

ROBO ROOS NEWSLETTER

**** NEW MEMBERS WELCOME ****



DECEMBER 2017



CLUB DATES / UPCOMING EVENTS

Sun Dec 3rd: Shooter build. Wingfield

Tues Dec 5th. Continuation of Shooter build. Wingfield TBC

Tues Dec 12th Christmas Party. 6.30—9pm Venue TBA

Sun Dec 25th MERRY CHRISTMAS

Sat 6th / Sun 7th—overnight Kickoff—release of competition details.

Sun Jan 7th Kick off Session.

For more details :

www.roboroos.org.au

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Chairman's Chat



CHRISTMAS PARTY

Tues Dec 12th 6.30pm-9pm

DETAILS to FOLLOW

RoboRoos are on the move...

I am very pleased to announce that the Club has secured a build site for the coming 2018 FRC build and compete season. As this newsletter is widely distributed, suffice to say that we will be moving the build site from Wingfield to Hillcrest. We will have a little less room than we have had for previous builds but we won't be sharing the space with an operating business, so that should make build logistics a bit easier.

On behalf of the Club I would like to express our profound thanks to AG Pulie and Dave Simmons who have accommodated our last two builds, our Open days, trailer storage and logistics help. Our relationship will continue.

I would also like to thank the Club family who are graciously and generously accommodating us for the build.

With this site we are now pretty well placed with clean sites at UniSA, Adelaide Uni, Tabor college - and Glenelg

and St Morris for FLL, and our admin HQ in Goodwood.

The Club will continue to seek a permanent home which can meet our combined needs, but we know that this will take some time so we are very grateful for the generosity of one of our Club families in the meantime.

Go Roos, Peter Ryan-Kane, Chairman



CAPTAIN

Hi Team,

Who's excited to build robots for FIRST® POWER UP!

We have been running numerous training events and courses to prepare you for the upcoming season with many more to come, so please attend these as they provide you with valuable tools that you can use during the design and build phases of the competition. out!

The challenge this season will be released on the 6th of January 2018 so get ready to PLAY FOR REAL! If you haven't seen the teaser, check it

Bryce



Vice Captain

Hello all,

Its been fantastic to see so many new and excited faces engaging in club activities over the last few months.

thanks to all your involvement. I would encourage all new and past members to continue to attend as many of these insightful training sessions as you can, so that you can obtain all of the technical and safety information you will need as we quickly approach build season!

School will be ending soon for students, so, I encourage everyone to enjoy their holiday time, Christmas and time with family.

I look forward to seeing everyone bright eyed and bushy tailed in January for the start of the Build.

Jess

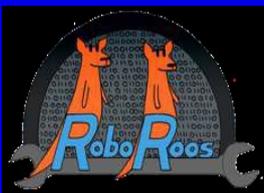




Start preparing now for the adventure that begins January 6, 2018

“PLAY FOR REAL”

FIRST® POWER UPSM



FRC Competition 2018



As there are a number of new students and families who may not have participated in a build season, a brief run down of the build follows:

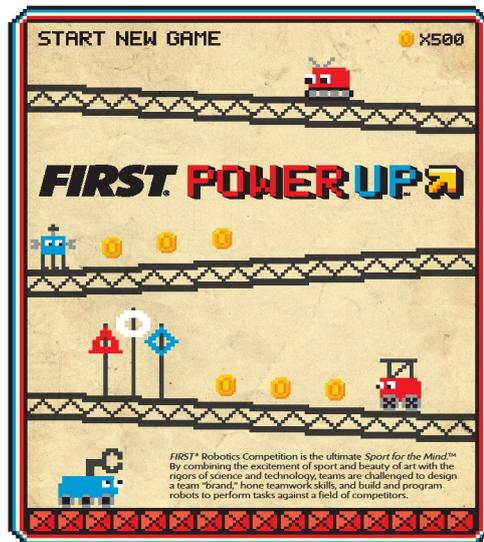
Kick Off: Jan 6th. This is when the competition details and rules are released to all teams worldwide. This is in the early hours of the Sunday morning as it is US based. The RoboRoos will then meet on the Sunday to discuss the

release and start thinking about the requirements of the robot to meet the challenges. There is then a 6 week period in which the robot must be designed, produced and programmed. It is then “bagged and tagged” and sent to Sydney for competition in March.

As we will be building in new premises we are yet to determine the times that are mutually acceptable for all involved.

It is expected that the Build will involve both Weekend and weekday sessions over the 6 weeks.

****It is vital that all students and parents check their robo Roos emails as changes to schedules may occur.****



PLAY FOR REAL

www.firstinspires.org



Has everyone gone to the FIRST website and looked at the teaser that has been released. For that and other information , keep up to date with everything FRC. <https://www.firstinspires.org/robotics/frc/game-and-season> The Regional Competition in Sydney that we have entered is from the 11th to 13th of March 2018. Sydney Olympic Park. Accomodation has been booked from 10th to the 14th. It is not too late to decide to come. Email : tracy.hecker@roboroos.org.au for more details

Safety /Training Sunday 24th September

The Sunday Safety Briefing and Training Session is an important kickoff to the training season.

This session was run by Dave Simmons and he highlighted the key points to safety awareness during the build season.

The aim of the day was also to introduce / update students in some of the basics that are required for the build season to better prepare them for the build frenzy.

This is a great hands on session which allows students to become familiar with different tools and techniques that they can take into the build season.

There were stations which the students could rotate through.

Hand tools was run by **Jeff R** and focussed on accurate measurement and precision cutting techniques with hand tools.

Power tools station was run by **Jeff J** and involved the safe and appropriate use of the more complex, high powered tools.

Electronics with **Geoff M** running a session in basic circuits with assistance from **Jack M** with next level electronics.

The day ran smoothly with the terrific organisational skills of Jullieann, well supported by Jess.

There was even time for some team bonding games run by our new student leadership group.

Thankyou to all who participated and contributed.



Ingenuity 2017



Celebrating tomorrow's technology leaders.

Ingenuity is an exhibition held by the Adelaide University to showcase the work of graduating students from the Faculty of Engineering, Computer and Mathematical Sciences (ECMS). It is a fascinating and impressive display of the university students projects and research.

Adelaide University again graciously invited us to set up a stand and demonstrate our robot fleet at this years Ingenuity event at the Adelaide Convention centre.

This is a great outreach event for the Club, enabling our students to demonstrate alongside final year Engineering students, interact with the public and gain Marcoms skills - not always the centerpiece skill for some of our students. Thanks to those Mentors, Volunteers, Alumni and Students who contributed to set up, pack up and during the day

Peter R-K





Busy times for Club members. Terrific variety of experiences and training from a dedicated group of mentors and supporters



Sydac Tour 29th August



In August several members of the RoboRoos went to Rob Zibell's workplace Sydac.

Sydac builds advanced simulators for trains, buses and trucks.

We got to have a try with several of the simulators- a full cockpit of a train in London, an Indian bus (in busy traffic- thanks for turning off collisions,) and a cement truck in central Sydney.

I think everyone had a good time with the simulators, whether they were good drivers or not and got a little taste of one facet of engineering being done in Adelaide.

Jack M



Electrical Training

Electrical training and Robot design.

The Electrical training session was held on a Tuesday Training night, led by the clubs senior electrical mentor Geoff Mansfield.

A 3 stage program was provided:

- 1) for beginners: the focus was on : what is voltage, resistance and current
- 2) beginners to intermediate: level students: how to wire an FRC robot
- 3) advanced : understanding the small signals used in a FRC robot



Geoff talking electronics

For those wanting to learn how to wire up a FRC robot Geoff suggested that students have a look at this;

1) identify the components that we will be using here:

https://wpilib.screenstepslive.com/s/currentCS/m/getting_started/I/599672-2017-frc-control-system-hardware-overview

2)wiring the FRC control system, scroll down and look at the videos etc:

https://wpilib.screenstepslive.com/s/currentCS/m/getting_started/I/599673-wiring-the-2017-frc-control-system.

Rob concurrently ran a session for those interested in the design and construction of robots.



Rob talking Robot design and construction



Training : Robot Shooter



University of South Australia

Training Robot – Shooter System Design for Mechanical Build

In these training session the shooter designs developed during the Applidyne DDS workshop were reviewed and two designs selected to move to the detailed design stage.

With the two designs selected, DDS designs were developed into detailed design DDS sheets showing the components that will be used and how they will be assembled. The different types of motors allowed for FRC were looked at, and the different types of gearboxes that these motors connect to and how to select the correct motor, gearbox and gear ratio combination for the job at hand were discussed.

The different ways the motor and gearbox can mounted into a frame and how they are con-

nected to the system they are driving were looked at. The electrical components required to drive the shooting system and the software required to control the shooter.

Students worked in groups to design a wheeled shooter and a two wheeled shooter. These designs will be used during the coming weeks to build the new training and demonstration robot.

We have been very lucky to be able to use facilities at the



UniSA City West Campus for our training nights.



CAD training—2 day course



University of South Australia

On the 11-12th of October, Andrew Cross ran an OnShape CAD training.

He helped to get people interested in CAD, teaching basic functions and the fundamentals for our upcoming build.

With over 10 students, parents and helpers, we gained some experience and built the Scruffe robot as well as tutorial models.

In the previous weeks a couple of students and anyone who wanted to be involved have been set a couple of tasks, the first was the model a wine glass

based on a singular diagram, and the second was to think about possible design for the Roboroos demonstration/training robot and if wanted to could model it up in CAD.

From this training I have heard great feedback from people interested in doing CAD in the robot build in January and have a strong interest in doing so.

It would be great for those who want to join help the CAD team, we have always been short on this team and it would be great for those who are interested to join.

Sam Stockton

Andrew has put a lot of time and effort in organising a very relevant training course for our students.

The course was well attended especially by our new members and I am sure they got a lot out of the course.

He has also put some further tasks out to the student body via email so please check this out so you are firing on all cylinders when it comes to the build

THANKYOU Andrew for your time and efforts. Tracy H



THANKYOU TO OUR SUPPORTERS



applidyne

Engineering Design Solutions

Applidyne's skill set includes —product design and prototyping, project management, systems design, research and development, technical investigation of Accidents and failures, analysis and computer modelling of Dynamic Systems.

They have worked with a variety of industries including: medical, mining, consumer products, building, energy, special purpose machines, military and automotive.



In preparation for the “build” in January a good number of Students, Volunteers and Mentors gathered at UniSA on one of our Tuesday Club Nights for a great session conducted by one of the Club's supporters, Applidyne. Renowned for their design skills they took us through their Document Design System (DDS), with Students rapidly applying their new skills to the design of a shooter system for last years little green balls.

Special thanks to Rob, Jullieann and Wendy for a great job on our training and social season this year - I think it's been our best one yet.

Peter R-K



Systems Engineering



This session provided an overview of systems engineering and how we can use it to manage complex inter-disciplinary projects, such as building a robot, without killing each other in frustration in the process.

The session was presented by **Dr Steven Grainger**; Mechatronic Engineering program co-ordinator and an academic whose research interests include autonomous vehicles / robotics and nano-positioning.

We are extremely lucky to have Dr Grainger supporting our club and taking the time to expand our students know-ledge in this area. Peter R-K

This session provided an overview of different types of belts and gears, as well as having a look at servos. After going through the multiple different types of belts and gears, we were handed a servo and a screwdriver and instructed to take the servo apart to see the various subsystems they contained, as well as what materials the subsystems were made out of.

After taking the servos apart, most of the students had forgotten how to put the back together which made for interesting debates about which gear fit where and finding small pieces lying around AFTER screwing in the back plate Maddy B





FLL - First Lego League

BAE SYSTEMS

FLL RoboRoos West Experience

At the start when I just met my team, I was very nervous as I didn't know who I was going to work with for the next 10 weeks. My coach, Drew, made me more confident in what I was doing. My experience through the FLL was amazing because my team all worked together and learned lots through the journey. I am now more confident using the computer program and have better knowledge on how to build the robot. Though we did not win, we all had fun and did our best. We did win an award for robot design which we were all proud of since we worked hard on it. We also worked on the presentation of the research project. My favourite part of the FLL competition was the presentation because we all put our ideas in. I also liked it when we programmed the robot to do different missions. I really enjoyed my experience and learned lots through the journey. I am really looking forward on doing it again and to have more fun.

Hannah B

The FRC team who were there as volunteers put on an impromptu demonstration. This can be seen on the following youtube link

<https://youtu.be/9HmlrX2ZjBs>

We would like to thank **BAE** for their continued support for the FLL SA competition.



FRC RoboRoos display at PAC FLL comp – Thankyou to Jeff J for setting up this display and all the volunteers who manned it.



RoboRoos East

On the 12th of November, 30 teams from all over the state gathered at PAC for the FLL Adelaide regional. Our team, Roboroos East had been working very hard for the last 11 weeks getting our robot ready and rehearsing our project skit. Armed with our custom Tradelink hats thanks to Tradelink Norwood, we were ready to compete. The team was very excited during the opening ceremony as the start of the competition came closer.

We had an amazing reception from all our judges, our project judges even said “we don't really have any question for you guys because you have already answered everything in your skit.” This was an amazing start. After two more successful judging session and three amazing runs on the table, scoring a top score of 160 points and finishing third on the leader board it was time for the closing ceremony.

We sat anxiously, hoping to get an award which would qualify us for nationals. As the judges made their way through all the awards we thought we had missed out, there was only the Champions award left. Along the row I could hear members saying “Surely we haven't won champions”, “We can't win it two years in a row”. Nat Cook, SA MP, announced the winning team, “The winners of the Adelaide regional champions award is...Roboroos East.” The whole team jumped up screaming and ran up on the stage with lots of yelling and crying and excitement as we got handed the trophy.

The team has now qualified to attend the Nationals in Sydney and will hopefully take home another award. **Charlie R-K**

We had spent the last few months preparing for the regional competition.

We built robots, prototyped products and even dressed up in weird clothes (I had to dress up as a ballerina, I'm a 12 year old boy).

We had a lot of fun and all the hard work payed off.

We scored high marks for everything we were assessed on, core values, robot, strategy and project.

We ended up winning and we are going to Sydney this weekend!

We have improved on everything we could and we are ready for Nationals, perhaps ready for World's as well!

Go roos!

Hector A



Social / Media

It was great fun for all who attended, good friendships forged and everyone learnt about each other, which is exactly what we need in our team, especially to survive the impending robot build.

Jess

LAN Party / Games night

On the 7/8 of October, a LAN Party took place at the Mansfields' house, organised by Jack, Bryce, Jess and I. A LAN Party is where you bring a desktop or laptop and play games over a LAN network. 12 students attended, most playing TF2, Minecraft and Fortnite. During the afternoon we all played TF2, a free first person shooter with the objective of capturing points or delivering payloads.



GAMES NIGHT

Not just any games, but GIANT GAMES. Again the usual suspects gathered for a games night social time. Held at Tabor Vocational Education and Training learning centre there was ample room for both students to play games and Mentors and volunteers to discuss 2018 build season strategies.

This only stopped when we had dinner, which was of course, pizza. After dinner there were small groups playing different games, and I was part of the one playing Fortnite, a battle royale style game with 25 teams of four, the last team standing wins. We ended up playing this well into the night, finishing with a grand total of three wins out of the countless games we played. Everyone headed to bed around 3am and woke up to pancakes around about 9am.



Students got involved in giant snakes and ladders, connect 4 and Jenga. They also tried an Aussie scrabble game and the hallway was ideal for a game of bocce.

From the photos you can see the fun that was had. Being engineers, the students of course could not help themselves inventing new ways to use the equipment and new rules for ordinary games. Finished off with party pies and pasties supper, all agreed it was a great night

I really enjoyed the LAN Party and considered it an overall success.

Maddy B



Wendy

Scope - Channel 10

Everything went really well with the filming of the Scope episode for channel 10. The film crew were really impressed with the robots and got some amazing footage of them in action. We all had fun working with the TV crew.

The episode is planned to be released december or early next year. I will let everyone know when it will be screened.

Brooke

Id like to thank Jess, KJ, James N, Maddy, Bre, Victoria, Sam, Belinda, Rob, Lousie and Gill for helping get ready, set up and look great during filming.



A big thanks to Jess and KJ for doing a really good job with the filming and recording and are now TV stars.





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.



Sponsors—THANKYOU !!

