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ROBOLANCERS' ROUNDTABLE

Volume VII - April 2014

This newsletter is dedicated to providing updates of what's going on to the sponsors of Central High School's robotics team, the RoboLancers [FRC Team #321; FTC Team #5320 and Team #6676].

THE 2014 FRC COMPETITION SEASON: TWO PERSPECTIVES

Trying to be a Team Player

By Armond Smith, 274



As this is my first year on FRC, I have experienced many new things: friendships, many shortcomings, and many long nights.

My first time in the pits as a programmer was intense -- having to queue up for matches at seemingly random intervals, fixing up code each match and testing subsystems. Driving was also a big part of my day, the stress of using manipulator and knowing when and when not to use what I was controlling was a test. After each match, I would look at the scoreboard and see our 1-11-0 (Win-Lose-Tie) ratio at Springside-Chestnut Hill and think to myself, "What exactly could we, as a team, do better?"

I've always been the type to try to support others wherever I go. This year's robot is nothing different from me. Six weeks of effort put into a robot designed specifically to help the other teams on our alliance; sadly nobody capitalized on that, at least not at Chestnut Hill. Hopefully, we wouldn't be stepped on by other teams at the following competition. "Maybe Lenape will be better," I said.

Lenape started out pretty weak. Again, we started with teams who never capitalized on what our robot's assets were. Down in the pits, all we would hear is: "We want to be the finisher, you guys play defense" from our alliance partners. We tried to explain what our robot was, and how we like to play the game as an assistant who has defensive capabilities. It was like this until one game we had with FRC Team #1640, Sab-BOT-age. 1640 knew exactly how to play the game, using all their resources to get assists to win. That team would be a team we almost got to be aligned with in the elimination matches.

Although ranking terribly with a 3-11-0 record by eliminations (again, lack of team support), FRC Team #225, Tech Fire, saw us as an asset in our matches we

played with them, and chose us in eliminations for our ability to work as a team. This is the first time in the RoboLancers' history in which we have been chosen for an alliance in the elimination rounds! In our matches, we played great games in the quarter-finals; however, we lost due to foul points put onto 225, and in the end, lost. The team was outraged by the high number of foul points, and morale was low.

Ultimately, FRC Team #3929, Atomic Dragons (Masterman HS), FRC Team #316, Lunatecs, and FRC Team #2559, Normality Zero, would go on to win the Lenape-Seneca District.

At the end of the day, it's what came out of the experience. Even though we did not win Lenape-Seneca with FRC Team #225, and as our season comes to a close, we still have made RoboLancers history. Mary Conrad, a former RoboLancer and now mentor, is going to MAR Championships as a Woodie Flowers Award Finalist, and I am going to MAR Champs as a Dean's List nominee. During my interview, I mentioned how FIRST was right in making a challenge where teams are forced to work together, but it still does not change the fact that teams will not capitalize on the teamwork aspect of the game; one of our major problems this year.

After all of this, we still have the Philly Robotics Expo (PRX) at University of Pennsylvania on April 4th, as well as side projects, like learning how to use swerve drive, using new controllers and sensors for next year's game, a new driver's station, etc. If all goes well, we will improve from this year's experience and have a bigger impact on our team's history than the last two years. I think the big question for the 2015 season is: "Can we win a blue banner?"

The Home of Expectations

By Robert H. Mitchell IV



Over the three years I have been on the team, I have never experienced a competition season as enjoyable and successful as this one. This year, our team chemistry was “on point” so to speak, allowing a relatively stress free and smooth workflow throughout the build season. Our leads this year were especially impressive. Each of them had years’ worth of FRC

experience and they worked together well. The key to successful leadership is to have mutual respect for your peers, which is something I saw displayed among our team this year better than any other. This was especially notable considering how many new FRC members we had working on the robot this year. Although our primary driver continued his role from last year, it was astonishing to see his growth in confidence and skill.

Although we may not have done incredibly well at Springside-Chestnut Hill as we may have hoped, the first district competition always acts as a way to troubleshoot our strategy and robot dynamics. Due to our unbecoming results at Chestnut Hill, we were able to make the necessary adjustments during the time allowed, in order to excel at Lenape. Arriving at Lenape the evening before the competition for set up, we all had expectations of how we would have hoped the results of the weekend to be. Therefore, I began dubbing this event: Lenape - The Home of Expectations.

As we hoped, we were picked for an alliance in eliminations this year for the first time in history. Our team of drivers met the quota for a top tier team, something I haven't seen in years. As an electrical specialist in the pit, I have seen how electrical problems can escalate from a small problem to a big issue. This year I was able to work closely with our Electrical Lead and we made sure that didn't happen. Of course, adjustments from every part of the team are necessary to move forward, and this year every part of our team -- mechanical, programming and electrical -- held up their end.

I have never been more thankful that I was on the team to witness history being made, and a new level of expectations for newer members.

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Correction: *RoboLancers' Roundtable*, Volume VI, stated, “FTC Team #6676, RoboLancers Crimson of Central High School won the PTC Design Award.” Additionally, FTC Team #5320, RoboLancers Gold of Central High School won the Rockwell Collins Innovate Award.

WORDS TO THE WISE

By Daniel Ueda, Head Coach



February and March in FIRST robotics world is the most intense time of the year. We had the FTC state championships, the end of FRC build season that included a major snow storm and three days spent at my house with the team finishing our robot, and two district competitions for FRC. It is always a marathon of sprints.

In the FTC state champs, we competed very well but came away empty handed. The sophomores and freshman that make up our FTC teams 5320 and 6676

learned a tremendous amount over the course of the season. We are very excited for the future of the team because of them.

In FRC, the team competed at Springside-Chestnut Hill and Lenape-Seneca High Schools. At Springside, the team played the game well despite some mechanical issues, but ultimately won the Judges award for our STEM outreach in the community.

Lenape-Seneca was the highlight of the season and it was the epitome of bittersweet. Our robot performed exceptionally well over the course of the 12 matches, exhibiting skillful driving, good strategy, and robust design. We were chosen as an alliance partner of the second ranked team, something that has never happened to the RoboLancers, and moved into the playoffs. Our first match seemed like an overwhelming victory, a win by 61 points (plus an additional 10 points that the judges never tallied). But 70 points in penalties by alliance partners cost us the game. Demoralized and frightened for more penalties, the alliance lost the second game of the quarter finals and our playoff run ended. The alliance that we lost to went on to win the championships. Congratulations to alliance captain, Masterman High School, for their win.

Participation in FIRST teaches us many lessons. Despite the lack of awards or trips to championships this year, I have never been prouder to be a coach of this team. They won and lost with equal grace, and they took the most out of every moment.

Thank you to Katherine Conrad, Mary Conrad, Steven Duong, Peter Ferguson, Meghan Ho, Joe Kallas, Eric Lam, and Donato Pignetti who put in a tremendous amount of time with the team this year. The team wouldn't be the same without you.

THE PENNSYLVANIA FTC STATE CHAMPIONSHIP

By Vincent Lone-Wolf Mills, 273

It was better than what I expected.

This year, both Robolancers Crimson and Gold were able to go to the FTC State Championship held at Millersville University. Out of our entire team, only about 20 people from each team were able to come to the competition. The 20 were chosen based on total time in robotics and total dedication to the teams. Some of these included me, the team captains, and several others who were determined to help the Robolancers win in the State Championship.

I have never been to Millersville University, so, when we got there, I was amazed by the size of the college. It wasn't nearly as small as I thought. I thought the college was about the size of Central High School,

but I surely was wrong. It seemed to cover about four times that size. I wanted to wander around and be amazed at what the college had to offer, but we didn't have time. The teams needed to unpack and get ready for competition before any traveling around campus was to be done. So, I helped unpack and got right to work.

I received a second surprise when I actually got to the pits. The State Championship was much larger than any other competition I had been to. Three fields. Thirty-six teams. Continuous rows of tables. Both a practice field and a judging booth behind the pits. The area seemed restless. I actually was shocked by how large the place actually was. Not even the event at Central High School was that large. This means serious competition.

After unpacking and getting both robots inspected, Gold and Crimson went immediately to the judging room. I was a part of the presentation team for Gold. We all gave an overview about our robot and what makes us different from the other teams in the competition and it went better than expected. Afterwards, the judges asked a few questions about autonomous and joystick control, where I was able to fill in for them, and we went on our way. It wasn't as bad as the team thought it was going to be, so, it was time to be happy and to get back to work. Competitions were starting soon.

Since there actually were three fields, the competitions were very fast-paced. I would say it was actually a little too fast-paced for me. I had difficulty adjusting bugs and issues related to the robot, let alone test it. Each team had about seven matches total. There were several recurring issues with both teams during the championship which cost us whole games. The most major of them was that both teams had trouble communicating between other teams and our own team members. For example, Robolancers Gold had trouble fully executing the autonomous code because one or both of us were unable to communicate fully with the other team. We were unable to hang once or twice because we ran out of time. I almost missed the start of autonomous once because I was too busy helping Robolancers Crimson with bugs. Crimson stopped in the middle of the teleoperated period because of bugs in the code (which were found out after the rounds ended). The day wasn't going well at all, but we never gave up. We finished all of our matches and tried our best to try to get at least a win or two. That dedication did end up getting us a win on one or two rounds.

After all of the rounds ended, I was finally able to program and fix all of the bugs that the autonomous code contained. I also was able to help Crimson with the bugs for their robot. I knew it would take a while to test everything, so I had someone to update me on awards.

Neither team was able to get a single award this year. That was dispiriting for a moment, but at least it was a good experience. When everything was done and all of us were about to leave on the bus, I looked back. Although I won't be on the RoboLancers next year because I'm a current senior, this experience taught me and the rest of the team a lot.

Robotics requires teamwork and communication. It also requires dedication and effort, and, even if you cannot be the best in the competition, it's still worth having fun and enjoying as much as you can. For me, that is the goal of being a Robolancer.

WRITING THE CHAIRMAN'S ESSAY

By Etienne Jacquot, 273



It's kind of funny, the Chairman's essay felt like an extension of my college essay.

Both essays are supposed to tell a story, but not just any story -- your story. The Chairman's essay for me was special because not only was I telling my story, but I was telling the story of my team.

The theme of the RoboLancers is change. In everything we do, we aim to change the culture of science appreciation in the City, and inspire the students of Philadelphia. There was no way that change could not be the theme of the essay.

The hardest part, like most things in life, was actually getting started. The Chairman's essay crew (Callan Powell, Thomas Davidenko, Stanley Umeweni, Nadia Tran, our coaches, mentors, myself, and many others along the way) debated over whether or not to include a cheesy quote at the beginning, or just jump straight into what we do. Working with the theme of change, we wanted to resonate with both robotics and life, because essentially that is what being a RoboLancer prepares you for. We ended up using Mahatma Gandhi's inspirational quote, "Be the change that you wish to see in the world," as the basis of our essay.

From there, we focused on making sure every single word and every single character meant something. The essay can be up to 10,000 characters. This might seem like a lot, but we feared we had too much to say. I think after writing the first draft of the essay, we were at around 15,000 characters.

Once our draft was set, we sat together on laptops for hours reading and rereading the essay, searching for grammar mistakes and awkward wording. We shaved parts out, added parts in, and sculpted the essay to bring

it below the character limit. We wanted to make sure it was concise but not too dense, enjoyable to read but still sounded serious. Most importantly, we wanted the judges who take their time to read the Chairman's Award essays to be able to walk away knowing that the RoboLancers make a difference.

The Chairman's essay felt like an extension of my college essay because I poured my heart into the essay so that strangers could have a glimpse into my story. Even though we did not win the Chairman's Award, I am proud of the team and proud of the essay, and I hope that it was able to inspire the judges who read it.



The Chairman's Award Team: [left to right] Callan Powell, 273, Etienne Jacquot, 273, Stanley Umeweni, 274

THE 2014 FIRST CHAIRMAN'S ESSAY AS SUBMITTED BY THE ROBOLANCERS

FIRST teaches students to not only create robots, but to create the change they want to see in the world. Over the past three years, the RoboLancers have transformed from a team of fifteen students, whose sole purpose was to build robots, into a team of over 100 whose main goal is to have an impact and make a difference in our community. In a city which has struggled to support innovation and the development of young professionals, the RoboLancers have become the foundation of change in Philadelphia.

Since our start in 1999 as FRC team 321, the RoboLancers have been a constantly evolving organization. With recent growth, the team has developed an extensive organizational structure and a voting process. Rookie members now go through three weeks of training, preparing them with basic engineering skills and instilling the values of FIRST. They then participate in one of our two FTC teams, Gold 5320 or the newer Crimson 6676. FTC acts as a training ground to not only introduce new members to FIRST, but also provide them with a strong basis for what it means to be a RoboLancer. At the end of the year, all RoboLancers go through "Spring Training," where students are rigorously taught skills like engineering design and gracious professionalism to prepare them for FRC.

As the largest organization in our school, the RoboLancers' presence is felt throughout the hallways. We aim to thoroughly integrate robotics and science appreciation into the culture of Central High School. During summer orientation, we demo our robots and talk to all incoming students, explaining how they can join with no experience and that participation in FIRST is about more than just building robots. We are in the midst of planning the construction of the STEM Innovation Lab, a massive robotics laboratory with a classroom for computer science, a course which was cut at Central two years ago. Through these efforts, we hope to inspire all students, teachers, and alumni of Central, and to teach the value of STEM education.

The RoboLancers know change starts at an early age. For the past two years, team members have volunteered at the Penn FLL Championship as judges, referees, time keepers and more. The University of Pennsylvania invited the team to attend an FLL mentoring session where our programmers provided help to six teams. After being contacted by a teacher at the K-12 Albany Free School in New York, the RoboLancers asked volunteers at Rensselaer Polytechnic Institute to arrange a tour of an FLL competition and help them start a team.

When the School District cut funding of other robotics programs in the city three years ago, the RoboLancers recognized that FTC could mark the beginning of change in Philadelphia. We connected with Tom Zawislak of PA FTC to support FTC growth in the city. Our head coach helped develop the Philadelphia FTC "meet week" competition structure. For three years, the team has hosted FTC scrimmages where we provide mentoring and build space to less experienced teams. This year, two teams came to the scrimmage in November with unopened kits. With our help, both teams had operating chassis by the end of the day. The RoboLancers have helped start and mentor FTC teams 5224, 5321, 5322, 5323, 5488, 6056, 6540, 6606, 6677, 7585, 7586, 7587, 7883, 7889, 7960, 8006, 8149, and 8167 in Philadelphia. When Temple University was unable to host the final FTC tournament for Philadelphia, we stepped in and ran the competition in Central's gym, planning the event in nine days.

In our fifteen year history, we have garnered experience through FRC competitions and STEM events, inspiring our pursuit to change Philadelphia. We recognize the difficulties in sustaining an FRC team in an urban environment like Philadelphia: access to space, funding, mentoring, and pay for teacher coaches. We have helped start and mentor FRC teams 3553, 3929, 4454. We are developing a space in our building into the STEM Innovation Lab but we must overcome issues

with evening and weekend access in order to make the \$450,000 project a reality.

None of our aspirations would be possible without our sponsors. The Alumni Association of Central High School supports us tremendously, understanding the prominence the team has in the school. Comcast has supported us for the past two years, providing both financial support and mentors. Boeing sponsored the team four years ago, providing a one-year mentor whom we then directed to FRC team 3929. Boeing has since become the main sponsor of our annual Philly Robotics Expo. Universities support our outreach because they appreciate our impact and desire to transform Philadelphia into a hub of STEM education.

Last year, the RoboLancers raised \$49,532 in ten days after winning the Engineering Inspiration Award at the MAR Regional Championships. The team set a goal of raising \$29,000 in order to send thirty-two students and six mentors to St. Louis and pay for room and board. The massive fundraising campaign included reaching out to parents, corporations, and universities, and using gofundme.com. Receiving funding from forty-nine different donors further demonstrates Philadelphia's support of the RoboLancers.

Everything the RoboLancers do is focused on making a difference in Philadelphia. For the past three years we have organized and hosted the annual Philly Robotics Expo, the quintessential event of Philly Tech Week that represents what the RoboLancers aim to achieve. At PRX, nearly 1,000 students from the Philadelphia area experience FIRST teams demonstrating their FLL, FTC, and FRC robots; exhibitors such as LEGO Education and Boeing; and robotics labs from UPenn and Drexel demonstrating their robots. Students are also able to attend programming, mechanical, and electrical workshops run by RoboLancers. We introduce the students of Philadelphia to FIRST and inspire all ages to engage in STEM education through PRX. This year's expo, scheduled for April 4, will be hosted by the RoboLancers and the GRASP Lab of the University of Pennsylvania at the Singh Nanotechnology Center. It will be followed by a night session, Bots n' Brew, on April 7, organized by team students, run by mentors, and sponsored by Yards Brewing. Parents, teachers, and administrators will be able to learn about getting involved with FIRST. Furthermore, the team has two initiatives to develop nonprofits which will support robotics programs in the city, both financially and with mentorship.

The RoboLancers have become one of the dominant advocates for STEM education in Philadelphia by making it loud with political outreach. Team members wrote letters to local and state legislators describing the

importance of project-based STEM education, extracurriculars like robotics, and our fear of not being able to continue having a team this year. The team received responses from the Mayor of Philadelphia, Michael Nutter, and the office of Governor Tom Corbett. Mayor Nutter said, "As Mayor, I am proud of what teams like the RoboLancers as well as others have accomplished for their schools and for our city." Alongside the Philadelphia Federation of Teachers, the team marched in protests. Our coaches, mentors, and team leaders worked together to draft open letters to Philadelphia which were published in The Washington Post, Philly.com, WHYY, and the Northeast Times. We drafted a platform detailing the needs of public schools and programs like FIRST robotics in Philadelphia, which received in support over 135 signatures from parents, teachers, and local officials. Councilwoman Cindy Bass and State Representative Mark Cohen attended the FTC competition we hosted, giving opening remarks and speaking with students about FIRST.

The RoboLancers make it loud in many other ways. Team members go to schools to demo robots, introducing students to FIRST. We were invited to demo and present to fans at a Philadelphia 76ers basketball game. Geekadelphia named our head coach "Geek of the Year" on behalf of the RoboLancers for our "geeky" presence in the city. Our coach presented about FIRST and STEM education at Ignite Philly, a night of short presentations about impactful programs in Philadelphia. We won AndyMark's Harlem Shake video competition, receiving 18,601 views. We publish our RoboLancers Roundtable with a circulation of 450 parents and sponsors, updating them on team affairs.

As the RoboLancers grow, we find our sphere of influence does as well. To share our experiences with the world, the team creates blog posts, YouTube videos, and Facebook updates. We have been contacted by teams in Iowa, New York, Mexico, and Chile, whom we have skyped and provided programming mentoring. Last year the team was contacted by Academy Award nominee Fiona Otway to participate in the filming of a documentary about the true nature of FIRST. The RoboLancers also directed her to Firebirds team 433 after she wanted to include an all-girls team. Three years ago, we made Mars rover robots for a local play, Red Rover, which are still in use today.

The University of Pennsylvania asked us to represent Philadelphia robotics at the White House State of Stem assembly, paying for two students and our head coach to attend. FIRST asked us to represent them at the Rockwell Automation Fair, where members ran our 2012 Rebound Rumble robot and talked to international representatives about the significance of FIRST in our lives and encouraged them to start teams. Our head

coach was invited to a brainstorming session at the FIRST Headquarters regarding the growth of FIRST.

We have made it our goal to not only get around the failures of our School District, but also to champion the message of FIRST in Philadelphia. Last year we received three Engineering Inspiration awards earning us an invitation to compete in the World Championship. However, it is not the thought of Worlds which drives us - it is knowing that as young leaders, innovators, and professionals, we are making a difference and changing Philadelphia.

Following is a link to the Chairman's Video, which was submitted at the time of the team's Chairman's presentation at both the Springside Chestnut Hill and Lenape-Seneca District Competitions:
https://www.youtube.com/watch?v=Fr_SnZ0I0iA

MECHANIAL UPDATE: A LONG SEASON

By Kamal Carter, 274

Hello to all of our sponsors and subscribers. I am Kamal Carter, the Robolancers Mechanical Lead. This season, the Robolancers have competed at two District Events, Chestnut Hill and Lenape Seneca. After six week of long enduring work from everyone on the team, I can honestly say that we tried our best this build season.

We competed at the Week 3 MAR (Mid-Atlantic Robotics) Event at Chestnut Hill and the Robolancers had a great time. Coming into the event, we were primarily focused on catching and low goal scoring. Throughout the day, we were performing well, but had some pretty lousy luck. In one match, we had a field connection issue, and in another, we had our battery knocked out. As the day progressed, we realized this year's game was not suited towards our strategy in catching. At the end of the day, we did not get picked for the elimination rounds, but that gave us more time to fix our problems for the following week at the Lenape-Seneca District Event.



Kamal Carter, 274

At the Week 4 Lenape-Seneca District Competition, the Robolancers came into the day with a whole new strategy and approach. After several team meetings, we decided to eliminate our catching mechanism and focus primarily on being a defensive, inbound, and low

goal scoring robot. Now that our focus was primarily low goal scoring, we were able to successfully employ a low goal autonomous. During the day, we were able to show other teams that we had an effective robot, and a lot of teams noticed that we could do our job extremely efficiently. We ended the day only 3-9, but we were good enough to be picked for alliance selection, and for the first time in the RoboLancers' history, we were picked for an alliance at a FRC district event!

Our alliance was comprised of FRC Team #225 (Tech Fire), FRC Team #2495 (Hamilton West Robotics), and the RoboLancers. We competed against another worthy alliance in the quarter finals and lost only because of several fouls. The alliance we lost to ended up winning the entire competition at Lenape-Seneca.

Even though our competition season might be over, this year we have made RoboLancer history by getting picked for an alliance. It was great competing this season, and next season, we will only be getting better.

The following two articles were written after bag day but before competition.

ELECTRICAL UPDATE

By Steven Choe, 273

It's been a long build season. I'd say one of the most strenuous, yet productive seasons I've ever taken part in my robotics career. Overall, the electrical design of the robot has been a tremendous success. This year, the electrical team was able to work closely with mechanical design teams to determine possible locations for mounting electronics, and surprisingly at a much faster pace than from what I've seen. Although we were met with the typical constraints of determining electronic positioning, both mechanical and electrical teams worked endlessly to ensure that everyone was satisfied in terms of accessibility, also leaving enough space for other mechanical components.

One of the most difficult challenges about FRC electrical, is deciding where electronics will and should be located. Although we also faced many last minute changes on the robot, along with a slowdown beginning around the fourth week, we still persevered. Another hassle that we usually face is the more and more decreasing time frame in which we actually have sufficient time to wire, along with finding ways to protect connections from outside elements (especially



Steven Choe, 273

the ball and other robots in this case), and being able to access them as easy as possible in the event of an emergency or accidental disconnection, etc. But as with many other aspects of being on a robotics team, you always run into a few road bumps here and there, which can make any task even more daunting. Facing difficulties with how our original electronics board would be mounted, progress began to slow down as we continued to argue over where everything would be going.

In the end, we made a huge last minute change around the end of the fifth week to make an improved board since the original was faulty. Although what upset me deeply was the fact how the team and I had invested so much of our time into the original board, it is not until later on that you realize that the new change was for the better, and very much worth those ordeals. It's a very stressful process, and to be fair, the positioning of electronics will always have to depend on the location of other components on the robot which are subject to change at any time if necessary. It's also hard to incorporate any form of electrical layout while putting everything mechanically together, because it's usually too early at that point to be able to decide on where anything needs to go, so hopefully our team is able to improve on both incorporating that into next year's build season at a faster rate and improve on meeting deadlines as well. The key factor here is to accept the circumstances and work around them however you need to with the resources you have available to you. Your mechanical team does what it can to work around you, so it's good to keep in mind that their team is doing whatever they can under their power to finalize designs. Ensuring that electronic positions are final and are able to be wired is crucial, as the programming team will need as much time to code, recompile, debug, and compile the robot's functions.

Personally, if it wasn't without the help of a few mechanical members, mentors, and any other member that I may not have mentioned, we would not have finished in the time that we wanted and be able to test at all. So I'd like to give a personal thank you from me and the E-Team to those people who helped out. And on a bright note, the electronics on the robot are well in working order although only a few minor adjustments are required. Hopefully, things will continue to go on smoothly.

PROGRAMMING UPDATE

By Zhenying Wu, 273

The building process is over for now and the robot is in the bag, waiting for competition time. This is a status update of our robot programming wise. The functions of

the robot have all been coded and tested. All the functions are working accordingly. During the time left before our first competition, the programming team will be working on the autonomous code for our robot. We will be researching image processing so we can utilize it for our desired strategy during the autonomous period. Also, the programmers have a side project that we are currently working on. We will be constructing a brand new driver station for use in competitions.



[left to right] Programmers, Andrei Dorin, 273, and Zhenying Wu, 273; and Driver, Mike Nguyen, 273

During the process of the build weeks, I was having negative views toward our robot. I felt this way because of many different occurrences (snowstorms, faulty cRio, to name a few) that inhibited us from building and testing the robot. Even though these occurrences hindered us and our build days decreased, we were able to complete our tasks in the end. We finished building the robot and had time to run code, which also allowed us to fix any problems that the robot had. Now I am feeling positive and am looking forward to our first competition with our robot.

WORKING AT MR. UEDA'S HOUSE

By Callan Powell, 273

Some might wager that Mr. Ueda lives in a tiny apartment while others claim he must live in a cave. Regardless, the Ueda dwelling was filled with RoboLancers the weekend (and the snow-days that preceded it) before Bag Day.

(For those who don't know, Bag Day is the day that FRC teams sit most of their robot in a bag and zip tie it shut and, if done with the right timing, is usually followed by a brief moment of celebration and then sleep.)

The RoboLancers commandeered Mr. Ueda's apartment as workspace for three days while a handful of people who lived too far to commute in the snow stayed

at my house. Each morning was greeted by groggy faces gathered around a coffee machine and occasional bedhead -- at least on our end. We braved the whipping winds, snow and ice (others had to face the terror of SEPTA too) on the journey there. There were piles of shoes in the hall sitting in puddles outside Mr. Ueda's door.

The furniture in the living room was pushed mostly to the side to make way for the plastic tarp Mr. U tried (read: failed) to protect his floor with. We attempted to dye a net red to no avail for days. Every so often you would hear the screech of a dremel on metal or the buzz of a power drill - or the yelp of someone who pricked themselves trying to sew the numbers onto the bumpers over around the couch.



[left to right] Steven Choe, 273; Grant Fisher, 273; Callan Powell, 273; Mike Nguyen, 273; Kamal Carter, 274; Armond Smith, 274

The kitchen counter was crowded with laptops, paperwork, snacks, and people while it acted as our makeshift business hub. The Chairman's submission was edited for the final time and sent in from this counter, as well as the Business Plan. It housed the power to change the song playing over the speakers in the apartment and the best seat in the house (the one closest to the food).

Usual mechanical RoboLancers learned about wiring the robot - most of us helped the electrical team while we were there. After we all learned the folly of disorganized wires and gained a new appreciation for zip ties, we began to test the robot. We found that we needed to modify the roller, redesign the flap release and retraction mechanism, and change some of the motors either for functionality problems or because they were attached to a gearbox with too high a gear ratio. But we found that the robot would be able to catch and then pass (with adjustments), even if half of us were probably in harm's way when we tested its functions.

The best part of all, though, was coexisting and eating with everyone. When we got to Mr. Ueda's house

on the first day, he made sure everyone knew he went out and bought massive amounts of sandwich supplies for lunch. One of the days, Mrs. Conrad brought in hot soup for the team, too. It reminded me of last year when the team would eat dinner together on Friday nights because we would stay late. It felt natural enough that I had to reevaluate my sanity as I thought about how comfortable I was feeling in a smaller apartment filled with at least 10 other people at any given time during our work day. But it was fun.

To get a glimpse of the Lenape-Seneca District Competition, mostly from a robot's point of view, please see the video linked at <https://www.youtube.com/watch?v=Oktd7QfbVQI&feature=youtu.be>

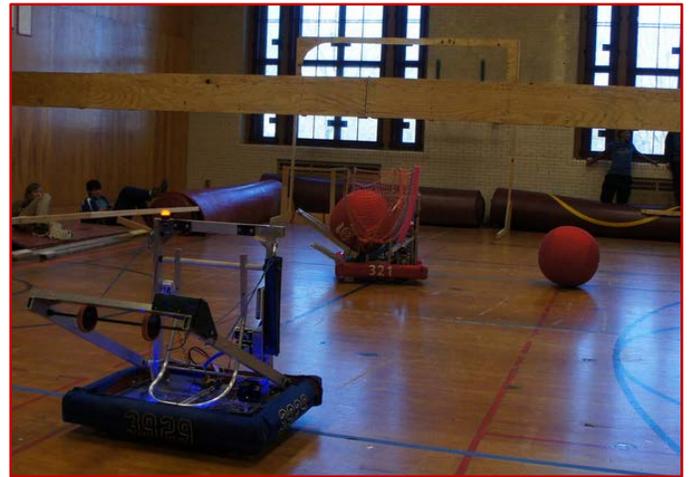
A PLAY DATE FOR THE ROBOT

By Thomas Davidenko, 275

On February 17, the day before Bag Day, Central High School's RoboLancers' and Masterman's Atomic Dragons' robots met in Central gym for the first time.

Because it was a holiday and we had no school but the Central building was open, we were able to practice with our robot and make some needed repairs. I ended up working with George, Nadia, and Jacky. I don't usually help out with mechanical things at robotics but I decided to expand my horizons to try making bumpers. The first time Nadia, Jacky, and I tried making bumpers, they were a little bit shaky and we had to fix them. In my defense, the ten minutes I had control of the drill was the only time I used a power tool in my life. I hope that I can learn more about mechanical so I can help out the mechanical team next year.

After helping with the bumpers I also helped bring equipment for the field. After setting up the field, the Atomic Dragons arrived with their robot and equipment. Seeing their robot shoot to the high goal was amazing. I was especially excited when our robot was able to catch their passes. I can't wait to go to the competitions and watch our robot perform on the field.



[left to right] The Atomic Dragons' robot (Masterman's robotics team - FRC Team #3929) at play with the RoboLancers' robot (Central's robotics team - FRC Team #321) at Central

Following is a link to the play date video in which the RoboLancers' robot plays ball with the Atomic Dragons' robot:
https://www.youtube.com/watch?v=K16ssV_cUYA&feature=youtu.be



THE ROBOLANCERS AT A PHILADELPHIA 76ERS GAME

By Cordell Beatty, 276

Invited by the 76ers and representing FIRST robotics and the School District of Philadelphia, several members of the RoboLancers FTC teams, attended the 76ers game on February 17.

While at the game, my friends and I demonstrated both Robolancers' Gold and Crimson FTC robots. We drove the robots through the halls using the autonomous arm to wave at people and spread the word about FIRST. It was great to see all the children run up to watch the robots and even better when both adults and children would ask about what the Robolancers do. It brought great joy to me to see the kids so fascinated with how the robots worked. Finally, it was great to meet so many people who were happy to see what a person my age was able to accomplish. A couple of people specifically

made the event worth it and very memorable -- a little boy and a fascinated woman.



[left to right] Ariana Versace, 276; Tyler Massa, 275; PJ Lorenc, 275; Vincent Lone-Wolf Mills, 273; Cordell Beatty, 275; Albert Tanjaya, 275; Sabrina Dormer, 276

While at the 76ers game, we saw a familiar face. One of the security guards who works at Central was there with her son, and her son's reaction to the robots was amazing. He was mesmerized by the robots just moving around. We had Crimson's robot set on autonomous mode so it only drove back and forth. But the look on that young man's face was priceless. He was amazed by what we had done and that was truly heartwarming.

There was another woman at the event on whom I think we left a significant mark. She was so fascinated by not just the robots, but the team as well. We told all about the history of the team and what the team does not only for each other but for the community. We told her about PRX and she was so excited for it. So I expect to see her at PRX and hopefully we can teach her more about the team. My only regret is I didn't get her name.

I think we accomplished something by going to that game. Even if we only got one new person interested in FIRST then we did something good, because that one person will spread it to someone else and so on. It's important for the Robolancers to spread the word about FIRST in any way we can, and that's exactly what we did.



SEVEN YEARS, ON THE VERGE

By George Huynh, 267

When I was first asked to write this reflection piece - to look back, to compare and contrast the RoboLancers then and now, now and then - I really had no idea where to start. As the eldest of the returning alumni, I had seven years' worth of memories to sift and sort through. So many ideas, experiences, and views; too many of which to fit within the context of a thirteen hundred word article; because for me and the RoboLancers, those were entirely different times from entirely different eras. And as for most people, the events of the last seven years can seem like they happened only just yesterday or can seem as distant as a memory from over a lifetime ago. This is no more than readily apparent to me as I gaze back, reminiscing through the lens of a looking glass worth seven years of pride and elation, joy and frustration, triumph and tribulation.



I suppose when it all boils down to it, a lot has happened over this span of time to shape who or what we have all become - as evidenced in this team, in me and in the world we now live in.

For our world, it was a hard hitting recession, the uprising of the Arab Spring, the inauguration and re-election of the first African-American president, the up-cropping and rapid adoption of social networking, the explosion of smartphones, touchscreens and other smart devices, wearable tech, all-electric and self-driving cars, a possible cure for AIDs, and the historic launch of a new era of commercial space travel.

As for me, it was a high school graduation, five rigorous-but-gratifying years of college, the prideful day I walked up on that stage and claimed that hard-earned diploma, finding love in the most unexpected of places, and the landing an amazing and rewarding job, all while in the purview of the passing of several loved ones and the blessed acquisition of many more.

As for the RoboLancers, it was the cementing of the robotics course at Central, the introduction of a new coach as we said goodbye to another, increased parental involvement, the swell of pride and distinction at the wide array of successes achieved at several different competitions, the ambitious hand and realization of community outreach, the acquisition of several corporate sponsors and professional mentors, the sustained explosive growth of the team in skillset, knowledge and membership quota, and, of course, a fight for survival and relevancy at the hands of a state government hell-bent on the abolition of resources for urban STEM initiatives and the debasement and thoughtless mutilation of an already weakened education system, a system ever more so crucial to the livelihoods of hundreds of thousands of socioeconomically disadvantaged children, all in the name of budget balancing and deficit reduction.

But because of and/or in spite of all of this, it is with great pride and honor that I say that the RoboLancers, me and this world have flourished to become what and who we are today.

Paging back through these past few years, I see now that it is through the resiliency, ingenuity, and perseverance exhibited by the remarkable young men and women who make up the RoboLancers – the remarkable young men and women who are the RoboLancers – that this team has been able to survive and, more to a point, thrive. I make a point of saying this not because these are the rambling opinions of a heavily biased alumnus who holds his team in high regard and esteem, on a pedestal, but by the reality of the hard facts of these past seven years; the quantifiable numbers, the accrued technical acumen, and the awarded achievements accumulated by the prideful young men and women of this ever expanding family of a team; alongside of whom I can say that I am proud to be working with to achieve their goals to help make Philadelphia a better city; to help better and arm their generation and the next with the opportunities, experiences, knowledge and knowhow to compete in today's and tomorrow's ever transforming, technologically advancing world.

Even when I joined this team seven years ago, it was clear to me then that there was something different about it; not grandiose different, but different in its own small, peculiar way. Granted, this was when the team was smaller – much smaller than the 90+ members of its current incarnation – and had the very different focus of just trying to survive in an environment meant to hold the team back from its true potential. As far as I could see, it was always an uphill battle for us, a struggle: to always have to fight the stigma of being a viewed as ragtag team from a large, underperforming urban public school district – a challenge that continues to play itself out in the realm of today's purview. I suppose this was one of the main things that made the RoboLancers circa 2007-08 the tightknit family that it was then, as it is now and always has been throughout all of these years.

As far as personal experiences go, I still remember the comfort of finally feeling like I belonged somewhere. I remember the three days' worth of chaos, thrill and subsequent exhaustion of experiencing my first ever FIRST competition. I remember the quirkiness and awkwardness of a team composed of many strong willed individual personalities. And of the strongest memory I have of those times: the feeling of contentment; of being able to say that I enjoyed being myself with these people, that I enjoyed spending time with

these people, and that I grew to love these people as my friends, my peers and – most importantly – my family.

On the subject of family, I suppose that is the one thing that hasn't change over the past seven years. Even with the rapid expansion of the RoboLancers' membership base experienced over these past few years, this team has been able to retain that feeling of family I had experienced all of those years ago. It's one of the few thing that I know will keep me coming back to help and mentor this team for years to come.

On the subject of change, there are too many things to point out. A new coach, the addition of parental involvement, and the explosive growth in the team's membership base, and the RoboLancers' achievement in the advancement to state and national level competitions are just a few of the waterline marks that are worth mentioning from those seven years. With the acquisition of a new workspace donated through our school's associated alumni association, the team has been able to accrue the tools and resources necessary for its successes achieved through those challenging times. Of all of the changes, the most prominent would be the RoboLancers' change in direction: to focus on not just improving itself, but to also help and engage the community around it and abroad. The upcoming Philly Robotics Expo, the multiple outreach events hosted by this team throughout the year, its efforts and initiatives to build a sustainable support structure for STEM and robotics for this city, and its willingness to help out and mentor other local and international teams are exemplary examples of that.

It is through those changes and by holding steadfast to what makes a RoboLancer a RoboLancer – a willingness to help others, perseverance and resiliency, pride and family – that these past seven years have proved fruitful for this team. With its sight cast toward the future, hearts steeped and rooted in their bonds to each other, and their heads held high in pride, honor and defiance of whatever opposition may come, I know that this team has the drive and the willingness to succeed, to accomplish greatness, and that they are on the verge of making a difference in this world ... And it goes without saying, having a bit of fun along the way.

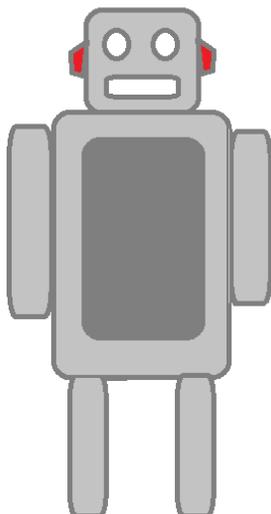


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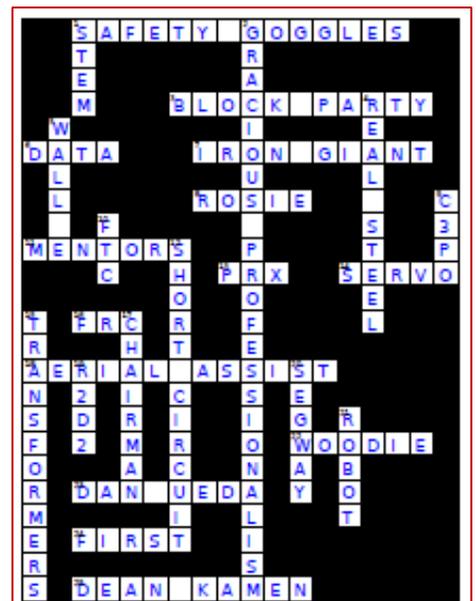
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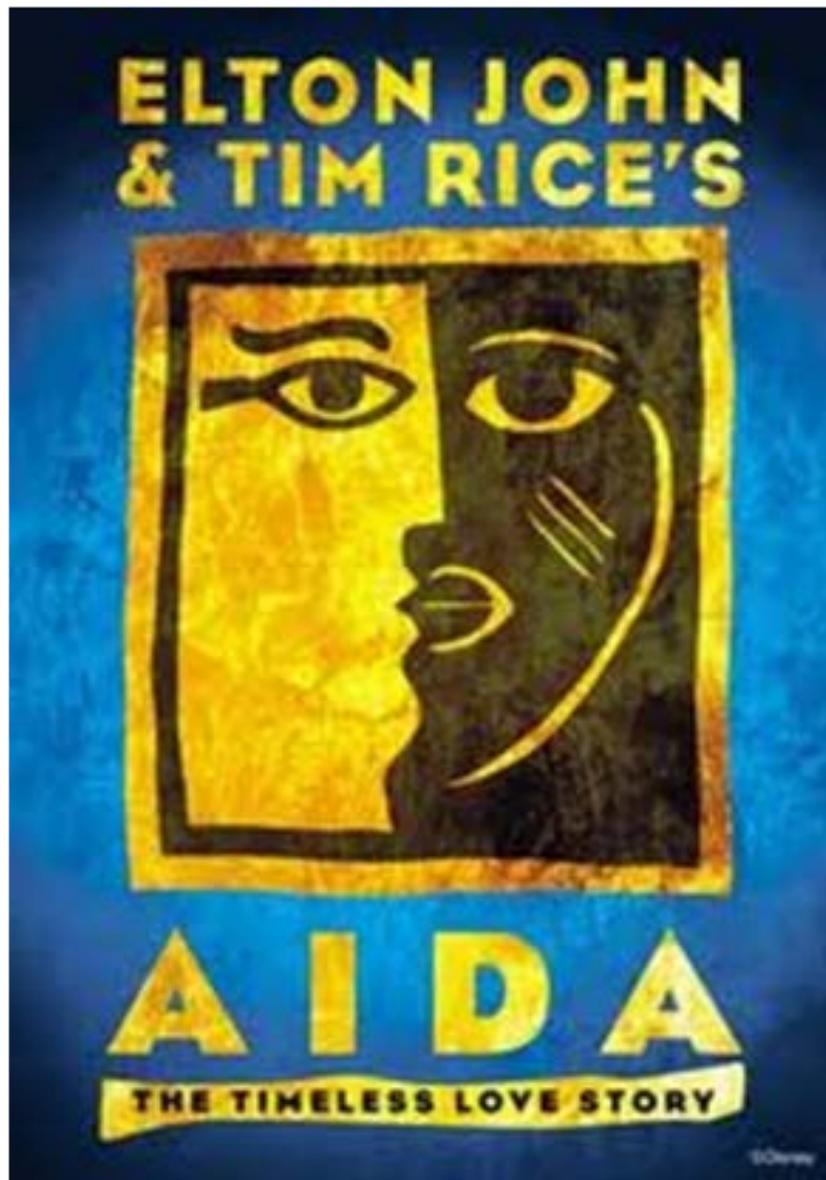
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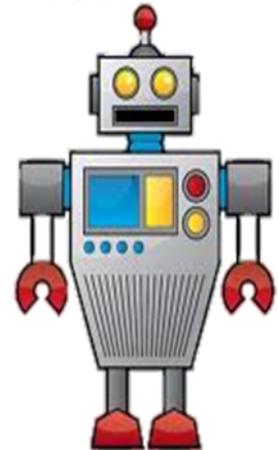


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