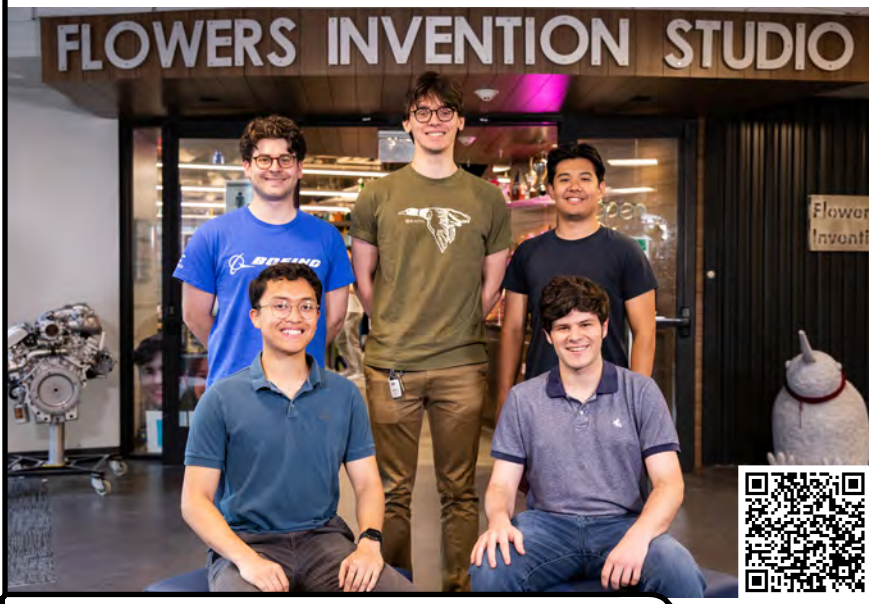
DESCRIPTION
THUNDERJACKETS' project is focused on designing a heat pipe as a form of submerged condenser for a heat pump water heater.

PRIMARY EMAIL CONTACT
qjfflehd@gmail.com

W32

ICEMEN

Continuous and Controlled Melter for Ice Core Meltwater Analysis



INDUSTRIAL TOOLING/MANUFACTURING

SPONSOR
Christopher Carr

ADVISOR
Jianxin Jiao

MEMBERS
Alexander Chipps
Hauke Dell
Marc-Anthony Maquiling
Rommel Montayre
Jacob Wutzler

DESCRIPTION
Icemen's project is focused on designing and developing a device for use on the Greenland ice sheet to controllably melt an ice core sample in-situ while rejecting the contaminated outer core surface to prepare a meltwater sample for future analyses to better understand Earth climate and biology.

PRIMARY EMAIL CONTACT
hdell3@gatech.edu

FLOW HOUSE

W33

Flow Battery Focused Energy System

SUSTAINABILITY

SPONSOR
N/A

ADVISOR
Nian Liu

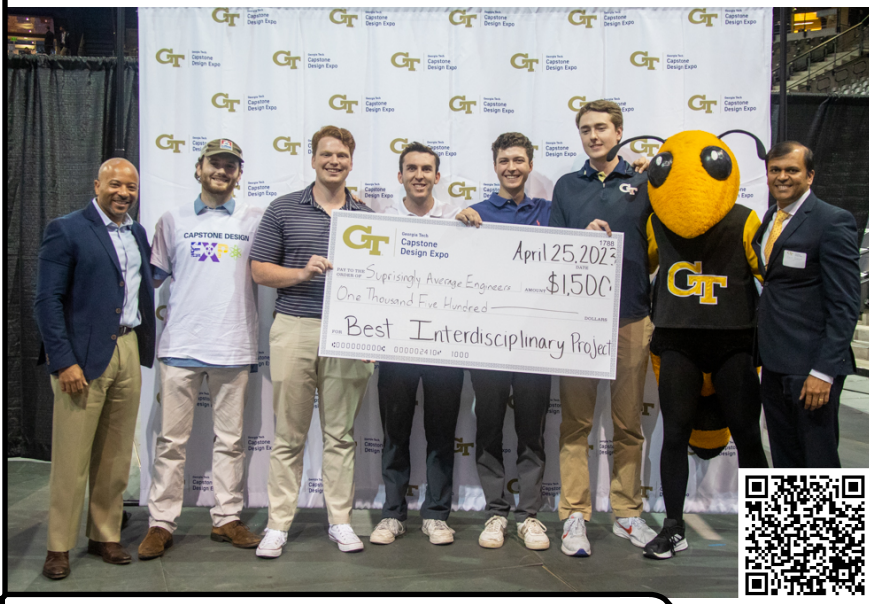
MEMBERS
Sami Al-Aidy
Jake Churchill
Jessica Didier
Stella Joly
Tariq Mohmedzain
Luke Rutherford

DESCRIPTION
Flow House's project is focused on creating a fully self-sufficient building energy system that not only reduces its carbon footprint but also sets a new standard in sustainability.

PRIMARY EMAIL CONTACT
lukerutherford@gatech.edu

SURPRISINGLY AVERAGE ENGINEERS

Batting Buddy



CONSUMER PRODUCTS

SPONSOR
Brink Product Development LLC. (DBA: Daddio Time) Company

ADVISOR
Todd Sulchek

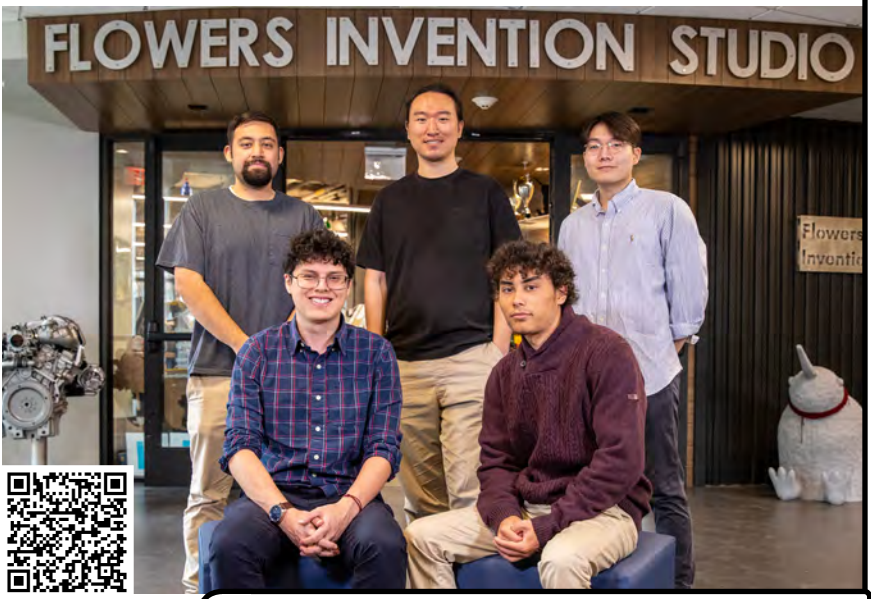
MEMBERS
Christopher Chase
Harrison Ford
Brittan Pero
Wilson Poole
Maxwell Ray

DESCRIPTION
Surprisingly Average Engineers' project is focused on designing a baseball swing training and motivation device for players aged 3-6 years old.

PRIMARY EMAIL CONTACT
mray65@gatech.edu

MAKE CORNHOLE PLAYABLE AGAIN

Adaptive cornhole for persons with spinal cord injuries



BIOENGINEERING

SPONSOR
Craig H. Neilsen Foundation

ADVISOR
Stephen Sprigle

MEMBERS
Sufiyan Ahmed
James Boatwright
Jesus Lara
Sanghyub Lee
Min Geun Park
Diego Munoz Reina

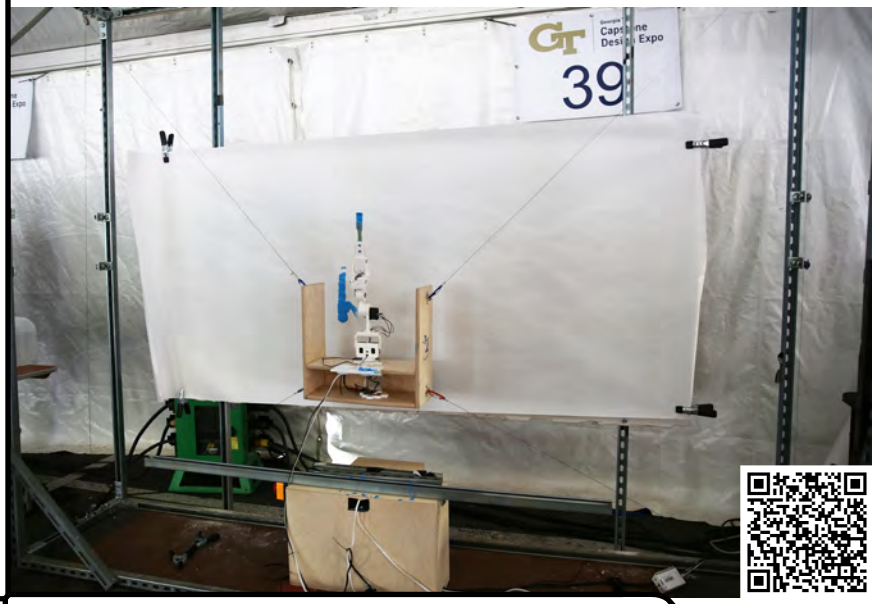
DESCRIPTION
Make cornhole playable again's project is focused on designing devices that will enable persons with a spinal cord injury to participate in cornhole activities.

PRIMARY EMAIL CONTACT
mpark333@gatech.edu

W39

ROBO PICASSO

Robo-Grafitti



MECHATRONICS/ROBOTICS

SPONSOR
Georgia Tech (Professor Chen)

ADVISOR
Hassan Rashidi

MEMBERS
Lance Crawford
William Duncan
Jaepil Goh
Eunkwang Lee
Nil Patel
Tirth Patel

DESCRIPTION
Robo Picasso's project is focused on designing an end effector for an existing cable-based robot to allow the system to effectively mimic painting strokes and assist in painting building murals.

PRIMARY EMAIL CONTACT
lcrawford40@gatech.edu

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Become a Sponsor

SPONSORSHIP BENEFITS

Branding/visibility

- Sponsor advertisement within Invention Studio, on course materials, and at the Capstone Design Expo (with over 6,000 attendees).

Semester long recruitment

- Your design/engineering team can work closely with a team of four to six graduating seniors for the duration of the semester.
- Sponsors also receive direct recruiting opportunities by serving as panel judges at the end-of-semester Capstone Design Expo.

Low cost skunkworks R&D

- A "best effort" solution to your challenge is designed, built and tested by students under the guidance of a faculty mentor during a semester. Sponsors typically receive a final project report and prototype at the end of the term.

SPONSORSHIP REQUIREMENTS

- Project description
- Designated technical mentor for point-of-contact with sponsoring company
- $10,000 donation that helps to cover course expenses for a semester which may include: Subvention fee, course infrastructure support, team presentations and reports, cash prizes, support for materials and services costs for prototype fabrication for student projects, and hosting of the Capstone Design Expo (advertising, refreshments, and audio/visual rental)

Past industry sponsors have received innovative solutions to their challenging design problems, resulting in enormous cost savings and increasing profitability.

For more information, please contact Amit S. Jariwala.
amit.jariwala@gatech.edu • 404-894-3931 • www.mecapstone.gatech.edu

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