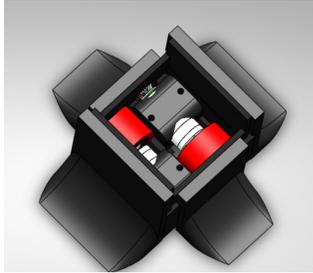


## THE AZTECHS

---

MEMBERS: Faisal Aljaber, Mohammed Alsehali, Adrian Fernandez, Patrick Gerardo, Michelle Hernandez, Jaclyn Penano  
ADVISOR: John Kennedy - San Diego State Univeristy  
SPONSOR: John Kennedy - San Diego State Univeristy  
WEBSITE: <http://aztechs.sdsu.edu>



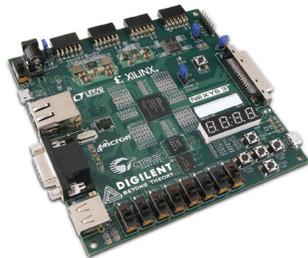
### AUTONOMOUS SUMO ROBOT COMPETITOR

Our project involves the design and implementation of a Mini Sumo Robot which adheres to the Unified Sumo Robot Rules. The robot we have constructed has two wheels that are placed in an offset position. Because of this, we are able to use larger and more powerful motors than our opponents given the size constraints of the competition. Our design includes the utilization of Time-of-Flight sensors to accurately detect the opponent's position within the ring, in addition the use of reflectance sensors to be able to detect when our sumo robot is at the edge of the ring, allowing it to react appropriately.

## BEAM TEAM

---

MEMBERS: Goc-ong Dangoy, Ryan Grant, Jacob Harbour, Leyu Lin, Matthew Paterniti, Stefan Vicente  
ADVISOR: Ken Arnold - SDSU



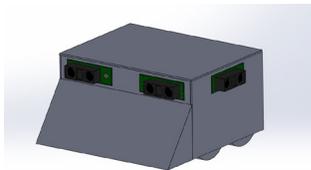
### DIGITAL AUDIO BEAMFORMER

For in-home, communication, and entertainment purposes, our Digital Audio Beamformer will aim to have a target hear an audio signal that only they can hear. An array of speakers, with each having a unique phase offset, will have their signal be constructive at one point in space while destructive everywhere else. HDL in an FPGA will compute the necessary phase offset for each speaker in the array before sending those signals to the speakers to be played. Other components such as a numerically controlled oscillator, RAMs/ROM, and delta sigma converters will assist in transforming a DC wave into an AC wave.

## CIRCUIT BREAKERS

---

MEMBERS: Janpaul Alamani, Blake Caudle, Juan Gutierrez, Gerard Laconsay, Jeff Presar, Jefferey Teixeira  
ADVISOR: John Kennedy - Senior Design Lab  
SPONSOR: John Kennedy - Senior Design Lab



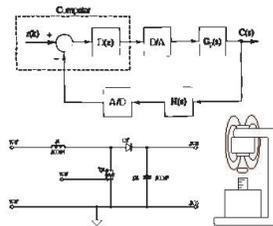
### MINI SUMO ROBOT

The goal of this project was to create a mini robot to compete in a mini sumo robot competition. Our design relies on wheel encoders which are used to determine exactly how fast our robot is moving. This allows us to develop more complex algorithms that rely on us having more precise control over our robots' maneuvers. With this amount of precision we are able to find our opponent faster and position appropriately to push them out of the ring.

## EDUCATIONAL CONTROL SYSTEMS (ECS)

MEMBERS: Abdulrahman Almanie, Mashael Alraqaib, Robert Paul, Danny Tran  
 ADVISOR: Dr. Sridhar Seshagiri - San Diego State University  
 SPONSOR: Dr. Sridhar Seshagiri - San Diego State University  
 WEBSITE: <http://ecs.sdsu.edu>

### ECS Educational Control Systems



### DESIGN OF LOW-COST EDUCATIONAL CONTROLS EXPERIMENTS

The purpose of this project was to design very effective lab experiments for a control systems lab that are less expensive than what is already available. This project included the design of several physical plants: a magnetic levitation plant, a boost converter, a buck converter, and a flyback converter. A microcontroller is used to interface the physical plants with a computer and Simulink. With these tools, students can design control systems and implement them on a breadboard or from within Simulink.

## FALCON

MEMBERS: Mohammad Alshugair, Royce Aquino, Victor Huerta, Layth Jabbar, Hoang Linh Nguyen, Abdulaziz Tunisi, Gregory Woods  
 ADVISOR: John Kennedy - San Diego State University  
 SPONSOR: John Kennedy - San Diego State University  
 WEBSITE: <http://teamfalcon.sdsu.edu/home>



### MINI-SUMO AUTONOMOUS ROBOT

Our robot will weigh no more than 500g in mass, dimensions 10 cm x 10 cm with any height and the budget limited to \$500. Our ideology for the robot was for it to be agile in maneuvering in the ring not only to evade an opponent, but to also outsmart and push the opponent out. We set three different modes for battle: search and evade, stealth attack, and the Falcon PUNCH! Allowing our robot the flexibility of these three modes will enable it to adapt to any situation and/or opponent that may present itself. The design is focused on two aspects: maximum wheel base power and fast recognition of opponents.

## FALL NO FUN

MEMBERS: Sonia Fischer, Raffy Guiao  
 ADVISOR: Dr. Mahasweta Sarkar - SDSU



### INDOOR GEOLOCATION AND FALL DETECTION IN AN ASSISTED LIVING FACILITY

This project builds a smart phone application that locates and updates resident information on a location facility map on handheld devices.

## GMSB

---

MEMBERS: Mustafa Alhashimy, Nasser Alobaid, Naseeb Khaznadar, Hemed Khodadadfar, Vahid Naghipour

ADVISOR: Ken Arnold - SDSU

WEBSITE: <http://aztecguard.sdsu.edu>



### AZTEC GUARD

We are working on passive RFID tags and sensors. We will be making our own tags system that cannot interfere with each others frequency and bring up the security when someone takes them out from the door which will be secured by loop or sensors around it. In that case the alarm will sound and notify people nearby. And since the tags do not need any power source, we also can use them inside expensive devices too, which will not be visible for the eye to remove.

## GRABGUARD

---

MEMBERS: Sean Barry, Marlin Benjamin, Edward Ha, Brandie Low, Naomi Navarro, Natalie Ortiz

ADVISOR: Ken Arnold - SDSU

SPONSOR: Michael Lester - SDSU

WEBSITE: <http://grabguard.sdsu.edu>



### ANTI-THEFT SYSTEM

Active RFID tags on high value items to prevent theft.

## OPENPH

---

MEMBERS: Michael Baker, Emanouil Gelyana, Kevin Lew, Anna Gabriela Reed, Anthony Rice, Alice Sokolova

ADVISOR: Dr. Baris Aksanli - SDSU

SPONSOR: Dr. Baris Aksanli - SDSU



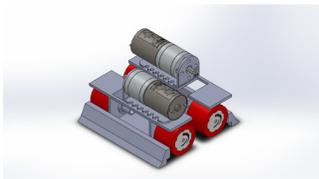
### OPEN SOURCE RASPBERRY PI POTHOLE DETECTION

The project is to create a real-time camera system that can be mounted on (and eventually installed into) vehicles to detect potholes on the road. This information will be gathered in a crowd-sourcing manner and sent to a database available for the city as a tool to know where potholes are located around the area.

## PRJKT AFK

---

MEMBERS: Nayeli Corral, Yaneli Corral, Ricardo Lazo, William Mendoza, Hayden Nguyen, Brendan Zuniga  
ADVISOR: John Kennedy - SDSU



### MINI-SUMO AUTONOMOUS ROBOT COMPETITION

We are one of the seven teams participating in the ECE Senior Capstone Design's Mini-Sumo Autonomous Robot Competition, which will be held on April 30th, 2018. We will have our robot on display at Design Day.

## RADIO

---

MEMBERS: Joey Casabar, Max Delgadillo, Eric Johnson, Brett Pennoyer, Joshua Stein, Joshua Tran, Lindsay White  
ADVISOR: Dr. Sridhar Seshagiri - SDSU  
SPONSOR: IEEE SDSU  
WEBSITE: <http://www.radio.sdsu.edu>



### RADIO (REMOTE ATMOSPHERIC DETECTION & IMAGING OPERATIONS)

The goal of this project is to launch a weather balloon that will carry a payload, and create a ground station to track the balloon and receive data. The ground station will process the data from the balloon. Telemetry will be relayed via APRS on amateur radio frequencies, and another transmitter will be the central communication point for all of additional sensors and data transmission. The ground station will automatically orient the receive antenna towards the payload antenna for optimal data reception. All antennas will be designed and built by the group.

## RETURN 0;

---

MEMBERS: Miguel Castro, Ernesto Celis-Encinas, Martin Engelsgjerd, Jesus Flores, Daniel Foster, Andres Gomez, Vahe Ohanian, Edgar Ramos, Brian Vo  
ADVISOR: Ken Arnold - SDSU  
WEBSITE: <http://return0.sdsu.edu>



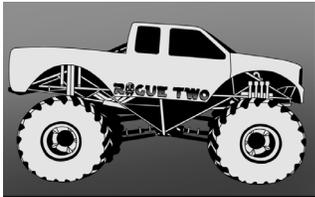
### SEARCH AND RESCUE: ROBOT COMPETITION - TEAM B

As defined by the competition rules, the objective of the competition is to design a search and rescue prototype vehicle that can both navigate via remote control and autonomously. The remote-controlled navigation is to be achieved via a live camera feed and alternatively the autonomous function is to be achieved using sensors to navigate obstacles. The final goal is for the vehicle to be able to navigate around several types of terrains in order to reach a set target.

## ROGUE TWO

---

MEMBERS: Brian Buu, Daniel Deaton, Rain Gopeng, Ryan Morris, Adam Olivera, Buse Ozsuca, Nicholas Payne, Madeleine Rasche, Jose Tomimatzu, Alvaro Valera-Rivera  
ADVISOR: Ken Arnold - SDSU  
SPONSOR: Self-funded  
WEBSITE: <http://roguetwo.sdsu.edu>



### AUTONOMOUS ROVER

This rover has manual and autonomous capabilities making it great for search and rescue, and other such things where eyes are needed, but connections are not always reliable. The rover will come home on its own when triggered to return. The first person view camera allows a user to drive the car from a remote location.

## S.H.A.D.O.W. SQUAD

---

MEMBERS: Tahgreed Alzahrani, Kevin Archangel, Marcel Brucker, Venus Buccat, Ohmeko Campo, John Ervin, Allison Langley, Nikesh Patel  
ADVISOR: Professor Ken Arnold, SDSU  
WEBSITE: <http://shadow.sdsu.edu>



### SHADOW OF SAM

SS (Shadow of SAM) is a mobile hacking platform designed for enterprise network security countermeasures. SS collects wireless connection information through wireless signals and will alert companies of any malicious activity and vulnerabilities. SS is creating a wireless foot-printing and reconnaissance tool with capabilities scanning and enumeration. This technology can alert companies of malicious activities based on their network configuration.

## SD POWER BACKUP

---

MEMBERS: Anas Aldujaili, Samer Aldujaili, Sultan Almuzaiel, Mohammad Behbehani, Robert Cory-Sills, Javier Guevara, Amel Najeeb, Sebastian Salem, Devon Yousif  
ADVISOR: Ken Arnold - San Diego State University  
WEBSITE: <https://SDPower.sdsu.edu>



### SD SOLAR POWER BACKUP

Design of a power backup that works with solar energy.

## SECURERF

---

MEMBERS: Jordan Damian, Michael Swin, Vy Tat, Sonia Tran, Melos Woldai, Redal Yaqo

ADVISOR: Ken Arnold - SDSU

SPONSORS: Michael Lester - SDSU Department of Mechanical Engineering, Fabrication Facility at SDSU

WEBSITE: <http://securerf.sdsu.edu>



### ANTI-THEFT SYSTEM

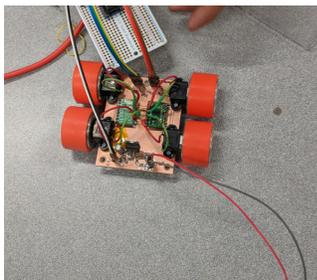
Expensive equipment has been stolen from the machine shop, and with no current security system in place, future thefts may occur. SecureRF utilizes RFID technology to alert campus police in the event that a valuable item is stolen.

## SQUARE UP

---

MEMBERS: Vincen Chan, Ivan Chavez, Andrew Cintora, Cody Frizzell, Nhi Lam, Janrel Leano

ADVISOR: John Kennedy - SDSU



### MINI SUMO AUTONOMOUS ROBOT COMPETITION

We will be one of the teams that will be competing in the ECE Senior Capstone Design competition that will consist of our robot and another.

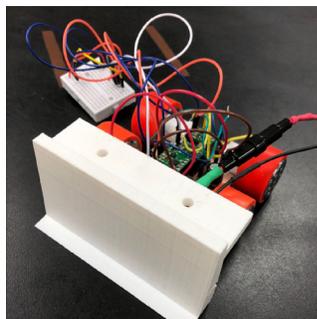
## TEAM A.B.I.G.A.I.L.

---

MEMBERS: Kathleen Callejo, Faye Castillejos, Victor Franco, Arvin Lleba, Yared Mekonnen, Frederick Riehl, Sirak Yohannes

ADVISOR: John Kennedy - San Diego State University

WEBSITE: <http://abigail.sdsu.edu/>



### MINI SUMO ROBOT

Our team is participating in a Robot Sumo competition amongst other senior design teams where two robots attempt to push one another out of the ring (Dohyo). The robots that are used in our competition are called 'mini-sumo', a smaller and lighter version of the Standard National Robots used in the official Robot Sumo games. The requirements for the mini-sumo class stands up to any height, up to 500g in mass and 10cm by 10cm in size. These robots are not allowed weapons like BattleBots, but instead a ramp that can scoop and push the other opponents autonomously.

## YOKO-ZOOM-BOT

MEMBERS: Dylan Caballero, Kevyn Cabling, Brandon Castro, Tymofiy Dovgan, Dennis Le, Juan Mederos

ADVISOR: John Kennedy- San Diego State University

SPONSOR: John Kennedy- San Diego State University

WEBSITE: <http://volta.sdsu.edu/~yokozoom/>



### YOKO-ZOOM-BOT

Yoko-Zoom-Bot is an autonomous robot competing in a mini-sumo robot competition. As such, Yoko-Zoom-Bot will weigh 500 grams or less, have no offensive weapons or jamming devices, include an IR start trigger, and have a length and width of 10 cm or less. It will also be configured to operate on a circular playing surface, or dohyo, that is 77 cm in diameter with a border line width of 2.5 cm. This project will be implemented by mechanical designs and fabrication, but mainly by electrical and computer engineering prowess.