

UC San Diego



Chem-E-Car

2026-2027

Sponsorship Package

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Dear Chem-E-Car Supporter,

The Chem-E-Car at UC San Diego cordially invites you to be a part of our vibrant and growing community. We are always grateful for the relationships that we have with our industry partners and for the continued support that we receive from them.

Chem-E-Car at UC San Diego is a chapter of the American Institute of Chemical Engineers (AIChE) Chem-E-Car project, a nationally recognized organization with both professional as well as student chapters. At Chem-E-Car at UC San Diego, we strive to uphold and promote technical skills and educational experience through the Chem-E-Car competition held at the annual regional AIChE Chem-E-Car conference. The conference also houses many seminars, demonstrations, and info sessions held by companies and students to expand our knowledge and encourage interests in new skills.

With the support of your sponsorship, you and your organization will have a tremendous opportunity to promote your company through Chem-E-Car at UC San Diego. Above all, your sponsorship will promote our mission to create enthusiasm for chemical driven competition.

There are many ways to get involved with Chem-E-Car, and we are excited to work with you to create the ideal outcome. Relevant details are included in the pages following; however, we welcome additional ideas and would be happy to work with you to create a package that best meets your needs.

Please take the time to review the enclosed information concerning Chem-E-Car at UC San Diego. Please do not hesitate to contact us with any questions at chemecaratucsd@gmail.com.

Sincerely,
The Chem-E-Car Team,
Chem-E-Car Project, UC San Diego 2026 - 2027

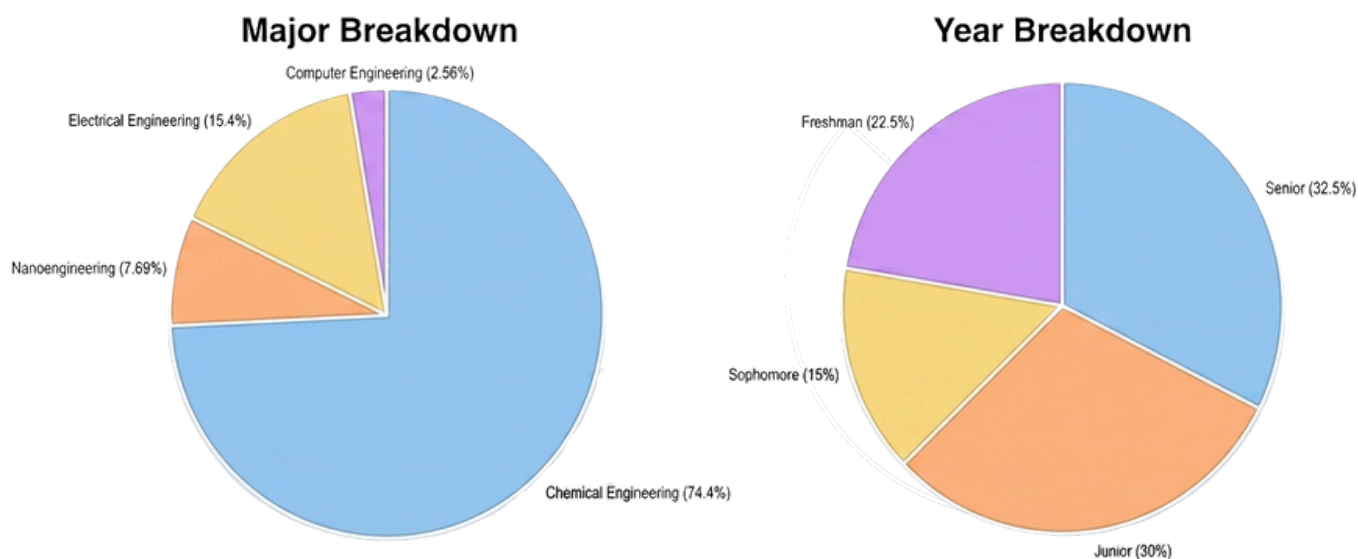
Mission Statement

Chem-E-Car Project is a non-profit organization at the University of California, San Diego whose main objective is to develop a miniature car that can compete at the annual AIChE Chem-E-Car competition. The goal of this organization is to connect classroom knowledge and innovative thinking to the real world and enrich the educational journey of Chemical Engineering among other disciplines at UCSD. This organization gives its members a chance to ideate, initiate, and innovate vehicle ideas that use chemical energy as propulsion and stopping mechanisms. Additionally, this organization implements real-world problem-solving while cultivating skills in teamwork, meeting deadlines, and taking responsibility while being creative. Furthermore, by holding events that facilitate team bonding, this organization promotes student-student relations as well as student-faculty relations within the university. Chem-E-Car thrives to keep a creative outlet for students while making problem-solving and troubleshooting a fun experience.

Our Members

Our student-led organization primarily comprises members from the discipline of Chemical Engineering, yet we are dedicated to cultivating a cohesive community across all engineering disciplines. We emphasize enthusiasm and interest in our application process, reflecting our commitment to an inclusive environment that values the contributions of every member, which is essential for the continued success of our club.

Presently, we have over 50 active members. The breakdown for '26-'27 is as follows:



Chem-E-Car Competition

The Chem-E-Car Competition is an annual competition held at various participating schools sponsored by AIChE. The premise of this competition requires students to design and develop a miniature shoebox-sized car that can run solely on chemically produced energy. The goal is to develop a car that can travel over a specified distance and stop as close to the finish line as possible. The competition actively engages the public and industry leaders, emphasizing the critical role of chemical engineering in driving innovation and addressing global challenges.



This Year's Projects

For this academic year, the Chem-E-Car team plans to take part in two competitions — the AIChE Western Regional Conference in Davis, California, and the AIChE Annual Student Conference in Minneapolis, Minnesota.

Our two cars utilize unique propulsion-stopping mechanism duos. One car uses a Zinc-Iodine battery as the propulsion mechanism, and a Luminol Chemiluminescence as the stopping mechanism. The second car utilizes an Aluminum-Copper Battery as the propulsion mechanism and a Copper-Zinc Galvanic Cell as the stopping mechanism.

For further information on these mechanisms, refer to the detailed descriptions below!

Zinc oxidizes at the anode, releasing electrons through the motor to the iodine cathode. There, tri-iodide ions accept the electrons to complete the circuit, while series-connected cells provide sufficient operating voltage.

**Zinc-Iodine Battery
Propulsion Mechanism**



The luminol reaction emits a blue light when hydrogen peroxide and HRP process luminol and 4-phenylphenol into an excited 3-aminophthalate. A photoresistor detects this light production, sending a signal to the Arduino to stop the car once the reaction concludes.

Luminol Reaction



Aluminum oxidizes at the anode, generating 2V as electrons flow to the copper cathode. Although non-rechargeable due to aluminum dissolution, the system uses an inexpensive, replaceable aluminum anode while preserving the reusable copper cathode.

**Aluminum Copper
Battery**



A copper-zinc galvanic cell generates voltage through zinc oxidation and copper reduction across a salt bridge. Once the voltage drops past a set threshold, the voltage sensor triggers the Arduino to stop the car.

**Copper-Zinc
Battery**



Members work together to develop new ideas for the propulsion and stopping mechanisms. New members bring a fresh perspective and help shape the design and development process, while team leads guide discussions, provide technical direction, and support the team throughout.

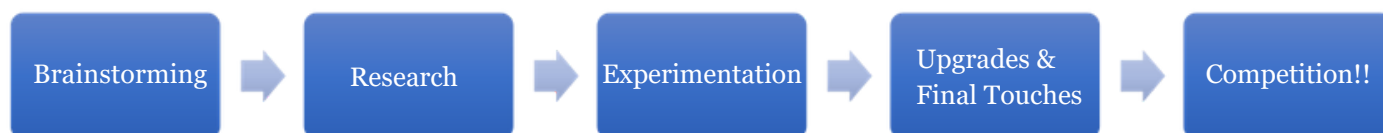
Project Timeline

The teams go through four principal stages during the process of creating a new car. First is the brainstorming stage, where the members pitch new ideas and research the viability of the project. At this point, every idea is accepted and researched lightly to give others an insight into how the mechanisms might work and if they follow the competition rules.

Then, the members are divided into teams for different stopping and propulsion mechanisms separately based on their interests and skills.

Now the research stage has begun. The teams will research, in depth, the mechanisms to make the car work, and the materials and equipment they will need to create the car.

Next comes the experimentation. The members will obtain the materials they need and experiment with the mechanism to create a new car while adding their own upgrades and testing it frequently for the best outcome. Once a car is working, the design is perfected to make the car look its best. The next step is the Chem-E-Car competition!



Past Projects

2011-2012
TRITON CAR



PROPULSION MECHANISM
Zinc-Carbon Battery



STOPPING MECHANISM
Iodine Clock



6th place in Regionals
"Most Creative Drive System" Award

2012-2013
THE LORAX



PROPULSION MECHANISM
Thermoelectricity



STOPPING MECHANISM
Elephant Toothpaste
(Foaming Reaction)



8th place in Regionals
3rd place in Poster Competition

2013-2014
TRITONIUM



PROPULSION MECHANISM
PEM Fuel Cell



STOPPING MECHANISM
Pressure-Syringe System



6th place in Regionals

2014-2015
PINK PANTHER



PROPULSION MECHANISM
Zinc Air Battery



STOPPING MECHANISM
Photosensor System



4th place in Regionals

2014-2015
THE GREAT GASSBY



MECHANISM
Reaction between citric acid
and sodium bicarbonate
generates carbon dioxide,
which builds pressure and
drives the system.



3rd place in Regionals
29th place in Nationals

**2015-2016
BATMOBILE**



PROPULSION MECHANISM
Magnesium-Copper Battery

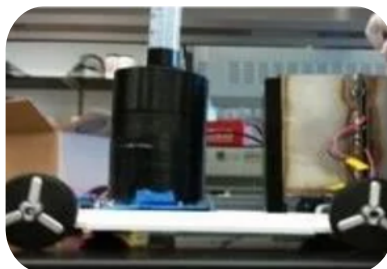


STOPPING MECHANISM
Iodine Clock



8th place in Regionals

**2015-2016
THE CAR OF ICE AND FIRE**



PROPULSION MECHANISM
Thermoelectric power generation driven by a hot-cold temperature gradient



STOPPING MECHANISM
Iodine Clock



8th place in Regionals

**2017-2018
FUEL'S GOLD**



PROPULSION MECHANISM
Hydrogen Fuel Cell

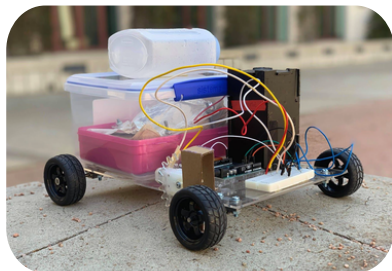


STOPPING MECHANISM
Iodine Clock



7th place in Regionals

**2018-2019
TRIPLE A**



PROPULSION MECHANISM
Aluminum Air Battery

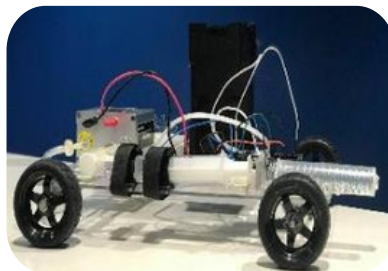


STOPPING MECHANISM
Luminol Clock



12th place in Regionals

**2018-2019
SPRING ROLLER**



PROPULSION MECHANISM
Hydrogen Fuel Cell



STOPPING MECHANISM
Luminol Clock



6th place in Regionals

**2022-2023
POPEYE**



PROPULSION MECHANISM
Hydrogen Fuel Cell

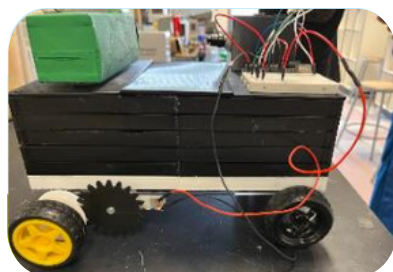


STOPPING MECHANISM
Spinach & Bleach Rxn



2nd place in Regionals

2022-2023
A.A.R.O.N



PROPULSION MECHANISM
Thermoelectric Generation



STOPPING MECHANISM
Iodine Clock



11th place in Regionals

2023-2024
POPEYE



PROPULSION MECHANISM
Aluminum Air Battery



STOPPING MECHANISM
Spinach & Bleach Rxn



11th place in Regionals

2024-2025
COSMO



PROPULSION MECHANISM
Aluminum Air Battery



STOPPING MECHANISM
Iodine Clock



7th place in Regionals

2024-2025
WANDA



PROPULSION MECHANISM
Hydrogen Fuel Cell

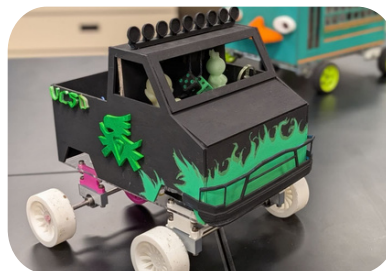


STOPPING MECHANISM
Hydrogen Fuel Cell



6th place in Regionals

2025-2026
MONSTER TRUCK



PROPULSION MECHANISM
Zinc-Alkaline Battery



STOPPING MECHANISM
"Monster" Reaction



6th place in Regionals

2025-2026
PLATYBUS



PROPULSION MECHANISM
Lead-Acid Battery



STOPPING MECHANISM
Iodine Clock



3rd place in Regionals

Sponsorship Levels

	Bronze	Silver	Gold
Events & Benefits	\$500	\$750	\$1000+
Sponsor Branding Listed On Website, Presentations	★	★	★
Quarterly Newsletter	★	★	★
Invitation To Mock Competition In Winter	★	★	★
Professional Outreach & Development Events		★	★
Technical Workshop / Design Review		★	★
Sponsorship Spotlight			★
Dedicated Representation At Tabling Events			★
Logo Decal On the Competition Car & Team Merchandise			★

*Chem-E-Car is open to working with you and accommodate any events as required.

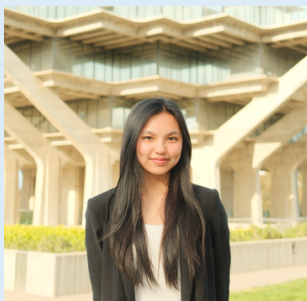
Executive Board 2026-2027



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For Additional information regarding sponsorship or Chem-E-Car Project, please contact: chemecaratucsd@gmail.com, or one of the members of the current board.

Visit Our Website for More Information

<https://www.aicheatucsd.org/chem-e-car>

Team Lead 2026-2027



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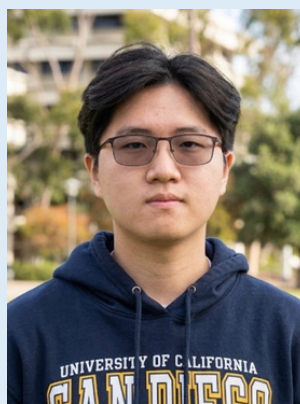
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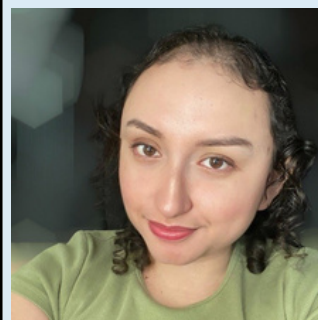
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