

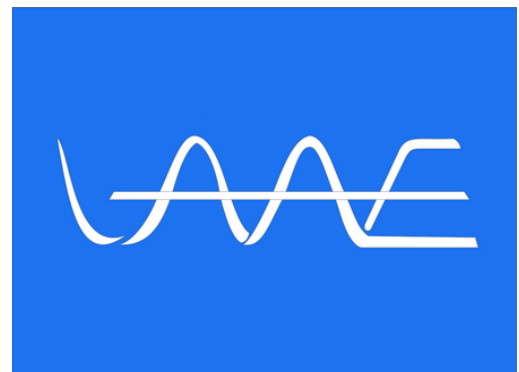
# LOS ALTOS ACADEMY OF ENGINEERING

FALL 2023 BUILDING A CLEANER, MORE FUEL EFFICIENT TOMORROW



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# A Return to the Congressional App Challenge

Written by: Alison Guan, Grayden Eriksen, and Alexander Hernandez

This year, the Los Altos Academy of Engineering's Informational Technology (I.T.) team has entered again into the Congressional App Challenge competing in the 38th Congressional District of California under its representative, Congresswoman Linda T. Sanchez. The Congressional App Challenge is a competition hosted by the U.S. House of Representatives that encourages middle and high school students to pursue careers related to computer science and STEM. The goal of the competition is for students to develop and submit their own apps for the chance to win under their Congressional District. The team had several different app ideas and chose to split into three competing groups, who developed three different apps using a variety of coding platforms.

Junior Grayden Eriksen created "Viewdio", a web application designed to create a readable transcript of any YouTube video's audio content. During the process of designing Viewdio, he decided that AI features would be the most powerful in producing a readable output and that integrating the GPT language model would accomplish this best. "As such, a solution that would permit a usable web-based interface while also allowing the usage of the language model and other necessary extensions was required", states Eriksen. To solve this, the app was ultimately written in Python with the use of the Flask API. This meant that the app's interface could be designed in HTML and CSS, while also being able to implement OpenAI's Python API to accomplish its primary purpose. Viewdio is targeted towards students, teachers, and general users, and aims to offer users the benefits of having access to the full content of a video in a viewable, written form for accessibility, note-taking, or other applicable purposes.

**Viewdio** 



## Senior Serve

I.T. member Alexander Hernandez created “SeniorServe,” an IOS app designed to help students volunteer to help senior citizens in their community. The idea for the app came about due to the high costs of assisted living and other elderly support, as well as Hernandez’s own experiences with taking care of elderly family members. The app allows seniors, or their caretakers and relatives, to search for students from nearby high schools to provide company or assist with chores and difficult tasks. In the process of creating the app, Hernandez struggled to create an easily accessible interface to connect users of all ages. As a result, the app was built entirely using Xcode, a programming software with easily understandable UI features and assets built in. In addition to providing support for senior citizens, SeniorServe also intends to provide students volunteer opportunities with an immediately noticeable impact in their community.

The third group consisting of seniors Alison Guan, Harper Xie, and Fionina Tung created the app “Comfortible”. Harper Xie states that she noticed “the lack of support for people who struggle with their health and wellness”. In order to tackle this challenge, they decided to create an app that helps individuals cope with their wellbeing. The app was made entirely using Code.org, a free online coding platform. The team struggled to create their animation qualities to their app and later found that Scratch was the best option to incorporate smooth movements for their designs. Comfortible offers a variety of distractions for the user through the use of reassurance, comforting graphics, and companionship. Ultimately, Comfortible strives to bring awareness to the lack of comfort provided to individuals by offering, as Alison Guan states, “comfort on the go.”

The I.T. team has submitted their apps to the Congressional App Challenge and is currently awaiting the announcement of the winners.



# What's New in LAAE

Written by: Francisco Flores, Nathan Rodriguez, Gavin Sandoval

The Los Altos Academy of Engineering began the school year intending to compete in the EV challenge, formerly known as the Energy Invitational. The EV Challenge will take place on May 4th and is a racing-style competition for EVs that considers both efficiency and performance. This year, the program will be entering with two teams, each with separate competing vehicles. Each team consists of ten people who manage, prepare, and drive their vehicle, as well as provide any needed on-the-spot repairs and adjustments. Scores are taken from each heat the team participates in and compiled together as a total score, and are determined by multiple factors including the time spent and energy used for each lap. As part of preparations for the competition, we will address last year's challenges - repairing one of our electric vehicles, Volt, and improving upon the other, Spectre. Volt suffered an accident last year, but we didn't have the time necessary to make the repairs. We managed to successfully compete with Spectre, yet it still has aspects in need of optimization. Leading up to the race, our teams will be required to submit a video and slideshow presentation about each of our electric vehicles and design processes.

Our Electrical team encountered several issues last year with our competing EV, Spectre. Two of our

alumni, Jonathan and Jaime Estrada, helped us identify bugs in our system. With their help, Spectre is now able to run smoothly and accelerate faster. With the upcoming EV Challenge in mind, our Electrical team is constantly testing and improving our vehicle to guarantee that we are fully prepared for the race.

In addition to last year's challenges, our Composites team had their own set of problems during the pandemic such as the need for new battery box designs. Composites continually experimented with new methods for creating the battery boxes until they eventually settled on the current design for this year. This new design yields a stronger box than last year's and provides a more consistent method for producing them. Further issues were encountered when the Composites team began working with the VacuPress table. Primarily, the team is working to guarantee their familiarity with operating it, as well as providing repairs as necessary. Our Composites team is currently brainstorming and working towards fixing these issues to ensure that we are ready for the competition.



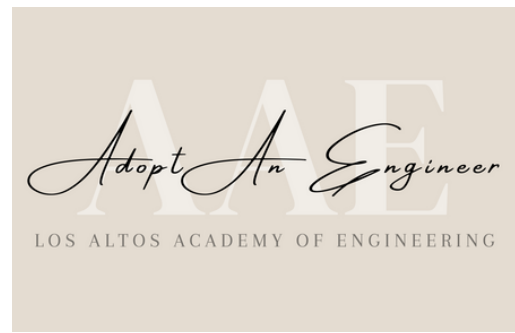
Our Mechanical team is facing their own set of obstacles. Since the program intends to compete with two vehicles this year, reassembling and repairing Volt has been the team's main focus. Mechanical is additionally continuing its work on Spectre, as the vehicle is in need of repairs and improvements on its turning and wheel alignment. They have decided to separate the repairs of both cars into sections, in order to give their newer members more experience in facing such challenges and to allow the team to operate efficiently. Mechanical has already produced visible progress as they drew necessary designs, welded parts of Volt back together, and machined and set several parts of Spectre, demonstrating their preparedness for the upcoming EV challenge.



With this year being our second in the competition, the program is aiming to improve upon last year's performance. Keeping this goal in mind, our teams continue to take on many challenges and obstacles to make this year one we are proud of, in which we learned and grew from the difficulties we surpassed. Our project manager Samantha Sandoval's expectations reflect our own: "This year's class has a lot of potential to succeed in the competition. There are many new faces but there are also many students who have experienced the race and know what to expect. They can reflect the knowledge onto the younger members of the team and push them to work for the goals we have set. This class can go a long way if we all push each other to be the best we can be".

# Adopt-An-Engineer Returns

Written by: Paulina Vargas



Prior to the pandemic, the program hosted numerous fundraisers and events in order to raise both money and awareness for the program. This year, our Public Relations (PR) team decided to reintroduce a past fundraiser known as “Adopt-An-Engineer” (AAE).

Since 2013, LAEE has had a history of hosting this event with great success. As a result of the pandemic, the program could not hold classes in person and put all fundraisers on hiatus. Once this school year began, the PR team was determined to raise money for the academy utilizing the past fundraiser, AAE. In order to properly reintroduce the event, the team had to search past files, paperwork, and saved ideas. PR member Paulina Vargas states, “The members and I spent countless hours searching through both digital and physical copies to rebuild the AAE fundraiser since it had not been hosted for years.” Building upon its past success, the team was able to host a newer, improved version of Adopt-An-Engineer.

The AAE fundraiser began in early October; the members of the engineering program had been given two months to raise \$50 individually, amounting to a grand total of \$2000. With this money, the program hopes to fund the entry fee for the upcoming EV challenge in 2024.

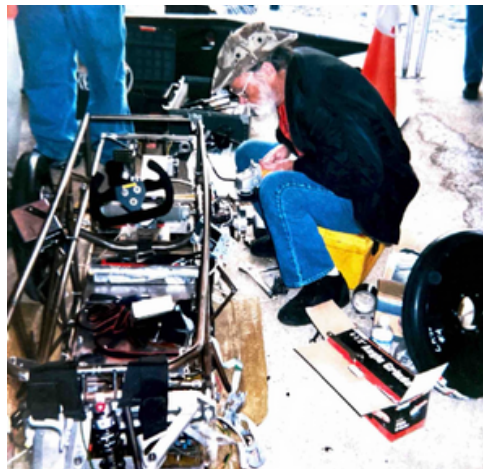
Each newsletter includes a form with the necessary information for participating in the fundraiser. Would you like to adopt an engineer? All donations are not only greatly appreciated, but also significantly expand our possibilities.



# IN LOVING MEMORY OF MR. KEIRNS



Mike Keirns was a profoundly gifted engineer, incredible teacher, and remarkable friend. He was a major part of the Los Altos Academy of Engineering family since before the first pencil drawings of Speed Racer were made and made an indelible impact on the program and its students that can still be felt today. Many in the program would not be where we are today were it not for the time Mike Keirns invested in us. We are grateful for all he has done, and he will be missed dearly.



# THANK YOU SPONSORS!

