ISSUE
SPRING
2010

MONKEY BUSINESS

News of the Lynbrook High School Robotics "Funky Monkeys," FIRST Team #846

THIS ISSUE

P.1 A wonderful year's conclusion
P.2 FRC Breakaway for LRT
P.3 Road to Botball Championships
P.4 Meet the 2010-2011 officers





Inspiring a New Generation

By Haochuan Ni

To an 8 year-old child with a curious mind, the Soccer ChimpBot Extreme of the Lynbrook Robotics Team is a very cool machine. It kicks soccer balls, drives over speed bumps that would stop a car, and does a pull up with a really awesome lift and winch system.

Inspiring the world in science and technology is an important ideal of the Funky Monkeys, and on April 18, the team gave a joint robot demonstration with Monta Vista High School's robotics team at the San Jose Tech Museum of Innovation. Both teams were large attractions, drawing the attention of educated adults and jubilant kids alike. Audiences were excited to operate the robot under the supervision of the team members.

The Tech Museum of Innovation isn't the only venue that the Funky Monkeys have demonstrated at. The team has presented to audiences in middle schools, technology companies, and other locations.

Another Year, Another Journey...

Hey everyone,

It has been an intense but rewarding year. This season's FRC game, Breakaway, was a tough one. We worked far longer than the usual 6 weeks, with multiple parts to finish even after at the events. The season was filled with long, sleepless nights of tedious fixing and award application writing. Some problems persisted into our two regionals at San Diego and Silicon Valley, but we worked diligently and fixed those errors, rose to top seed, and won the Innovation in Control Award. The work that each of you contributed has built the team that we are.



We've also accomplished so much aside from competitions. We worked long days during Concours d'Elegance and Fleet Week fundraisers; we significantly improved our 3D animations; our website has been improved and expanded greatly. We have many achievements that we should be proud of. It will be another challenging journey for next year's members, but I know that all of your dedication will continue to make us a powerhouse in Silicon Valley.

Regards,
Toshitaka Tachibana
Lynbrook Robotics Co-President 2009-2010

Dear team,

Congratulations on a wonderful year in robotics! We've poured our energy into countless activities like training, fundraising, grant writing, and mostly importantly, the 2010 FRC season. We pushed ourselves and overcame many challenges during build season and competition, learning many things along the way. In the end, we achieved each of our design goals, and I'm very impressed by the dedication of our members. The reward for our hard work is, of course, great performance: our robot could lift itself consistently, drawing cheers from the entire stadium as well as an award for our control system. Not only did we succeed in building our machine, but we also advanced in team spirit. We left a good impression on the judges and to the public. They know that we are a team to be respected. Everyone recognized us as "the Funky Monkeys" by our bright red shirts, enthusiastic mascot, and team fans! Activities aren't slowing down yet, and we hope to see you through the summer.



Cheers,
David Liu
Lynbrook Robotics Co-President 2009-2010

© LYNBROOK ROBOTICS TEAM



BREAKAWAY FOR LRT

From Silicon Valley to San Diego, the Funky Monkeys will take you down

LEFT: Lynbrook Robotics Team group photo at the San Diego Regional competition.

By Annie Yang

"From San Jose, California, is team number 846: the Funky Monkeys!"

Red-clad members of the Lynbrook Robotics Team cheered as the drive team nervously anticipated the starting buzzer and prepared to defeat the opposing alliance.

These eager members of the Lynbrook Robotics Team competed in two intense regional competitions at San Diego and San Jose this year. These competitions are organized by FIRST, a nonprofit organization that aims to spark interest in science and technology in children of various ages.

This year's FIRST Robotics Competition (FRC) game, named Breakaway, is a combination of soccer and gymnastics. This year's game was particularly challenging because of the several different objectives and the many obstacles on the field. "We went through two weeks of designing to create a robot that will perform well," said Alric, a sophomore member of the team, "and even during the actual construction, we made many design changes."

The star of the show was the team's robot, affectionately named Soccer ChimpBot Extreme. A versatile and sophisticated machine, the robot is able to complete all the challenges presented in the game. It climbs over 13 inch tall speed bumps, scores soccer balls from across the field, and can lift itself on the 7 foot tall tower in under 20 seconds. "We are very proud of this year's design," said Yuya Bessho, the team's Chief Hardware Engineer, "It is complex, but it certainly gets the job done."

Soccer ChimpBot Extreme made its debut on March 4 in the San Diego Regional competition. However, the machine was untested and ran into gearbox and controllability problems on the field. Towards the end of the competition, however, the pit crew was able to resolve these issues, allowing the robot to place in the quarterfinals before being eliminated by the 2nd and 3rd seed alliance.

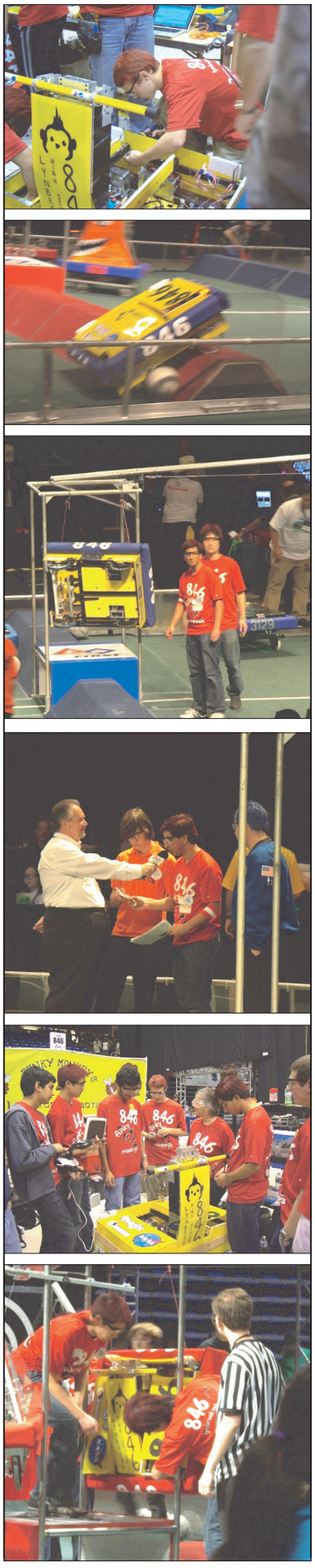
A particularly interesting feature on the robot was the closed-loop control system. The maneuverable design of the robot made it difficult to operate. The closed-loop control system, which commands the robot to match a user-level input, made the manipulation of major features simpler; for instance, the closed-loop driving controls allowed the driver to harness the highly sensitive robot with precision. With the slogan, "So easy to use, even a *monkey* can do it," the judges in San Diego awarded the team with the Innovation in Control Award sponsored by Rockwell Automation.

Soccer ChimpBot Extreme's peak performance during this year's season was at the Silicon Valley Regional competition, its home turf, from March 18 to March 20. Although early qualification matches were plagued by gear reduction issues to the drive train, the members soon corrected this problem, and the robot performed spectacularly afterwards. The Funky Monkeys seeded sixth of over fifty teams and was the captain of their alliance. Despite the vigilant efforts of the drive team, the Funky Monkeys were narrowly defeated in the quarterfinals by stiff competition.

The conclusion of the competition season marked the end of three months of hard work designing and constructing the robot. Nevertheless, it was highly rewarding for the members.

"I wished that we did better," said Toshitaka Tachibana, the team's Co-President, "but in the end, being able to compete in FRC is our whole team's victory. I'm very happy with our performance this year, and I hope that we can maintain our standards in the years to come."

Despite the end of competition season, Soccer ChimpBot Extreme is being improved and continues to fulfill its duty of inspiring young minds in demonstrations at public venues.



© Lynbrook Robotics Team



In the Company of Computers

The Life of David Liu

By Karena Cai

After winning a total of $75,000 at the Intel Science Talent Search (STS) in March, Lynbrook Robotics Co-President David Liu's success did not end there.

In the following months, David traveled around the country to compete in a broad array of science fairs. Immediately after the Intel STS, he placed second in the California regionals of the Junior Science and Humanities Symposium, a competition sponsored by the U.S. Army, and qualified as a national finalist. David has also competed in the California State Science Fairs and won third place in the software and mathematics categories.

More recently, David competed in yet another Intel competition: the Intel Science and Engineering Fair (ISEF). ISEF provides an annual forum for more than 1,600 high school students from over 50 countries to showcase their independent research. By the end of this fair, David's project, a software that adopts acoustic models for speech recognition, collected 4th place in the Computer Science category and a 2nd place special award from Acoustical Society of America, both of which would add on to his growing collection of awards.

While many Lynbrook students are preoccupied with their school studies, David is on another flight bound to showcase his scientific achievements. He will undoubtedly carry his successes into his future.

To Championships and Beyond!

The Oak Grove Eaglebots succeeded in regionals and move onto nationals



TOP RIGHT: Karthik Viswanathan of Lynbrook and Rik Basu preparing their robots for the next double elimination match.

By Haochuan Ni

SAN MATEO, California — The starting lights of the competition blinked on, and immediately, two fearsome looking devices sprung to life. One machine, a Roomba chassis with a menacing front roller resembling the tip of the Batmobile, charged to the rescue of the endangered ducks trapped in oil slicks while the other machine, a Legobot with an intricately designed fork lift, carefully lowered its metal grabbers, securing the clean ducks and releasing them back to their wetlands.

These machines belong to Oak Grove High School's Eaglebots, a club that has three Botball Robotics Teams. With mentoring from the Funky Monkeys, the Eaglebots went on to have a successful regional competition on April 24, winning a total of five awards, including 3rd place in seeding and double elimination matches.

"We spent a lot of time with Oak Grove building and calibrating these machines," said junior Karena Cai from Lynbrook, "It's great to see these machines do so well during competition."

In the past years, the theme of Botball games has been environmentalism, and this year's is no exception. Played on a tabletop board referred to as "Lake Capek", which was contaminated by an "oil spill", the game challenged students to design fully autonomous machines built from Roomba iRobots and Legos that place different objects, such as ducks and frogs, in their respective target destinations for variable amounts of points.

Mentoring allows these less experienced students to pursue their dreams in science and technology. Many Eaglebots are first and second generation immigrants, some with disadvantaged financial background. With Lynbrook's help, Oak Grove has had great successes in recent years, such as winning fifth place overall in the National Botball Championships in July 2009.

This year's build season was very frantic for both Oak Grove and Lynbrook. With many different possible sources of points, the teams had to decide on the most effective game strategy. Often times, the most rewarding goal is also the most challenging.

"Some of the objectives were very tempting because of their scoring potential," said Karthik Viswanathan, a junior mentor from the Funky Monkeys, "but we eventually had to drop some of our ideas because we realized that they required a lot of effort that could be better spent on making designs for other, more realistic goals."

Meeting these goals required members to pioneer unfamiliar design concepts, not all of which were successful. "Our first idea didn't work well," said Brian Axelrod, a new mentor from Lynbrook, "and it was sometimes disappointing to give up on a design that you've worked so hard on."

The team eventually decided to focus on relocating both the dirty and the clean ducks, which are high value game pieces, and designing two efficient machines. The elegance and simplicity of the Roomba robot, which utilized tires to roll the ducks over the PVC obstacle and into the target area, won a Judge's design award at the competition.

Nevertheless, the teams are still striving to improve their machines in preparation for the National Botball Conference in July. "I think that our core concept is promising," reflected Karthik. "We do need to improve the reliability of these designs, but I am confident that we can fix up our robots and do well at the nationals in the summer."

© Lynbrook Robotics Team

Upcoming Events

Fremont High School Robot Demonstration
— May 25

Senior Graduation
— June 10

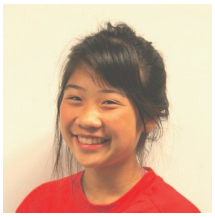
Robotics BBQ Social
— June 12

Botball National Conference
— July 6 - 11

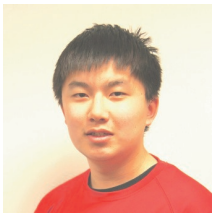
Meet the 2010-2011 Officer Team



Co-President:
Chinmay Jaju



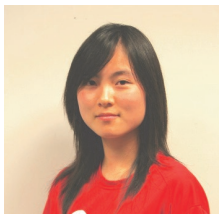
Co-President:
Karena Cai



Vice President:
Haochuan Ni



Vice President:
Karthik Viswanathan



Executive Secretary:
Annie Yang



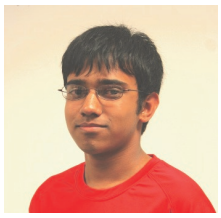
Public Relations:
Iris Wang



Chief Software:
Brian Axelrod



Chief Hardware:
Alric Siu



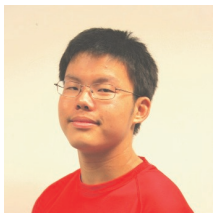
Event Manager:
Aditya Majumdar



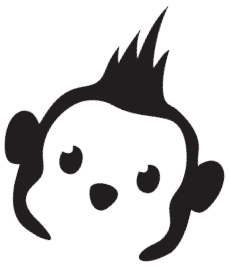
Webmaster:
Myung-geun Chi



Historian:
Reo Sato



Treasurer:
Alexander Lin



Lynbrook High School Robotics

FIRST Team #846

1410 Vallejo Dr.
San Jose, CA 95130
info@LynbrookRobotics.com
www.LynbrookRobotics.com