

Chairman's Award - Team 3211

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2019 - Team 3211

Team Number

3211

Team Name, Corporate/University Sponsors

Perrigo/NRCN/Perion/Cimatron/The Yeruham Miami partnership/The Jewish federations of north america/Rashi foundation/Ministry of science/Ministry for the Development of the Negev and Galilee/Automation Yeruham/OPC/Brand industries/The Yeruham Municipality/Matnas Yeruham/Rotem Industries Ltd.&The Yeurham science center&Ort Sapir Yeruham&Belevav Shalem&Kama &IAF Technological College, Be'er Sheva

Briefly describe the impact of the *FIRST* program on team participants with special emphasis on the 2018/2019 year and the preceding two to five years

The majority of team alumni are changing the reality they thought they were destined for. Nearly all of them pursue STEM careers in the industry and university level, which is a rare sight in the town and their past classmates. Many also choose to mentor various FIRST teams and volunteer in the program. "I always thought of myself as a future mechanic-like my dad" says Leo, 2014 team alum "Now, I am studying Mechanical engineering and am mentoring FRC, FTC and FLL teams in Yeruham and Ar'ara"

Describe the impact of the *FIRST* program on your community with special emphasis on the 2018/2019 year and the preceding two to five years

The Y Team tree has spread many branches we now see in the town. Kids are involved in dozens of STEM projects - Robotics, Drones, Satellites, Aircraft design, Makers Lab and more. Team members helped found many of those programs and still mentor some of them. Today Yeruham has one of the best extra curricular STEM programs in the country offering kids a huge variety, creating unprecedented percentage of children involvement in STEM activities - over 65% of the town!

Team's innovative or creative method to spread the *FIRST* message

In the last 5 years the team ran a training of over 150 future mentors for FLL and Jr.FLL including teachers and students from all over the Negev, Miami and even from Ar'ara-a bedouin town. This has planted local seeds that eventually will become independent trees of STEM education. The training was officially acknowledged by the ministry of education. In the last 3 years we ran FLL-like festivals in Miami, growing from 3 schools to 9, celebrating an independent community of over 300 kids!

Describe examples of how your team members act as role models and inspire other *FIRST* team members to emulate

As team members are involved in many STEM programs as young mentors, they encounter many kids on a daily basis. Whether it is around Robots, Satellites or Scientific experiments, wherever they go they bring their message - STEM is cool, fun and rewarding. They become group leaders and inspirational characters - a life changing experience for both sides "I first met Adel when she came to my village to teach us robotics" tells Balsam, 17, from Rahme "she inspired me join the FRC team in the first place"

Describe the team's initiatives to help start or form other FRC teams

Since the team was founded, it recognized the need to help and start more FRC teams in the Negev, with an emphasis on populations who are normally not interacting with STEM at early ages. Thus, we helped start the following teams and mentored for at least one year: 4319 Ladies FIRST-all girl Jewish Orthodox team 5747 ATHENA-started as an all girl team 6049 Titan X Dimona, 6104 Desert Eagles Ofakim-low socio-economic status 5273 Kuseyfe, 6149 Arara, 6739 Tel Sheva - Teams from Bedouine cities

Describe the team's initiatives to help start or form other *FIRST* teams (including Jr.FLL, FLL, & FTC)

This year we helped start 6 FLL and 1 FTC team in Ramat Negev. We started 4 new FLL teams from El Az'zme, a school in Rachme - a Bedouine tribe near Yeruham. Those 4 teams are build on the tree we planted 4 years ago by starting the RACHme project. From WeDo kits in the desert, they are now building full scale FLL robots! In previous years we helped start ? FLL teams the Arava region and Mizpe Ramon, both now run their own successful programs with dozens of kids involved.

Describe the team's initiatives on assisting other *FIRST* teams (including Jr.FLL, FLL, FTC, & FRC) with progressing through the *FIRST* program

Our "16 Years of Robotics" program is the living embodiment of progress through FIRST. With 9 Jr. FLL, 7 FLL, 1 FTC and 1 FRC teams, kids know that being in robotics is a long, rewarding journey. We added 2 other levels to help smooove it, by founding the Robotigan (kindergarten level robotics) and Robostar (low level FLL like event) programs. "I started in the Jr. FLL when i was just 6" Remembers Amitai, 15 "After being in FLL and FTC for years, i fell at home in FRC and in the world of STEM".

Describe how your team works with other *FIRST* teams to serve as mentors to younger or less experienced *FIRST* teams (includes Jr.FLL, FLL, FTC, & FRC teams)

Our team started the "Open Robotics Academy" 6 years ago. Since then it ran annually, in a collaboration with teams 4319, 1577, 1690 ,2630 ,3316 over the years. The Academy provided lessons of various levels for FLL teams and mentors, FTC and FRC teams. Locally, we run the Rachme project along with our FTC team, where we work with Bedouine kids in their own land, teaching basic robotics and have even started 4 FLL teams this year!

Describe your Corporate/University Sponsors

The team runs a broad program with its sponsors. We have Industrial Technical sponsors like Brand Industries, OPC, NRCN, Yeruham Automation who mostly help with their technical expertise, parts and tool donation and more. Financial sponsors come from both the government - the ministries of science, education and development of the Negev. We also have major companies who donate to the team, like Mazor Robotics, the Rashi Foundation, the Miami Jewish foundation and more.

Describe the strength of your partnership with your sponsors with special emphasis on the 2018/2019 year and the preceding two to five years

Preserving our sponsors by showing them how their help changes lives in Yeruham is a high priority. We provide newsletters, visits and presentations of the program's growth. With some of them we work on unique programs they benefit from. For example, with the help of the Miami foundation we ran 3 FLL like events and 3 STEM summer camps for their community. This is a win-win situation where team members see their potential to change the world, and various communities are planted with our STEM seed.

Describe how your team would explain what *FIRST* is to someone who has never heard of it

FIRST is an international organization that gives every kid the opportunity to understand science and technology by first hand experience, it gives inspiration to other kids around the world with the understanding that with they have the potential to change the world and become local leaders. Most importantly it makes the kids feel a part of something big, whether their team wins or loses. Oh, and it has robots too...

Briefly describe other matters of interest to the *FIRST* judges, if any

As part of our efforts to branch out to new communities, we try to reach the ultra-Orthodox sector, starting with kindergartens. This is the second year that The Robotigan is active: we help train teachers at FLL skills which are used in weekly activities. Furthermore, we are working with FIRST Israel to open FLL teams and aim at running a kosher event next year. Our previous experience with communities of similar nonexistent STEM background proves useful, and hopefully the tree will bear fruit.

Team Captain/Student Representative that has double-checked this submission.

Dvir Yaakoby

Essay

10 years ago, in a distant desert town, with a population of 10,000, an FRC program started. Where there were once restless kids, with mediocre aspirations and low self-esteem, there are now hundreds of overachievers, who settle for nothing less than being the best at what they do. This small FRC team, started a town-wide process we call our STEM tree. Robotics, Makers, Drones, Satellites, Physics Research and more—all are a part of this special STEM tree that is constantly branching out into many other regions, countries, and even continents, always with the goal of planting a seed wherever it gets, supplying the knowledge, tools and foundation for it to grow on its own.

This STEM tree has made Yeruham a beacon for the next era in education. Politicians, CEOs, students, teachers and children from all over the world come and witness our STEM tree—over a thousand visitors annually.

SPREADING THE KNOWLEDGE

In the first two years of the Y-Team, the slogan the team chose was "Yeruham-A robotics empire". At that time the team was just starting out and struggling, so that slogan didn't make much sense and was seen by many as a joke. A decade later the slogan has become a reality and reflects how Yeruham is identified everywhere and by anyone: An empire of robotics.

The team founded and participated in mentoring:

- * 9 Jr. FLL, 7 FLL and 1 FTC team in Yeruham
- * 4 FLL teams in the Bedouin village 'Rachma'
- * 6 FLL and 1 FTC teams in Ramat Negev
- * 1 FLL team in Mizpe Ramon
- * 6 Jr. FLL and 3 FLL teams in the Arava Tihona

The team also created and is still running a pre-FLL contest in the Negev called RoboStar, which creates a smoother transition between Jr. FLL and FLL, decreasing abandonment rate.

The Y-Team guide the kids from kindergarten to FRC (some even after they graduate high school). More than a third of the Yeruhams' kids participate in FIRST programs, volunteer and some are even working as mentors in our community and beyond. The FIRST programs have a presence in every single kindergarten and school in town, guaranteeing exposure to FIRST, its vision and its values sooner or later.

The teams' workshop attracts visitors from all over the world who come to witness the story of the "Yeruham robotics empire" and its impact. The workshop has become a role-model for a high quality, modern and advanced education system despite the challenging starting conditions.

After years of countless rewards, awards, successes and failures in various STEM fields, the team and its alumni have succeeded in making Yeruham an inspiration and the famous robotics empire it is today.

PAYING IT FORWARD

Bedouin Community

Rahma is a small Bedouin nomadic tribe located near Yeruham. They live in a very low socioeconomic status. The village does not supply basic resources, such as: electricity, running water, roads and most importantly - a decent education.

This is where we felt we could contribute. Our goal is to give the youth of Rahma an equal opportunity for a better future, using FIRST. We started by having weekly lessons in their village, where we taught the basics of LEGO robot building by using WeDo 3 years ago.

The project has since been expanding to many new branches - official 4 FLL teams, 2 Jr. FLL teams, Arduino courses, a makers program and more.

From a no-tech community - these children are now building robots, competing in FIRST competitions and some even grew to become mentors in the Arduino courses. This year, for the first time there are even 2 FRC team members who grew in the program.

The Rahme seed was planted and is now growing bigger and bigger on its own (with still a little support), and the dramatic effect on the local kids doesn't go unnoticed.

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Over the years the team has mentored and helped form all 3 FRC bedouine teams in the Negev. Starting with Amal Kusseyfe (5274) back in 2014, to Arara (6149), who we still mentor today and Tel Sheva (6739) who attended the world championship in Houston 2017, an unforgettable experience for both them and us.

Unfortunately some of those planted seeds couldn't grow any more due to various reasons and the teams were canceled despite our assistance, but we are not giving up and working on growing new branches in those locations.

Miami (Sister city of Yeruham)

Two years ago the team started running an annual robotics FLL-like festival in Miami for the local Jewish community. The event began with a participation of only 3 schools, and grew into a big event hosting 9 schools and hundreds of kids, who are looking forward to participate in official FLL events next year. Shalev, 17, was one of the team members who ran the first event:

"I had the privilege to return to Miami and give back a little by teaching Jewish kids robotics. Now I know how it feels to give back and I really enjoy using my knowledge making those kids happy."

In addition to the festival, the team members also organize STEM summer camps for hundreds of attendees in Miami, using Arduino kits to teach mechanics, programming and more.

AN INSPIRATION THAT LINGERS

"As the team alumni we feel blessed that we had the great opportunity to grow up in an environment of STEM. Without the team we believe that our future would look drastically different. Our parents never had high professional ambitions and Yeruham didn't have much to offer. As we entered the STEM world we've learned and been exposed to so many things that can change our future more than we can imagine.

Today we can definitely say that thanks to FIRST most of us are in the STEM world or planning on being there. Many of us came back to work with the team, and mentor Jr. FLL, FLL, FTC and FRC teams. This year, there are 3 alumni who are lead mentors of FRC teams (4319,6149) and many who mentor additional FRC teams (5951,3835,3211), 2 alumni are FTC head mentors (Dimona & Yeruham), while in FLL there are a dozen more. Team alumni and current members volunteer at numerous FIRST events, with hundreds of volunteer hours over all 4 programs"

These numbers are a true demonstration of the team's impact on its members during, and after they participate in the program. Many branches reach many communities, all guided by various team alumni who remember the values, their impact and importance and work together to expose kids to STEM.

FROM GAMES TO REALITY

Using the engineering skills gained by participating in FIRST has always been a high priority for the team. In previous years such projects have become a part of the Y-Teams' tree DNA, and had a huge influence on team participants. Over the years, the team has been working on dozens of additional engineering projects, for both industrial and unique clients. This gives us the true feel of what it is to have an engineering career, a major part in a future path choice. Not all projects bore fruit, but some did. Among them:

- * An autonomous robot for growing plants in a greenhouse, currently working in Chinese agricultural institutions.

- * A 360 view product image creator working autonomously.

- * A Mars Rover used for the simulation of experiments to be conducted on Mars, for the DMARS organization - used in their habitat at the Ramon crater, allowing students to go on expeditions and simulate the conditions on the red planet.

6 Years ago the team started the "Bimba" project, where ride on toy cars were uniquely modified to enable children with various disabilities to drive them independently. The project resulted over 150 cars provided to kindergartens and homes, bettering the life quality of the targeted children.

After the huge success of the "Bimba" project we wanted to continue with a new project. We ran a "Community Hackathon" (open to all), resulting in two ideas:

WYZE

A map based city maintenance reporting app for the Yeruham municipality and residents, providing a solution for one of the major problems the town has as of now. WYZE creates a new direct channel between the people of Yeruham and the municipality. The team developed the app, which is now in beta testing and is expected to launch on a full scale this month, with the hope to improve the face of our town and the lives of its people.

THE 'SNOZLEN'

Suggested by team alum Nir Hemo, who lead the "Bimba" project for 2 years, inspiring him to volunteer in "Ale Negev" - a facility that helps a variety of disabled people. There he learned about a therapeutic room called "Snozlen". In short - it

is a room that uses methods of relaxation and brain stimulus for people with special needs and helps them develop their senses and cognitive skills. However, it is very expensive to build (approximately 200,000 \$), so we decided to try and build a low cost mobile version.

After months of researching and developing such a room, we started user testing at a local specialized kindergarten, the same one where the Bimba started.

"When we first placed Yaheli in the room she was afraid and wouldn't stop screaming and crying. After a minute, the lights got her attention and she focused on them, allowing the teacher to work with her on recognizing various shapes, an important exercises she is rarely able to perform.

It was better than seeing our robot work" Remembers Cana, 16, project leader. "It's amazing how the goal of the 'Snozlen' was to change the lives of the people who it's made for, but the 'Snozlen' project changed our lives and made us believe that nothing is impossible"

The project is now undergoing further improvements, and we hope to supply more rooms by the end of the year, as we already witnessed the high demand.

Those projects show how much our hard work can help various individuals and communities better their lives. We see and experience our potential, outside the world of competitive robotics, and realize how challenging, exciting and fulfilling a career in engineering can be.

Knowing we are capable of such achievements as teenagers, we now realize the change we can make in the world, and how rewarding it is to be that change.