



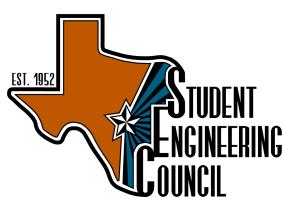
# Makeathon

## 2018 Event Assessment

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# **Foreword**

The Marketing and Analytics Committee (MAC) was created to centralize and standardize data collection about SEC events in order to ensure the fulfillment of SEC's mission. By compiling both quantitative and qualitative information about specific events and comparing this with past iterations of the event, we seek to provide useful context and advice to improve events in the future. Additionally, these reports can be used as a means to more effectively target future attendees of our events and ensure we are maximizing our impact on the Cockrell student body.

MAC's process is designed to be intimately connected with the planning and implementation of the event in order to ensure our analytics has proper context. We engage in 3-4 planning meetings before the event and attended the event to collect feedback and field notes from all parties involved. A post-event audit meeting is conducted with the primary MALs to identify areas for improvement.

## **Summary of Data Sources for this Event**

This report was compiled from several data streams:

- A [sign-in form](#) collected general information and demographics about attendees.
- A [post-event survey](#) collected feedback on specific parts of the event.
- An MAL [audit form](#) was also used to gather qualitative feedback on operations.

Quantitative information from our surveys was analyzed through our database for processing and to identify trends among the data. Our advice is also informed from feedback compiled from past and current event audits, notes about the event planning process taken during committee meetings, and day-of field notes ([here](#) and [here](#)).



# Overview

## Summary of Event

Makeathon is an annual competition hosted by the Student Engineering Council. Participants form small teams (generally 5-6 members) and collaborate to build a prototype product that attempts to satisfy a given prompt. Teams are given a limited set of supplies and have full access to the Longhorn MakerStudios equipment to build their product. Teams are also supported in their work by a number of student volunteers as well as Longhorn MakerStudios staff. **(Note: since the authoring of this report, Longhorn MakerStudios has been renamed to Texas Inventionworks.)**

The 2018 Makeathon took place on October 20th, 2018 from 8am to 8pm. An additional time window of 30-45 minutes was necessary for the Engineering Activities (EA) committee and volunteers to set up and tear down event materials, presentations, etc. The event was hosted in the Engineering Education and Research building (EER), primarily in the Longhorn MakerStudios and the Mulva Auditorium. About 50 attendees came out to Makeathon and formed 10 different teams.

## Relevant Parties

This year's Makeathon event was planned and run by the EA committee led by directors Flannery Thompson and Simon Kliewer. Among the EA Members-At-Large (MALS) involved in planning Makeathon were Hannah Moore, Jimmy Du, Alexander Tekle, Sam LeBus, Silas Strawn, and Pooja Trivedi.

Additional financial and organizational support for this event was provided by Chevron, represented by Phil Mataway, and the Engineering Student Life office, represented by Susan Higginbotham. Phil Mataway also provided input for the development of the safety-themed prompt. The continued success of Makeathon and other events led by EA will likely depend on the level of engagement EA keeps with these organizations.



## Key Contacts

Name	Position	Email
Alyson Bodner	Engineering Student Life Director	alysonbodner@austin.utexas.edu
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Simon Kliewer	Engineering Activities Committee Director	activities@sec.engr.utexas.edu
Flannery Thompson	Engineering Activities Committee Director	activities@sec.engr.utexas.edu
Phil Mataway	Health, Environment, and Safety Lead	pmataway@chevron.com

## Key Findings

MAC has identified the following areas for growth when planning Makeathon 2019:

### 1. Planning

- a. Brainstorming this year's prompt was done alone and based off Chevron's suggestions.
  - i. Recommendations for next year: Earlier, more defined, and collaborative prompt planning process.
  - ii. Ideally doesn't have to be related to corporate sponsors or safety-themed depending on leniency of sponsor representative; be creative!
- b. Additional Resources
  - i. Provide a FAQ document to teams that is brainstormed by MAL's in order to get rid of the vagueness of the prompt.
  - ii. Provide additional resources to kick start work on a project

### 2. Operations

- a. **More electronic supplies and less arts and crafts:** Buy more electrical supplies like Arduinos as these are more commonly used by teams.
- b. **Snacks and drinks:**
  - i. Were not available throughout the entire event.
  - ii. Engagement with eateries such as Einstein's is not preferred compared to bulk vendors.



- c. Teams felt that there could have been an increase in signage to help point out where certain resources are.

### 3. Financials

- a. Underestimate of t-shirts ordered for the event by MAL's.

### 4. Marketing

- a. **Advertise event info better:** More rigid process in participant application, commitment, and reminders. Had individual and team no-shows.
- b. Did not make use of marketing to large orgs and FIG's. Ideally provide presentations and some incentives for teams to be formed from these established groups.

### 5. Impact

- a. Boost in engagement can be attributed to the “extra-point” challenges.
- b. Impact could be boosted through collaboration with ESS, the Dean's Office as they look to heighten the profile of the MakerStudio (now Texas Inventionworks).

Planning	Operations	Financials	Marketing	Impact

## Planning Outcomes

### Prompt

The prompt for the 2018 Safety Day Makeathon was as follows: '*Design a demonstrable device that will assist with solving dangers in workplace security. The device must be non-violent. Potential projects include those finding creative solutions for intruder detection, enhanced locking systems, privacy protection, and many other topics.*' While this prompt ties in well with the guiding theme of Safety Day, the most striking aspect is how vague it is. For comparison, the 2017 prompt was to '*create an assisted device that makes a task easier for an elderly person such as cooking or changing clothes.*'

Of course, it should be noted that 2018 participants had mixed reactions to what they perceived as a fairly vague prompt. Some participants 'liked how open ended the prompt was,' and considered the prompt 'thought provoking and fun.' On the other hand, several participants indicated confusion as to the parameters of the task, which led to MALs answering a number of rule- and supply-related questions during the course of the event. From the 2018 Makeathon Audit, it is largely indicated that much of the inspiration for the prompt came from the input of the Chevron corporate representative, with the final decisions being made by one or two



members of the committee. Most EA MALs indicated difficulty with the prompt planning process.

### **Future suggestions:**

- EA members may find it useful to brainstorm problems that dive more specifically into the challenges presented by this year's prompt. For example, the idea to find a solution for intruder detection could go into more specific challenges such as identifying company personnel from strangers and/or visitors or creating deterrents for keeping people out of unsafe environments that are more effective than barbed wire.
- Alternatively, if the committee chooses to produce a vague prompt, it may be helpful to spend some time thinking of points of confusion that may arise by attempting to solve the prompt themselves (without having to build a prototype).

## **Applications**

There was an issue with no-shows by attendees, especially by individual registrants that didn't have a team to sign up with. As a result, there was a problem with adjusting team formations on the day of the event because a lot of these individual sign ups didn't actually show. Next year, EA should think about to give individual sign ups a better experience. They should also consider how individuals have less incentive to show up to the event since they aren't coming in with a team.

### **Future Suggestions:**

- Send out constant reminders in the few days leading up to the event as well as a confirmation of attendance so teams can be planned for accordingly.
- Consider opening sign ups closer to the actual event so that people aren't committing to something they might not actually be able to attend.

## **Food**

Food was well planned for with the exception of breakfast. 65 orders were put in initially, but 85 were needed on the day-of leading to a last minute additional order of Einstein's that left some people without breakfast. Also a lack of snacks and drinks at the event was a common feedback point given by participants.

### **Future Suggestions:**

- Double check how many people are attending for food orders and buy some more orders than necessary to ensure no one is left hungry.



- EA should buy snacks in bulk for the event, so that participants have something to snack on throughout their long day of work.

## Supplies

From the perspective of Makeathon participants, it is clear that expectations for the quality of the materials provided needs to be increased. In 2016, the Makeathon committee noted the great deal of supplies that wound up not purchased at the end of the event. In 2017, the committee attempted to include electronic components in order to augment the prototypes developed over the course of the event. Now, in 2018, a significant concern of participants was the limited amount of materials available in the store. In particular, participants suggested to ‘have more electronics for materials, have magnets, and have more Longhorn MakerStudios staff available to teach and help people in using equipment.’

EA MALs also noted some gaps in the materials available to competitors: for one, although almost every team made use of Arduino microcontrollers, the kits that the EA members purchased did not come standard with the cables necessary to program them. For another, the use of lumber and plywood fell way below expectations as almost all of the wood bought for this year’s Makeathon went unused. Finally, EA members noted that there were discrepancies between the list of supplies made available for reference by the teams and the actual supplies made available the day of the competition. In other words, participants did not realize that certain materials were available to them to fabricate their prototypes until well into the competition, occasionally this realization came too late to take advantage of the additional materials.

### **Future Suggestions:**

- Continuing to improve this event in terms of materials supplied to competitors will likely necessitate a ‘what materials would you have liked to have used?’ question in subsequent Makeathon Sign-Out forms.

## MakerStudios

The current involvement of Makerstudios in this event is unknown.

### **Future Suggestions:**

- Make this event more closely involved with the MakerStudios to make this event even more impactful; incorporate a list of specific requests for trained staff (ie. we will need these tools to be available to all participants and would like someone to be available to train participants on this machine).
- Offer to help participants learn how to use all the different tools in the makerstudio to enrich their experience.



- Get actual MakerStudios employees involved with the event and maybe even host workshops throughout the day that teach participants a skill that could benefit their project.

## **Operational Outcomes**

According to EA, the event went mostly as planned; there were no major setbacks, and everyone had fun. While the event went well logically, there were still several areas for improvement as noted by MAL's and participants.

Breakfast was ordered last minute and there were not enough servings for all the teams on the day of the event. Additionally the process to sign-in and grab breakfast took 30 minutes due to the long line formed by the teams. The Chevron representative also gave a slightly unsettling presentation about an active gun shooter at the kickoff. It was also noted that participant engagement in Makeathon dipped notably towards the end of the evening. It would be worth discussing a reduction in event time from its current 12 hour-mark to ensure teams are not burning out by the end.

### **Future Suggestions:**

- Future Makeathons should eliminate bottlenecks from sign-ins or food and try letting teams come up at separate times.
- The committee should make sure to vet and discuss presentations from the sponsors before they happen.



# Financial Outcomes

## Budget Breakdown

At the highest level, the 2018 Makeathon Committee organized this year's event with a baseline allocated [budget](#) of \$5,000. In previous years, funding for Makeathon has often come from a combination of support between Chevron (or other corporate sponsors), the Engineering Student Life office, and the Student Engineering Council budget. The financial support of the Chevron corporation has continued to grow in the past few years, to the point where all \$5000 available for 2018 came from Chevron. Of the \$5000 budget, EA spent a total of \$3836.74 (76.7%) with \$1163.26 (23.3%) left unused. This is essentially comparable to the budget utilization of the 2017 Makeathon, \$3015.89 spent of an allocated \$4000 budget (75.4%).

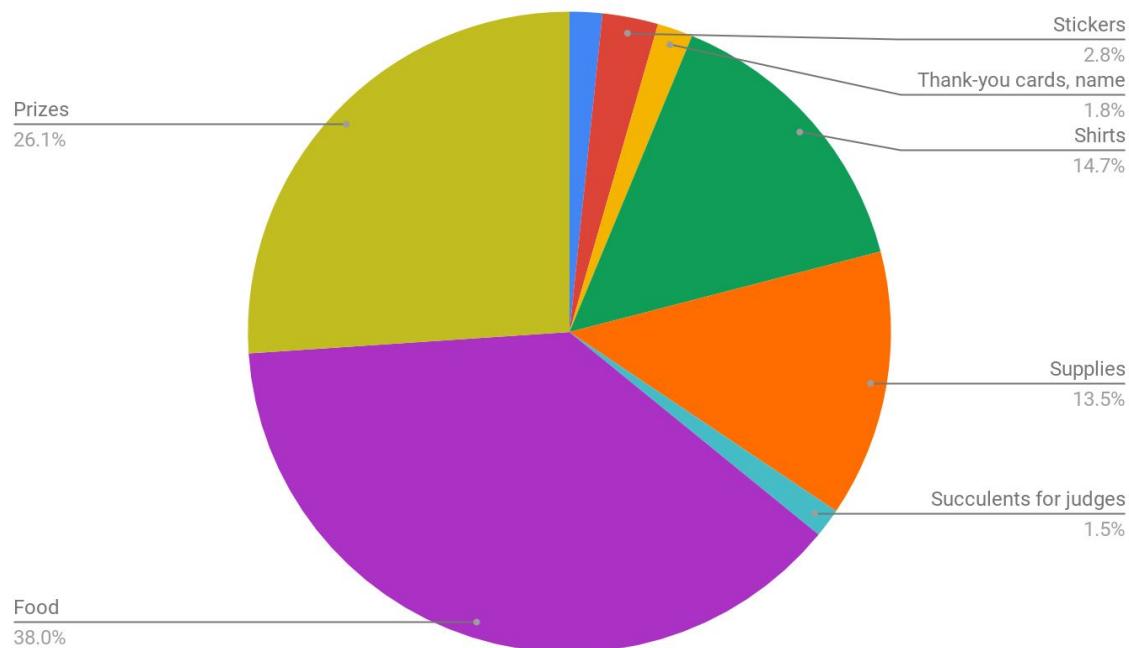


Figure 1: 2018 Makeathon Budget

## Food

Of the approximately \$3800 figure used for this year's Makeathon, the largest proportion of funds (38% of total spent) was needed to provide food for the event. This expenditure included catering from Einstein's Bagels for breakfast, Potbelly for lunch, and Cabo Bob's for dinner, and typically would include a \$200-300 expense from Sam's Club to provide snacks and



water to competitors throughout the competition. This year's MALs in particular noted that the lack of snacks provided for Makeathon was a small but significant detriment to the competitors' experience. Sufficient data is not available from previous Makeathons to examine trends in spending on food. However, it is reasonable to assume that total spending on food will change in direct proportion to the total number of competitors, and spending on food as a proportion of the total event budget will likely decrease as SEC continues to engage with restaurants like Einstein's as preferred vendors leading to discounted bulk orders.

## Prizes

The other significant proportion of Makeathon spending (40.8% of budget used) was on cash prizes as well as t-shirts given out to competing teams. Spending on cash prizes has increased significantly in the past few years as a result of the increasing monetary support of corporate sponsors, while total spending on t-shirts has actually decreased slightly over the last few years, as MALs have underestimated the total number of t-shirts necessary.

Tying t-shirt orders to the event sign-up Google Forms can further control spending on t-shirts by ensuring only as many t-shirts as are needed for every participant are printed.

## Electronics

The inclusion of electronic supplies did not greatly increase total EA spending on supplies. In 2017, total spending on supplies was \$425.68, and in 2018 spending was \$517.11. While increased spending on electronics will almost certainly lead towards a supplies budget in the \$600-700 range, Makeathon has generally run under budget.

Moreover, increased spending on electronics and other more complex supplies can be balanced by decreased spending on less complex, more cosmetic supplies such as pom-poms, popsicle sticks, or even lumber. Of course, electronic components such as Arduinos, servo motors, and infrared sensors can be reused in consecutive Makeathons, further reducing their impact on the event's budget. It was noted by the EA members that most of the competing teams elected to keep their prototypes at the end of the competition; thus, it may be necessary in future competitions for a rule to be made requiring that teams either return or dispose of components depending on whether or not they can be reused.



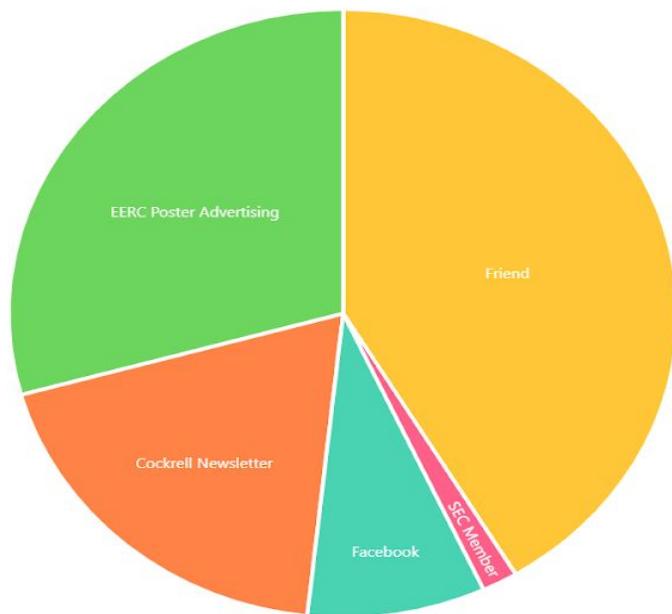
## Marketing and Publicity

**SUPPORTED BY  
CHEVRON**



Makeathon Poster by the Publicity Committee

### Campaign Success



*Figure 2: Campaign Types*



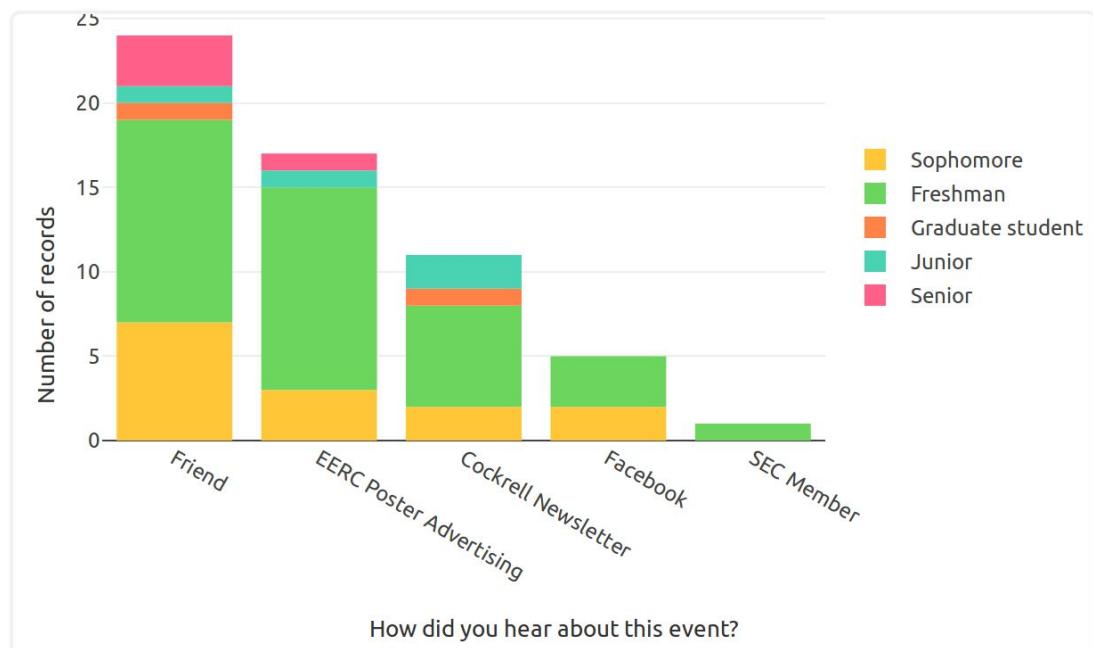


Figure 3: Campaign Types broken down by year

From our sign in survey forms, the above graphics show the distribution of how students heard about the 2018 Makeathon. Many participants noted in feedback that publicity of the event was lacking as the event was mostly heard through word of mouth (41.4%). Many people did not find their way to the Facebook event page and couldn't obtain more details beyond the Makeathon application form. As with many of our events, Facebook proved to be an ineffective medium for attracting new attendees (8.6% of attendees reached) since it just ends up circulating within SEC social circles. The Facebook event page reached over 2,000 people of which 237 people clicked and viewed the event page. 92 people (39%) responded as "interested" or "going" to the event. As a future effort for publicity, make sure there is a link (or even QR code) to an event information page on all sources of advertising. EER poster advertising was fairly successful especially for bringing awareness to freshman, so that effort should be continued. It is also worth noting that the marketing campaign behind Makeathon lacked the detail that participants were able to sign-up in groups of less than 5. Having important details explained upfront will ensure that potential participants are not discouraged from involvement.



## Demographic Distributions

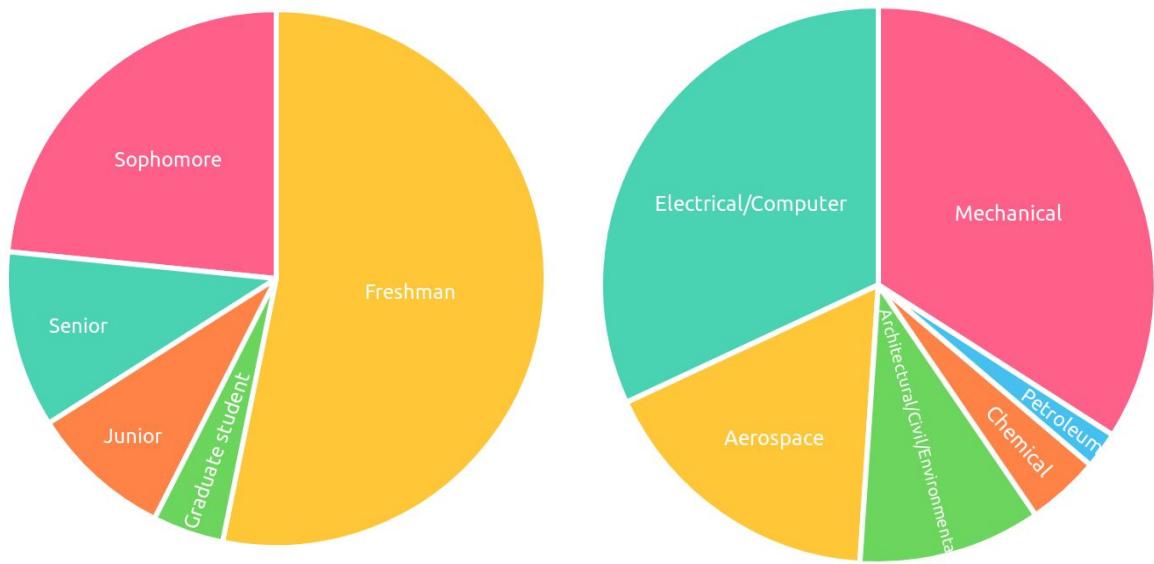
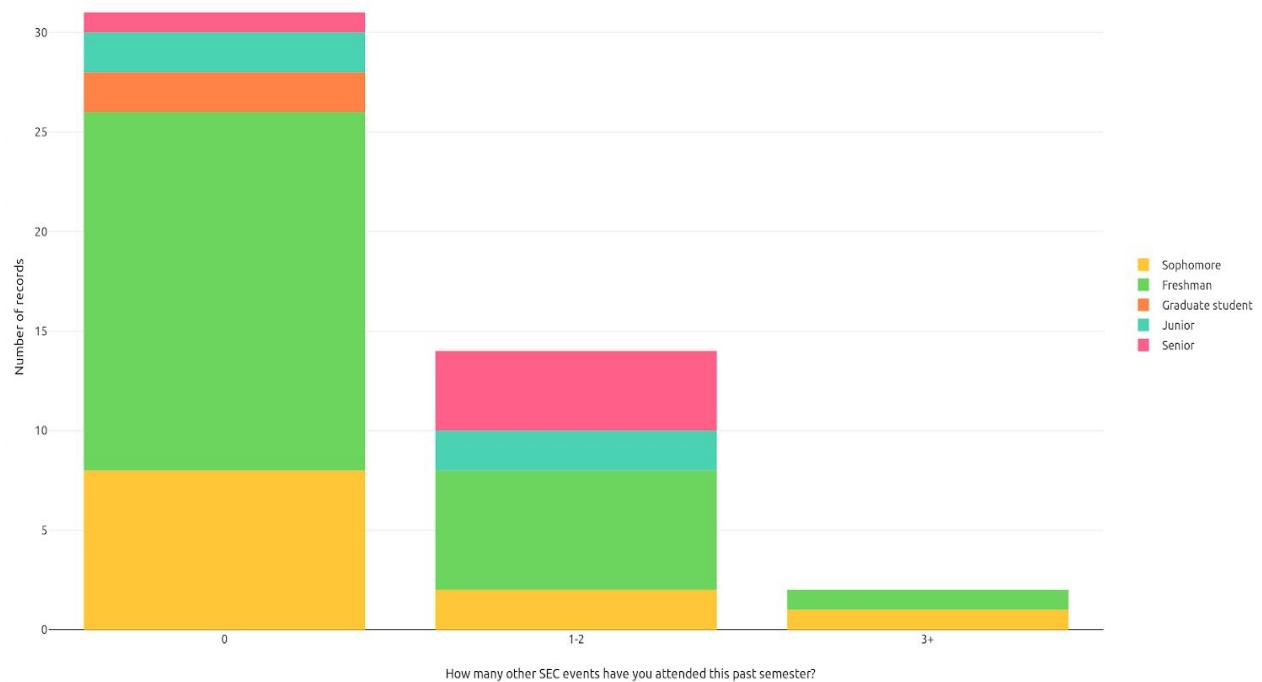


Figure 4: Participant Demographics by Year and by Major

The two most important trends from the participants of the 2018 Makeathon was that they were majority freshman (53.2%) and EE/MechE majors (66%). This raises the question of whether these were the intended audiences of the event, and if not, what other media outlets should be targeted in order to bolster attendance of those groups? In the case where they were the intended audience, consider emphasizing the opportunities underclassmen have to learn and innovate with all the tools of the MakerStudios. ME and EE departments could also more specifically be targeted as the technical aspects of the event relate closely to their majors. However, one-third of the participants were still spread amongst the other engineering majors. The technical skills and teamwork aspect of Makeathon applies to every engineering major, so direct advertising to all engineering communities is important to maintain a diverse major distribution.





How many other SEC events have you attended this past semester?

*Figure 5: Recurrence by Year*

Taking a more in depth look at the breakdown of attendees by year, we can see that most first time SEC event attendees were freshman and sophomores (76.6%). Consider targeting underclassman even more in marketing efforts to increase the number of teams attending and overall impact. Since social media is not an effective medium, it might be better to focus on more direct and targeted outreach to orgs, FIGS, and freshman/sophomore engineering classes. These types of groups also provide naturally formed groups that could increase sign ups.

### Future Suggestions

- Increase direct advertisement of event to underclassman groups like FIGS and intro classes
- Emphasize big benefits of attending Makeathon i.e. MakerStudios skills, Resume experience, teamwork experience, sponsorship with Chevron
- Make a comprehensive event page with full event details widely available on all marketing platforms (not just facebook)



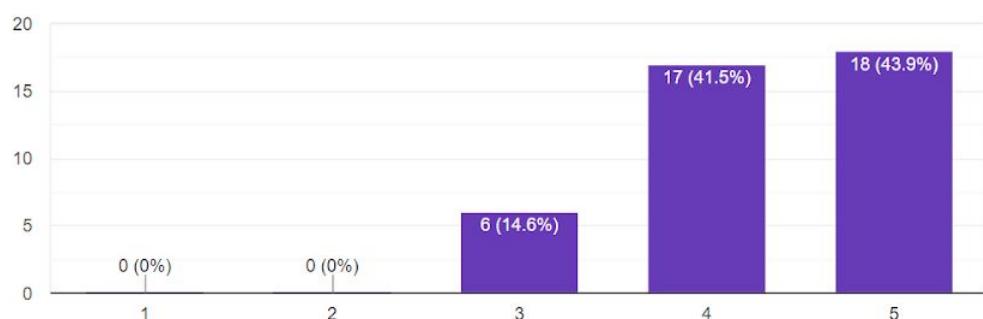
# Event Impact

## Engagement

EA MAL's were mostly proud of the active engagement of the participants throughout the competition which has been an issue in the past. The boost in engagement can be attributed to the use of “extra-point” challenges which were small activities that rewarded supply points to teams who participated. From a participant standpoint, most felt they had a valuable and enjoyable experience. Engagement in future Makeathons could be supported by the introduction of in-class bonus point opportunities for participating students. Much as it is with Cockrell School Cares, EA could give professors the opportunity to produce an extra-credit assignment. Moreover, professors could be encouraged to attend Makeathon itself to provide guidance for teams, serve as judges, and to gauge whether or not their students actually participated.

How satisfied were you with this event?

41 responses



## Satisfaction

Attendees of the event were largely satisfied with it, rating their satisfaction an average of 4.29 out of 5 on the sign-out form. Attendees also rated their engagement throughout the event an average of 4.51. However, attendees were less satisfied with the organization of the event, which received a 3.93 average rating, and the Makeathon prompt, which received only a 3.85 average rating. Some teams also felt the organization of the event could benefit from more signage that directs teams to where things are and what resources are available.



# **Conclusion**

Depending on the judgement of the EA directors, a number of changes could be implemented for Makeathon 2019.

From a planning and operational standpoint, MAC would recommend seeking a more specific prompt, in particular one that dials in on a more specific problem indicated by this year's prompt. It might also be of use for the committee to attempt to 'solve' the prompt in order to come up with issues or points of confusion that participants might have during Makeathon. Of course, as many participants noted, providing more electronic supplies would almost certainly improve the competition experience. Attempting to reuse many of the Arduinos and sensors in multiple years would also ensure that this does not become too burdensome of an investment in the long term. Providing snacks in addition to scheduled meals is also a very highly demanded addition to Makeathon.

With regards to the marketing of the event, MAC recommends an increase in the time investment dedicated to in-person presentations at Freshman Interest Groups and large engineering student organizations if possible. This will likely help to overcome the limits of social media as a tool for reaching younger students and its limits in inspiring action. Moreover, given the amount of unused budget in recent Makeathons, MAC would also recommend exploring the use of boosted content on social media channels like Facebook in order to try and overcome the issue of potential participants not seeing or fully understanding event. Current spending on marketing techniques, excluding stickers or a poster, is essentially zero, so even a small increase in investment would be helpful to prove whether boosted content greatly supports SEC's effectiveness. It should also be stressed that the marketing avenues used for Makeathon 2019 should all include sufficient description for participants to understand what Makeathon actually is.

With regards to impact, we believe that this event was successful. A disproportionately large amount of students were underclassmen, and to the end of introducing students to on-campus resources and facilitating engagements between strangers, this was the intended audience. This truly is an event that all types of engineers can participate in and gain a meaningful experience.

Finally, it should be stated that all of these recommendations are given with the expectation of similar or greater availability of financial and/or volunteering resources as compared to the 2018 Makeathon.



## **Suggested Future Targets**

- Increase in day-of participants number from 50 to 60, or at least 10 teams to 12
- Increase budget utilization to at least 80%, with emphasis on improving supplies quality
- Present Makeathon at 7 or more Freshman Interest Group and/or Engineering Student Organization meetings
- Boost second-year attendance in addition to first-year attendance, aiming for a combined total of 75% of the total attendee distribution
- Improve prompt satisfaction rating to at least a 4 out of 5

