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Student Robotics Club of S.A. Inc

RoboRoos

Newsletter

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From The Chair:

Hello Club,

Well, it only seems like I just sat down to have a coffee after the last newsletter, I seem to have blinked and it's been over 2 months of activity already, and I'm running late. Where has the time gone -

We had a hugely successful Science Alive 2023 where we showcased our talents to well over 30,000 people across 3 days at the Royal Adelaide showgrounds. The FTC competitions played over 30 challenges, in front of up to 300 spectators per game, at times, and really showed Adelaide what gracious professionalism is all about.

In the wings we had our FRC robots sharing the stage with our soccer bots, showing that no matter the size, robots are great fun and very cool to be involved with.

In fact, so cool and so much fun, that we smashed our "Smashed Avocado" robot just a few hours before the final closing bell.

All the while our club students were cool, calm and collected, helping everyone who came past to have fun and join in.

We quickly followed this up the next weekend, with our RoboRoos Open Day at our Tonsley clubrooms, gosh it was nice to not have to load the trailer for once.

Again our students and Alumni spent the the day meeting and inspiring a new group of roboteers, by making badges and driving robots around.

We even had some of our students cooking up a sausage sizzle storm, out the front and making a little extra money for the club - great entrepreneurship folks.

After all this hard work, we took a well deserved breather, and we went off to the Flipside Barcade and spent the morning competing with each other on pinball machines and videogames (and getting stuck into the chips and soft drinks).

This led us quickly into August where both the FLL Explore and Challenge teams started their 2023 "Masterpiece" competition, where the innovation project is "How you can use technology and the arts to help engage others in what we love to do".

For those who have been past the club on the weekend, you can see how hard the students are working on their projects and robots getting ready for the qualifiers come up at the end of October.

An amazing team effort from all the students, parents and mentors in keeping focused to do the best work we can.

Just as the FLL kickoff started to fade in the mirror, our FTC teams launched into their 2023 "CentreStage" competition.

Again a hive of activity is buzzing away down in Room 3, where robots are *not* so slowly rising from nothing.

From the Chair cont.

Some great ideas were discussed with our volunteer engineers from BAE, Sage, Micro-X and even VEX would you believe. All the engineers are amazed by how well the teams are working together to navigate building their robot, and all have said they will take part in the SA Qualifier to see the final results.

Finally the FRC competition team have packed away for the rest of the year for some lazy R&R - OR NOT!

We bolstered our team numbers, and jumped straight into our training season, with all of our mentors joining in to provide lessons that our students can take into the next game when its released. Currently the team is learning about swerve drives, by rebuilding the wheels and motors on "Smashed Avocado" just incase we want to use them for their upcoming competition.

After looking at what we have all done - no wonder I feel exhausted.

So what better time for Jess and our alumni, to put on an 'R You OK night, with lots of pizza and some fun games. This was a great way to unwind a little, and to remind us all not to loose sight of the most important part of all of this - to learn something new and to have fun.

Then only last week we had Children's University of Australia visit the clubrooms with a group of students from Reynella to break loose after listening to all those "DULL" businesses over at Tonsley Innovation District - for some reason this seemed to be a highlight of their excursion. It was fantastic to see the focused attention on their faces, as Abinav explained the RoboRoos Club and the FLL competitions that we have competed in over the last 12 years, stunning the supervisors on the sidelines.

Again its eye-opening to step-back sometimes, and just see how amazingly our students are developing. Awesome job Abinav - a future leader.

It was also wonderful to see all the smiles and excitement on the visitors as they drove "Zoooper Dooper" and "Roo" about the room and getting their drivers licenses.

We did explain the idea behind the "Foodie" robot names and still no takers for "Broccoli Smoothie" - I just don't get it.

Finally we just had a visit to Axiom Precision Manufacturing and we saw where building robots might lead in a job after finishing school. Seeing how the hugest of machines can make the smallest of parts, entering "Secret" areas and feeling what fighter jet parts are made from, are just some of the things we did. We also heard that even high tech companies like Axiom do make mistakes and sometimes have to make parts again - see no one is perfect.

On top of all of this crazy going on - as always we have our worker ducks in the background keeping the club running like a well oiled machine, coming up with crazy new ideas, and forever pushing the club forward. They might look calm, but I can tell you their little feet are frantic under the water.

A huge thanks to those doing the hidden jobs, without each of you the club just wouldn't run.

Coming up next - the SA Regional Qualifiers for FLL and FTC, then onto Nationals for those teams lucky enough to get through, the release of the FRC competition, and finally a well deserved break with our Club Christmas party to unwind and reflect on what an awesome year we have had - before we start this madness all over again in 2024.

OK - I've done it again - I think I need another sit down and a cup of coffee.

As always - I'm looking forward to seeing everyone at the clubrooms joining in and having fun.

- Sandy Carney

FLL Explorers

FLL Explorers whilst waiting patiently for their kits this season have been excited to do some research. They also did some of the Challenge builds and simple engineering.



We have been exploring the theme Masterpiece and all the activities, genres and ideas behind this theme. Primarily we have been considering at length how our First Nations people have brought their culture through 60,000 years of being.

Rich with all that goes with Indigenous living – Ancient rock paintings, stories both visual and oral, songs, dance, performance, unique musical instruments, decoration and ceremony. We are acknowledging country at sessions and will pay our respects on one of our t-shirt sleeves.

We meet on Kurna country.



Each team has a challenge to create a scene on their challenge mat depicting one of these aspects and acknowledgement.

During this build we have all now built our team model – a stage with turntable, motorised and coded it. Played with sensors that move the model by touch, or will show happy face when someone comes near, sad face when they go away.

Two teams are using Spike prime and one spike essential. This leaves us with a number of potential opportunities to motorise other builds as they have extra hubs on prime or we have spare essential or wedo sets. One team at present has motorised a number of Acts linked with the primary build.

Another team has recreated the stage to motorise a new scene. Teams are also being encouraged to create a build in 3D with the Tinkercad program they have been learning preseason.

FLL Explorers



We have arranged for whoever can go to Sydney in early December for competition and currently making arrangements for others to participate virtually from Tonsley on the day. Last year we had no wifi at competition, my mobile Wi-Fi did not cope with zoom, whatsapp seemed to work somewhat to include team members in Adelaide during the opening ceremony, judging and closing ceremony.

If anyone has a more consistent and successful way to do this please let us know.

All cheers to the students to bring their enthusiasm each week, (along with their snacks) but biggest shout out to the parents who tirelessly engage the students. Most of us adults are all so bemused at times that we ask questions and the students find the answers in their stem leaving us all wondering "how did they do that?"

Thanks also to Rob who ran masterclasses for some of the older students in robot building, coding and line following.

-Wendy



FLL Challenge

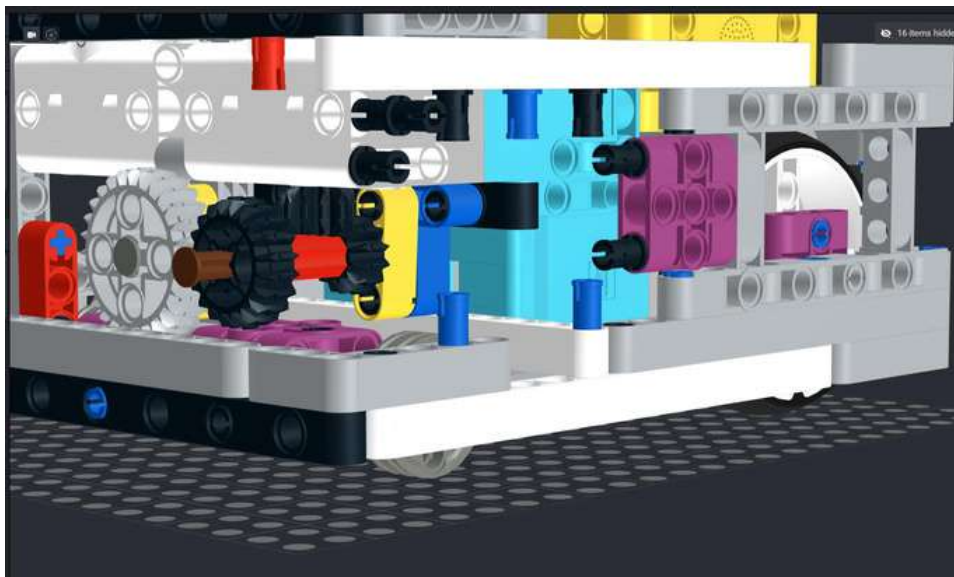
We have been meeting every Sunday between 1pm to 5pm. It's exciting as the regionals are coming up in another 6 to 8 weeks. Both First Lego League Challenge teams are working hard on their Masterpiece Innovation projects and robot challenge. This year's project brief involves sharing hobbies in an immersive way. Both teams have decided to incorporate community impact in the innovation projects. Experts interviews, surveys and field trips are being organised as part of the research process. All members also had fun creating our team's T-shirt to promote each team's identity.

Each week we also conduct core value activities involving students and parents. We had indoor and outdoor games to promote discovery, inclusion, team work, innovation, impact and having fun.



As for the robots challenge, Rob conducted base robot design and game strategy training sessions for both teams. In the coming weeks, both teams will be working on the base robot and attachment designs. Additional CAD design session using Stud IO will be conducted on Saturday 16 Sep. Stud IO training will enable teams to design their base robots and document the build steps to make the building process repeatable.

-Jimmy



Hello all!

The off season is over, the training is complete, and it is all go, go, go for the new challenge. And what a fantastic challenge it is. Following the overall theme of FIRST in Show, this years FTC challenge is aptly name CenterStage. FIRST in Show brings the concept of art into the STEM world and thus CenterStage is designed around a stage set with trusses, rigging, a stage door, and pixels and backdrops to create artistic mosaics.

Part of the act also has the robots lifting themselves off the stage floor and propelling a drone (a paper plane - not distracting for students at all) off the stage and into landing zones.

Already the students have donned their artistic berets and are coming up with initial ideas.

And, so they should be as they only have eight weeks to go.

Looking back to the off season, it was amazing how well it came together and how much the FTC cohort achieved. Over the off season both teams saw them competing in no less than four scrimmages, go to two major science events and complete a newly established training course. With the experience of last season and having many students being asked to build a robot with no experience at all it was decided to run FTC training.

The training ran the students through the basics of STEM, then focussed them in on concepts more related to FTC. It was attended by over a dozen students who are all now involved in the new build.

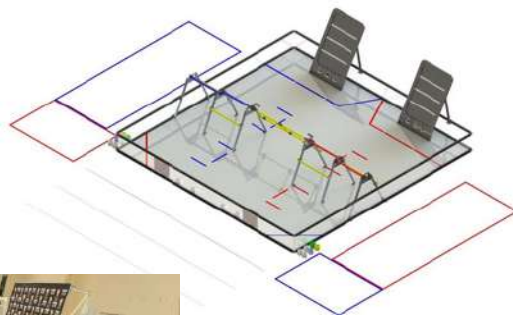
We really need to thank Sandy, Andrew and Bailey for their efforts in putting the training together as well as some senior FTC students who helped out during the sessions. Of note were the efforts of Henry Geue who attended many of the training sessions and lent his knowledge of five seasons in FTC to the newcomers. Well done, Henry!

I think that about wraps it up for this edition of the newsletter. I wish both our FTC teams the best of luck with CenterStage along with all other RoboRoos teams competing in FIRST in Show events. Keep on roboting!

-Michael



FTC kick-off, discussing the newly announced game



2023 CenterStage field



FRC training is almost halfway! About to launch into our 5th week. See calendar for training dates.

What's FRC & FIRST

FIRST Robotics Competition (FRC) stands for "For Inspiration and Recognition of Science and Technology Robotics Competition." It is a popular international high school robotics competition program founded by Dean Kamen, an inventor, and entrepreneur. The program aims to inspire young people to become involved in science, technology, engineering, and mathematics (STEM) fields through the exciting and challenging experience of designing, building, and competing with robots. FIRST was established in 1989, and since then, it has grown into a global movement that promotes innovation, teamwork, and problem-solving skills among students.

Interesting fact! Dean Kamen is well known for his numerous inventions and contributions to the fields of engineering and technology. He is perhaps most famous for inventing the Segway Personal Transporter, a self-balancing electric scooter that was introduced in the early 2000s.

Combining the excitement of sport with the rigors of science and technology. We call FIRST Robotics Competition the ultimate Sport for the Mind. High-school student participants call it "the hardest fun you'll ever have."

Under strict rules, limited time and resources, teams of students are challenged to raise funds, design a team "brand," hone teamwork skills, and build and program industrial-size robots to play a difficult field game against like-minded competitors. It's as close to real-world engineering as a student can get. Volunteer professional mentors lend their time and talents to guide each team. Each season ends with an exciting FIRST Championship.

RoboRoos usually attend the Sydney Regional in March. Then follow up with the Melbourne MRT Regional in late June.

All training available to current FTC Students. (FTC students will continue to meet on Tuesdays, thus they will be able to join in!)

The training has had a strong turnout, with participants attending both in person and virtually. This option provides access to students and parents who may not have been able to attend in person.

The mentors have given a lot of time and effort to create these lessons. I would like to thank them for everything they do!

All lecture notes and recordings will be able to be shared with the rest of the RoboRoos Team in the near future! We are investigating how to do this.

- Andrew



Giovanni & Achilles



Lennox & Rowan



Henry & Zephram

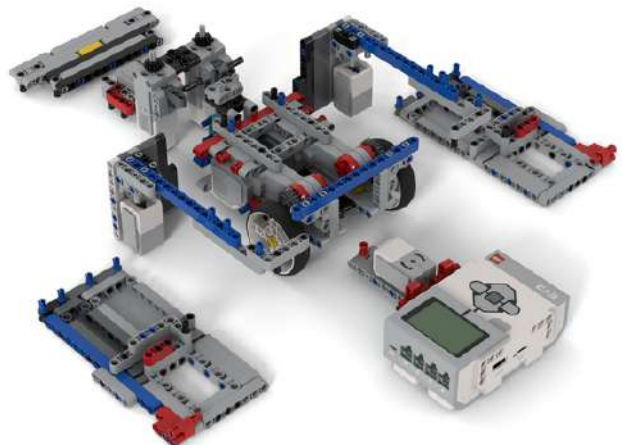
Robot Spotlight

This is a new column of our newsletter dedicated to the beloved bots that we built! In each edition we will proudly introduce one of our favourite robots.

Now meet Artemis and Apollo, the LEGO robots our FLL team Rockets built for the 2022/23 SUPERPOWERED season.

Some interesting facts:

1. They were named after space programs that launched rockets into space
2. This was our last FLL robot design using the EV3, a LEGO education kit introduced in 2013 and was replaced by the SPIKE Prime in 2022
3. 100% designed and built by a veteran team of students that had 25 years of combined FLL experience!
4. The robot has a very compact body that is laden with 4 motors, 4 sensors, 4 gear boxes and the EV3 brain
5. Two light sensors are used to follow lines, and one sensor detects the colour-coded attachments and selects the right software program to run
6. It fashions some of the largest LEGO 'hats' (attachment) we've ever built, including one with the built-in fork lift and a dinosaur carrier
7. The robots were programmed with the Python language, a big leap forward from the graphical block programming
8. Designed to score 410 points out of the maximum possible 415 points, the highest in RoboRoo's history
9. They won Robot Design and Robot Performance awards at both regional and national championships. Later they competed in the FLL Open International in Morocco and finished in the top 10
10. At Melbourne national championship, despite the humid condition and early setback it secured the team a top spot after a roller-coaster ride



Science Alive Recap

Our outreach events in the off season were also notable. While the science shows at Tonsley and Mt. Barker saw strong turn outs, it was Science Alive where we stole the show, or should I say we were First in Show and CenterStage. The Scrimmage held at Science Alive was by all metrics, a resounding success. With the support of six other South Australian FTC teams, we put on approximately 30 matches over the Saturday and Sunday with thousands of people watching them. I may be wrong, but I don't think any other FTC event in Australia has been viewed by so many. This though would not have been possible without the efforts from many other around the club, from those involved in FRC, FLL, RobotX and the management of the club. A huge thank you to all involved



The FLL Challenge teams took part at the Science Alive to promote STEM and robotics. We even had a training session conducted at the Showground and students had hands on research on site checking out how others promote their interest at Science Alive.



The Flipside Barcade

A fun filled morning of friendly competition on pinball machines and other video games. The parents certainly didn't get left out, all of us reliving our youth and loving the fact we weren't having to fill these things with 20cent pieces, like the 'good ole' days.



BRING A BUDDY TO FRC

Please bring a friend(s)/buddy(ies) & parent(s) to our amazing Thursday FRC training sessions. We are offering come & trial to prospective (FTC/FRC) students. Prospective students and their parents can come & try three times, understand what's involved before making up their minds.

FRC is not an easy undertaking, having friends who share common interests would make the journey more fun.

<https://www.roboroos.org.au/>

Please share this with someone who might be interested in becoming a RoboRoo (even better bring them along to training!)

Bringing parents is just as important, they need to know what's involved and how they can contribute to the club for the future. No robot knowledge required!

October 2023

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
						1 10:00am: FTC Build 1:00pm: FLL Challenge
2	3 6:30pm: FTC Build	4	5	6	7 1:30pm: FLL Explorers	8 10:00am: FTC Build 1:00pm: FLL Challenge
9	10 6:30pm: FTC Build	11	12	13	14 1:30pm: FLL Explorers	15 10:00am: FTC Build 1:00pm: FLL Challenge
16	17 6:30pm: FTC Build	18	19 6:00pm: FRC Specialty or Set Projects	20	21 1:30pm: FLL Explorers	22 10:00am: FTC Build 1:00pm: FLL Challenge
23	24 6:30pm: FTC Build	25	26 6:00pm: FRC Specialty or Set Projects	27	28 1:30pm: FLL Explorers	29 FLL SA REGIONAL EVENT- TORRENS PARK 8am: DJ Roos- FLL, Scotch College 10:00am: FTC Build 1:00pm: FLL Challenge
30	31 6:30pm: FTC Build					

Calendar subject to change

November 2023

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
		1	2 6:00pm: FRC Specialty or Set Projects	3	4 1:30pm: FLL Explorers	5 10:00am: FTC Build 1:00pm: FLL Challenge
6	7 6:30pm: FTC Build	8	9	10	11 FTC: SA REGIONAL EVENT- TONSLEY 1:30pm: FLL Explorers	12 FTC: SA REGIONAL EVENT – TONSLEY 1:00pm: FLL Challenge
13	14	15	16	17	18 FLL: SA REGIONAL EVENT- ANGLE VALE 1:30pm: FLL Explorers	19 1:00pm: FLL Challenge
20	21	22	23	24	25 1:30pm: FLL Explorers	26
27	28	29	30			

Calendar subject to change



HOPPING INTO ENGINEERING



Who are the RoboRoos?

We're a community group, FIRST® Robotics Team and so much more—including South Australia's first FRC team.

The team's purpose is to excite young minds about STEM (science, technology, engineering and mathematics), by using a common interest: Robots.

As part of this, students get real industry experience, with help and guidance from dedicated industry professionals as mentors. It circumvents the age-old circle of being unable to get a job due to lack of experience.

Part of our ethos is to maintain a gender balance, which we continue to strive for and achieve.

[Contact us at: roboroos@roboroos.org.au](mailto:roboroos@roboroos.org.au)

SPONSOR RECOGNITION

The Club works with every sponsor and supporter to understand their motivations, expectations and desired outcomes from supporting us, and we understand the need to meet those expectations. We have a number of ways of physically and digitally recognizing support. We are happy to discuss other means of recognition (including anonymous donations) on a case by case basis.

SPONSORS - THANK YOU



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