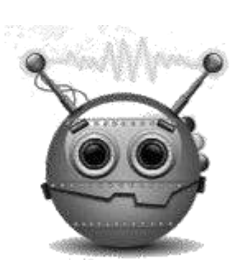
Staten Island Robotics at St. Clare's School

The Bounty Hunters

FTC Team #2864 - New York City

LIFE'S BOUNTY MEDICAL CARE

PTC®



Transforming the world one TETRIX part at a time!

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GETTING TO KNOW THE BOUNTY HUNTERS

FTC Team # 2864 - The Bounty Hunters

In a galaxy far, far away … there is a group of ingenious robotics minds that is known as the Bounty Hunters FTC Team. The Bounty Hunters FTC Team was initiated 4 years ago in the FACE OFF season and stems from the Staten Island Robotics Program at St. Clare's School. Each member of theBounty Hunters FTC Team has a unique robotics specialty, and what links the team is its dedication to robotics and use of robotics knowledge to help the community. The Bounty Hunters FTC Team, let alone the whole Staten Island Robotics Program at St. Clare's School, would not have been possible without its awesome and devoted robotics coach, Mrs. Mary Lee. The Bounty Hunters FTC Team also has an amazing parent mentor, Mr. Joseph Pugliese, and amazing sponsors, such as Dr. Anna Marie Scopellito-Olsen (Life's Bounty Medical Care) and PTC.

Coach: Mary Lee

Mary Lee is a science educator at St. Clare's elementary school. Mrs. Lee is the driving force behind the St. Clare's robotics "evolution." She has been coaching the FLL team for nine years, FTC team for four years, and Jr. FLL team for three years. Mrs. Lee's own robotics specialties include research projects and student development. During her nine years of coaching St. Clare's diverging robotics program, she has been proud to see her students creatively apply what they have learned and make a difference in the world. Mrs. Lee's most memorable robotics experiences include working with her students to create a little league field adapted for special needs children and placing a solar aerator pump in Jack's Pond with the help of the DEP. In her "spare time," Mrs. Lee runs other science enrichment programs at St. Clare's, is an adjunct professor at St. John's University, plays sports, and spends time with her family.

Parent Mentor: Joseph Pugliese

Joseph Pugliese has two sons, Joseph and James, who have participated in the St. Clare's robotics programs. Mr. Pugliese has been actively involved in the St. Clare's FTC team since its first year, 2009. Having known how crazy we are, he somehow got himself meshed within the team (look right – a picture is worth a thousand words!). We are especially thankful to Mr. Pugliese for building the team its own *Hot Shot!* and *Get Over It!* fields so that practice with the robot is more efficient and more accurate to the standards of competition. Speaking of the robot, Mr. Pugliese has helped the team formulate construction approaches and helped provide tools and materials.

Justin Cassamassino

Justin Cassamassino is a sophomore at Staten Island Technical High School. Justin had been involved in FLL robotics at St. Clare's School for six years, and this is his second year involved in the FTC team. In robotics, he likes building the robot and manipulating technology to have the robot do what he wants it to do. Justin's most memorable robotics experience is when his FLL robot performed grace flips of destruction. He hopes to become a mechanical engineer or architect in the future. When not creating complex RobotC programs and intricate robot designs, Justin enjoys playing basketball, eating Sicilian pizza, listening to rock music and watching the T.V. series *The Gates and the Forgotten.*

Matthew Gulotta

Matthew Gulotta is a junior at Monsignor Farrell High School. Matthew had been involved in FLL robotics at St. Clare's School when he was in the 7th and 8th grades, and has been involved in the FTC team for three years. During robotics sessions, he enjoys building the robot. Matthew's loves robotics because it is challenging, and his fondest robotics memory is when his 8th grade FLL team won the New York City FLL Championship and received a bid to the FIRST World Festival in Atlanta, Georgia in 2008. Matthew hopes to join the military when he is older. Also, he likes playing football, eating Entenmann's chocolate chip cookies, and listening to rock music.

Erika Olsen

Erika Olsen is a sophomore at Staten Island Technical High School. Erika had been involved in FLL robotics at St. Clare's School FOREVER, and this is her second year involved in the FTC team. Her robotics specialty is designing the robot in Creo Elements/Pro on the computer. Erika adores the experiences and opportunities she has received, as well as the friendships she has formed, through robotics. During her many years in robotics, what stands out most in her mind is telling the emcee at the statewide FLL tournament that her team's robot flips gracefully. She also plays basketball and tennis, works on short films, lectors at church, and is a guitarist. Erika loves The Beatles, the movie *Help!* and sushi. She is a budding Guitar Legend.

Michelle Pagano

Michelle Pagano is a senior at St. Joseph by-the-Sea High School. She had been involved in FLL robotics at St. Clare's School when she was in the 8th grade, and has been involved in the FTC team for four years. In robotics, Michelle works as the engineering journal coordinator and helps design via Creo Elements/Pro, calculate via Mathcad, and collaborate via Windchill. Michelle's favorite part of robotics is the extensive work involved and the camaraderie within the team. She fondly remembers the 2011 FTC World Championship, in which her team's robot clutched 5th overall and demonstrated in the PTC booth. Michelle hopes to become a mechanical engineer. This past summer, she took part in the Stevens Institute of Technology Exploring Career Opportunities in Engineering and Science program and loved it.

Amanda Parziale

Amanda is a freshman at St. Joseph by-the-Sea High School. She had been involved in FLL robotics at St. Clare's School when she was in the 7th and 8th grades, and this is her first year on the FTC team. At a robotics session, Amanda can be found helping with the construction of the robot, and aiding Michelle and Erika in Creo Elements/Pro renderings. Amanda's favorite part of robotics is being able to be herself and receiving opportunities through her involvement in FIRST. Amanda's favorite robotics memory is the make believe fire in Atlanta. Later in life, Amanda would like to become a labor and delivery, maternity nurse and also pursue a career on Broadway. In her spare time, Amanda enjoys playing basketball, SINGING, and hanging out with friends and family.

Louis Pearson

Louis is a freshman at Monsignor Farrell High School. He had been involved in FLL robotics at St. Clare's School for two years, and this is his first year on the FTC team. At a robotics session, Louis can be seen aiding Justin with RobotC programming and helping with the construction of the robot. Louis's favorite part of robotics is working with friends in order to solve robotic challenges. Louis's favorite robotics memory is Mr. Tree and the Laugh Bots. Later in life, Louis would like to pursue a career in engineering. In his spare time, Louis likes Parkour, Xbox, and music.

James Pugliese

James Pugliese is a senior at St. Peter's High School. James had been involved in FLL robotics at St. Clare's School for four years, and has been involved in the FTC team since his sophomore year of high school. In robotics, he can most often be seen building components of the robot. James enjoys robotics because it is challenging. His most memorable robotics experience is placing first in the New York City FLL Championship and ultimately participating in the FIRST World Festival in Atlanta, Georgia in 2008. In the future, James hopes to become a chef. When not at robotics, James attends school, plays baseball, and eats. Also, he favors rock and screamo music.

PRE-SEASON PREPARATIONS

Tuesday, August 16, 2011: 9:00 a.m. - noon

Session #1
Science Lab at St. Clare's School
(Staten Island, New York)

Attendance: Justin Cassamassino, Matthew Gulotta, Erika Olsen, Michelle Pagano, Louis Pearson
Coach: Mrs. Mary Lee

TASKS	REFLECTIONS
Start inventorying all of our robotics parts so we can jump into the new season with a fresh start.	Inventory is going very well. Here are some of the approaches we took to making our kits look immaculate: ✓ Disassembling our robot from the "Hot Shot" Season. ✓ Consolidating all of our structural parts (channels … etc.) into two clear bins. ✓ Keeping our LEGO parts in their two white Mindstorms kits. ✓ Separating practically everything else into four blue containers that read "Controllers and Wires," "Tools," "Goggles," and "Miscellaneous."
Since Lou is graduating from FLL into FTC, it's kinda important that we teach him how the bigger robot works. Right?	Today, Justin, assisted by Matt, taught Lou how to control Mushu, our "Get Over It" robot, via the syntax programming software RobotC. Training someone in the art of RobotC was a challenge in it of itself. Having somebody, though, that Justin knew well and has worked with before made it a little easier. Lou took right to the program as if he was working with it his whole life. Lou is a fast learner and a great friend who Justin is proud to work with. Lou thought that the automonous programming was very similar to the old nxt programming. Teleoperated mode was harder. At the beginning, Lou thought it was a challenge, but Justin was a great teacher and he learned quickly.
Order new batteries for our FTC laptops.	PTC Laptop Chargers (2) → Status: ORDERED Dell Inspiron Models: LA65NS2-01 and DA65N111-00 Input: 100 – 240v ≈ 1.6A $\frac{50}{60}$Hz Output: $19V \cdot 3.34A = 63.46W$ RobotC Laptop Chargers (2) → Status: ORDERED Lenovo Models: 42T4418 and 42T5000 Input: 100 – 240v ≈ 1.5A $\frac{50}{60}$Hz Output: $20V \cdot 4.54A = 90.8W$

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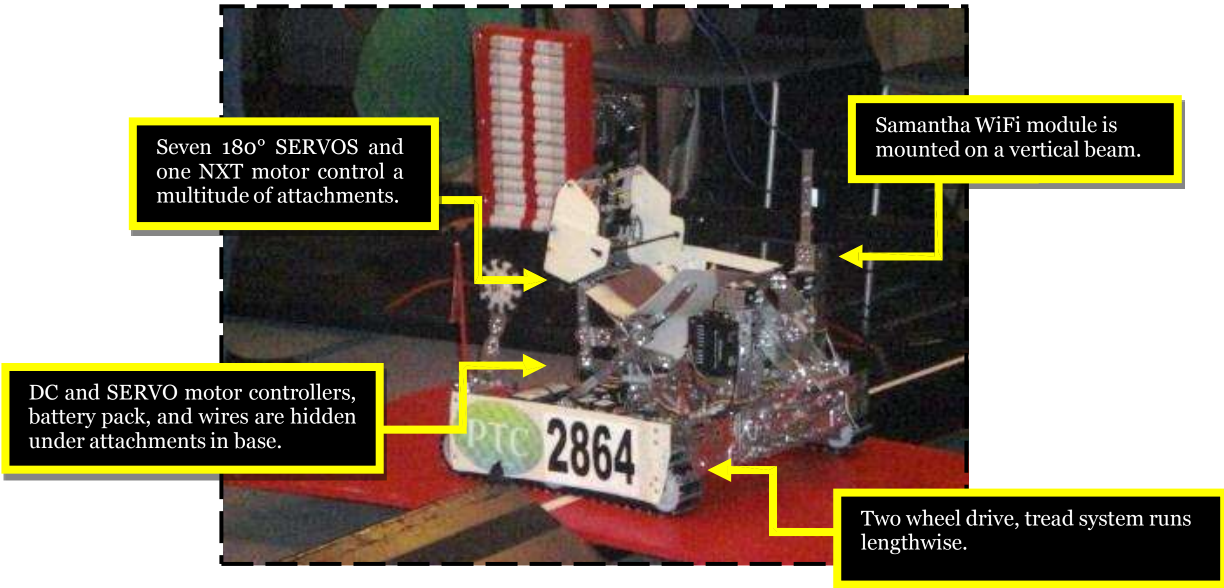
Robot Photo – Mushu, our "Get Over It" robot that achieved 5th place at the 2011 FTC World Championship



RobotC Analysis – Autonomous Program that Lou created to control Mushu

```
task main()
{
  {
  initializeRobot();

  waitForStart(); // Wait for the beginning of autonomous phase.

  motor[motorD] = 55;
  motor[motorE] = 50;
  servo[s1] = 235;
  servo[s2] = 20;
  servo[s3] = 50;
  servo[s4] = 205;
  servo[s5] = 0;
  servo[s6] = 255;
  wait1Msec(1595);

  motor[motorD] = 50;
  motor[motorE] = -50;
  wait1Msec(1000);

  motor[motorD]  = 55;
  motor[motorE]  = 50;
  wait1Msec(1650);

  motor[motorD] = 0;
  motor[motorE] = 0;
  servo[s7] = 245;
  wait1Msec(3000);

  motor[motorD]  = 50;
  motor[motorE]  = 50;
  wait1Msec(6000);
}
```

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Wednesday, August 17, 2011: 9:00 a.m. - noon

Session #2
Science Lab at St. Clare's School
(Staten Island, New York)

Attendance: Justin Cassamassino, Erika Olsen, Michelle Pagano, Louis Pearson
Coach: Mrs. Mary Lee

TASKS	REFLECTIONS
Construct two LEGO tri-bots to use for the RobotC training component of the NJ FTC summer workshop at NJIT.	Erika constructed the tri-bots for use at the workshop. Because of her many years of Lego robotics, building the tri-bots was an easy, even fun task. Erika also made sure that the tri-bot kits were equipped with connector wires and sensors.
Have Lou join our Windchill family: FTC 2864 – Bounty Hunters (2011-2012 Season).	We got Lou signed up for a Windchill account with this link: **www.ptc.com/go/firstregistration** Mrs. Lee (our coach and project manager) invited Lou to our Windchill Project. All team members should keep an eye out for assignments soon to be posted in Windchill!
Enable Lou to understand the basics of how Windchill works.	Michelle went over with Lou how our team utilizes Windchill. Major concepts included: ✓ Viewing each member's contact info in the "Team" window ✓ Responding to team assignments ✓ Accessing "Help" files Attaching CAD models as compressed zip files.
Train Lou in how to manipulate CAD components in Creo Elements/Pro Student Edition 5.0.	Michelle taught Lou the CAD fundamentals by means of having him recreate the mechanics of a fork lift model that she originally made. Understanding and utilizing Creo Elements/Pro is a full-blown matter of endurance and critical thinking. Lou thought Creo Elements/Pro was a very difficult program to use to its full capabilities. Michelle guided him through the first steps of it, and he eventually got through to where he could build things on his own. Lou was able to follow Michelle's lead and was found to be equally deft in Creo as he is in RobotC.

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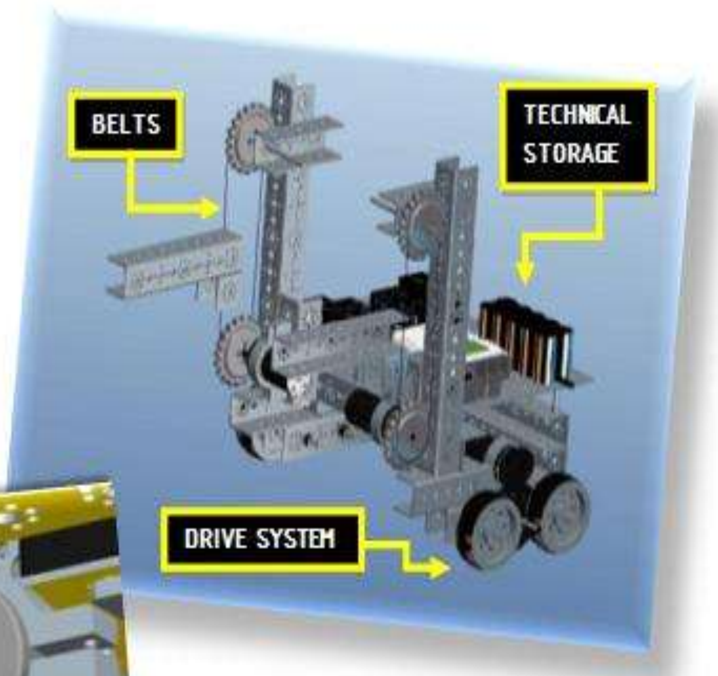
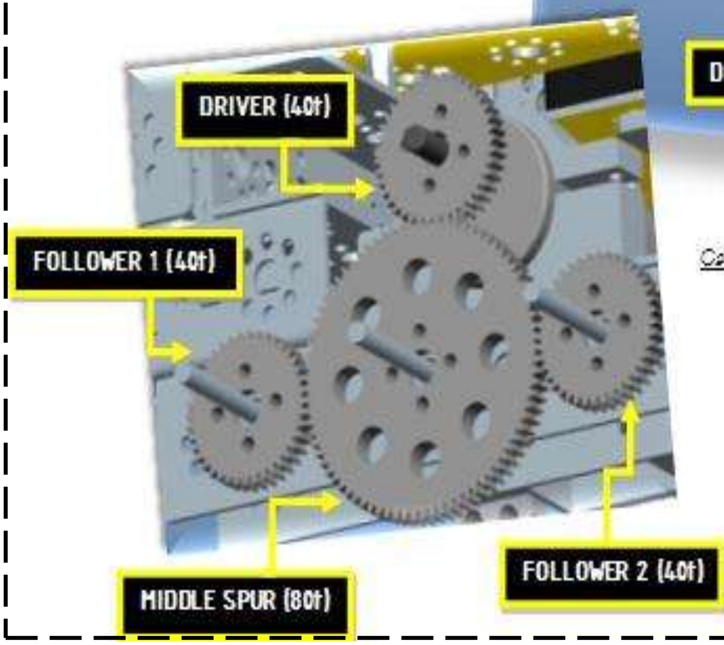
Creo Elements/Pro Analysis – Fork lift model that Michelle taught Lou how to create

Characteristics of the Fork Lift Robot

- Technical items stored towards the back
- 3" wheels set into gear by DC motors
- 1:1 gear ratio applied to drive system
- Belts' sprockets moved by DC motors
- Fork lift channels manipulated by belts





Calculating the Gear Ratio for Drive System

Driver := 40 MiddleSpur := 80 Follower := 40

$$\frac{\text{Driver}}{\text{MiddleSpur}} \cdot \frac{\text{MiddleSpur}}{\text{Follower}} = \frac{1}{1}$$

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Thursday, August 18, 2011: 9:00 a.m. - noon

Session #3
Science Lab at St. Clare's School

Attendance: Justin Cassamassino, Erika Olsen
Michelle Pagano, Louis Pearson
Coach: Mrs. Mary Lee

TASKS	REFLECTIONS
Have Justin and Lou look through all of their RobotC elements for the NJ FTC summer workshop at NJIT.	Justin and Lou will be attending the Advanced RobotC Track to learn how to program different types of sensors. Today, on the computer, they went into the RobotC files that they had not previously encountered. These could be useful in the upcoming year. Justin and Lou are learning before they attend the track!
Have Mrs. Lee, Michelle, and Erika go through their demonstration materials for the TEAM SKILLS component of the NJ FTC summer workshop at NJIT.	At the NJ FTC summer workshop, Mrs. Lee, Erika, and Michelle will take part in showing rookie teams how to create top-notch engineering journals, and how this can help them be candidates for different awards. Final TEAM SKILLS plan: *(Will have contributions from a few other mentors and teams.)* 1. Twenty-eight slide powerpoint that elucidates … ✓ Very quick intro ✓ Guidelines of THINK Award ✓ Various sections of journal ✓ Organization and layout of journal entries ★ PAUSE: Showcase of traditional and electronic journals ✓ Traditional vs. Electronic (in summation) ✓ Variety of outreach initiatives ✓ Fundraising strategies ✓ Sponsorship Recognition ✓ Using promotional materials ✓ Closing: May you learn to CONNECT, INSPIRE …
Have Michelle and Erika go through their demonstration materials for the PTC component of the NJ FTC summer workshop at NJIT.	At the NJ FTC summer workshop, Michelle and Erika will take on the roles of assistant track leaders, teaching more advanced PTC concepts to veteran teams who have already utilized PTC software applications. Final PTC plan: 1. Tom Quaglia (PTC lead) introduces PTC applications 2. Tom and assistants help teams load PTC software 3. Powerpoint running throughout day (includes how Bounty Hunters use Creo and Windchill) 4. Assembling fork lift model – p. 4 (involves necessary Creo skills) 5. Reveal of 2011-12 NJ PTC/Windchill Challenge

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Monday, August 22, 2011: 9:00 a.m. - noon

Session #4
Science Lab at St. Clare's School
(Staten Island, New York)

Attendance: Justin Cassamassino, Erika Olsen, Michelle Pagano, Amanda Parziale, Louis Pearson, James Pugliese
Coach: Mrs. Mary Lee

TASKS	REFLECTIONS
Refresh James on how to use RobotC programming software.	James joined Justin and Lou in RobotC programming and Samantha WiFi Calibrating. He learned how to write various autonomous and tele-operated programs to control the DC and SERVO motors on Mushu (our 2010-11 robot). RobotC was different to James than what he expected. It was simpler than he thought with Justin showing him simple ways to program the robot. James participated in a RobotC training session last year, but specialized in building for most of last season.
Since Amanda was away last week, help her create a Windchill account and join our team project: FTC 2864 – Bounty Hunters (2011-2012 Season).	Getting Amanda acclimated to Windchill took a little while, because the URL for Windchill wasn't reading her password correctly. However, the problem was quickly resolved. REMEMBER: All team members should check Windchill for upcoming assignments pertaining to the game field for the new season!
Train Amanda in Creo Elements/Pro Student Edition 5.0.	Erika instructed Amanda in essential Creo Elements/Pro concepts: connecting parts together, calculating gear ratios, defining servo motors for movement, and marking different parts with specific colors. Amanda thought that Creo was pretty understandable, but somewhat confusing. She determined that she would definitely have to work on it more to get the hang of it. Erika felt that Amanda adapted really well to and has a good grasp of Creo, and that she will master the program quickly.
Go through the 2011-12 Software Renewal Kit that we just received from FIRST.	There are some new resources for our team to use in the new season! They include: 1. NI(National Instruments) LabVIEW for LEGO MIDSTORMS Robotics 2. Creo Elements/Pro Student Edition 5.0 3. Mathcad Prime 1.0 ★ RobotC 3.0 and Robot Virtual Worlds will be available next month (SEPTEMBER).

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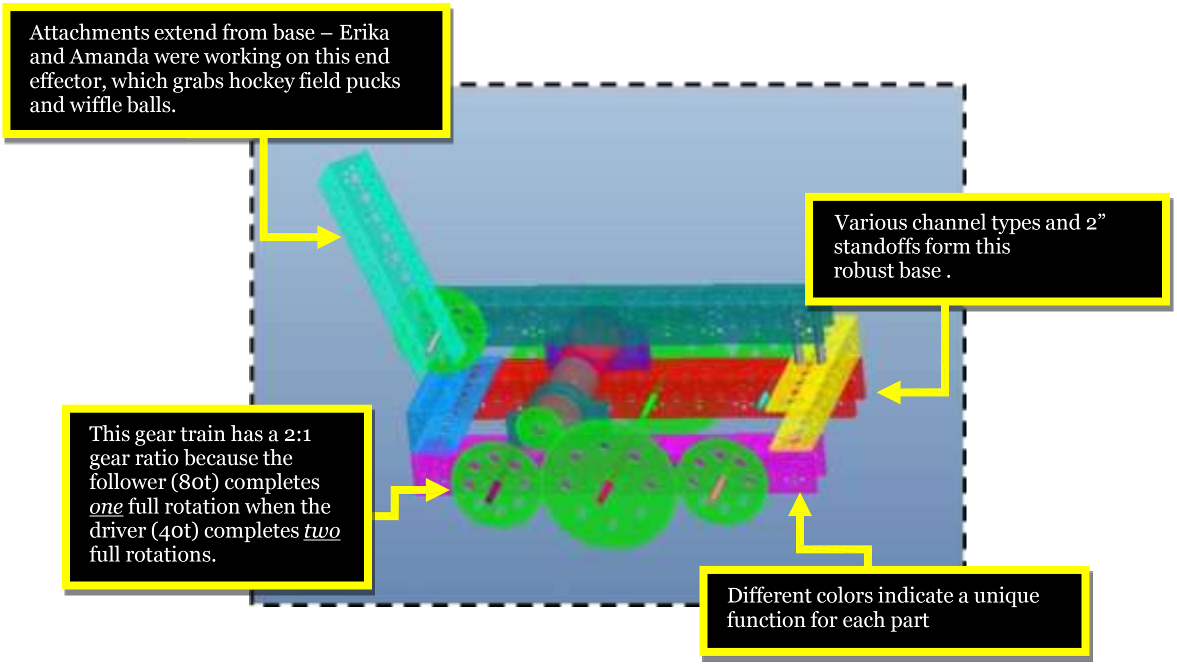
Creo Elements/Pro Analysis - FTC CAD model that Erika guided Amanda in creating and moving



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BOWLED OVER: ENGINEERS AT WORK

Saturday, September 10, 2011: 8 a.m. - 4 p.m.

2011/12 New Jersey FTC Kickoff
Livingston High School
(Livingston, New Jersey)

Attendance: Justin Cassamassino, Matthew Gulotta, Erika Olsen, Michelle Pagano, Amanda Parziale
Coach: Mrs. Mary Lee

TASKS	REFLECTIONS
Attend Opening Ceremonies after arriving, registering and organizing team equipment at Livingston High School.	Opening Ceremonies provided our team with a good insight on how the day's tracks and game reveal will proceed. We also received a schedule listing dates for upcoming New Jersey FTC practice scrimmages and tournaments. These practice scrimmages and tournaments start as early as October and November, so we really have to get a leg up in building our robot this season!
Gain further construction knowledge in Track #2 Advanced Mechanical. Our items for this workshop: Tools Box, Goggles	Matt participated in Track #2 Advanced Mechanical. He discovered innovative methods for our team to better assemble a robust robot. These innovative methods include: ➢ Using Anderson Powerpole connectors to attach the motor controllers, battery pack, and Samantha module together in parallel circuitry so, if one motor controller loses power, the whole system won't lose power ➢ Mounting the Samantha module high up on the robot and vertically (USB side down), as well as using a short USB lined-up straight against a spacer, in order for a less strained connection with WiFi and NXT ➢ Securing the battery pack onto the robot's chassis by means of aluminum clips and long screws
Provide engineering journal assistance in Track #3 Team Skills. Our items for this workshop**:** Traditional, Electronic Engineering Journals, Power-Point Flash Drive (and 7 NXT brains as spares for other teams)	Mrs. Lee, Michelle, and Erika assisted in Track #3 Team Skills. Their demonstrations included how to: ➢ Organize an engineering journal into different sections ➢ Format entries to accurately document a team's progress ➢ Establish either a traditional or electronic documentation ➢ Incorporate various materials into an engineering journal to make a team a candidate for a plethora of awards, including THINKS, INNOVATE, and CONNECT.
Assist and participate in the Creo Elements/Pro Student Edition 5.0 and Windchill PDMLink 10.0 components of Track #6 Basic PTC. Our items for this workshop: Big Black Dell Laptop, CPU Mouse, Power Strips	Erika assisted and guided Amanda in Track #6 Basic PTC. The PTC concepts taught focused on essential elements in Creo Elements/Pro and Windchill. These essential elements include: ➢ Building from the CAD FTC Kit of Parts by using specific constraints ➢ Moving certain parts of an assembly by defining servo motors ➢ Viewing a sketch blueprint of an assembly ➢ Gaining insight on Windchill PDMLink 10.0 for storing/sharing Creo files so that team members and engineers can take part in the robot's design evolution

Recorded by:	Date:	Journal Coordinator:	Date:

TASKS (Continued)	REFLECTIONS (Continued)
Gain further RobotC knowledge in Track #7 Advanced RobotC. Our items for this workshop: IBM ThinkPad Laptop #3, Two NXT Tribots, Two White NXT Kits, All Different NXT Sensors Two USB Cables, Power Strips	Justin learned many new aspects about the RobotC programming language. These new aspects will help our team create a robot that efficiently receives/responds to feedback from the challenge field, and include using: ➢ Encoders that help regulate speed and count the number of rotations a motor shaft performs and transforms that number into an integer value ➢ Light sensors that distinguish dark and light areas based on an approximate percent value from 0-100% ➢ Gyro sensors that allows for detection of the robot's rotation and correct the robot's course ➢ Infrared Seeker sensors that cannot be placed head on a target and that receives various signals but only acts upon desired signals
Assist in the Creo Elements/Pro Student Edition 5.0, Windchill PDMLink 10.0, and Mathcad components of Track #8 Advanced PTC Our items for this workshop: Small Black Dell Laptop, Fork Lift Robot Sheets, Power-Point/Creo File Flash Drive, Power Strips	Michelle assisted Tom Quaglia in Track #8. She started off the track by guiding participants in connecting parts, defining mechanisms, defining gear constraints, and creating moving belts of a Fork Lift model in Creo Elements/Pro Student Edition 5.0. Then Tom Quaglia delved into additional concepts that include: ➢ Defining Force Motors to more accurately depict effects of inertia and friction on a model ➢ Using structural analysis to calculate a model's load, temperature, frequencies among other factors ➢ Applying different textures to the model in order to create a Photorender ➢ Integrating MathCAD into the engineering journal
THE BIG MOMENT: Gather for the Game Reveal Ceremony and Field Examination.	Our team watched the "FTC 2011 Full Kickoff and Game Animation Video" in awe and took measurements of the game field set-up. The 2011/12 FTC challenge is BOWLED OVER, which involves: ➢ Setting ball crates upright ➢ Placing racquetballs in ball crates ➢ Stacking ball crates ➢ Dropping magnet/non-magnet racquetballs in low goal/ball crate ➢ Parking the robot/bowling ball in the back/front parking zones

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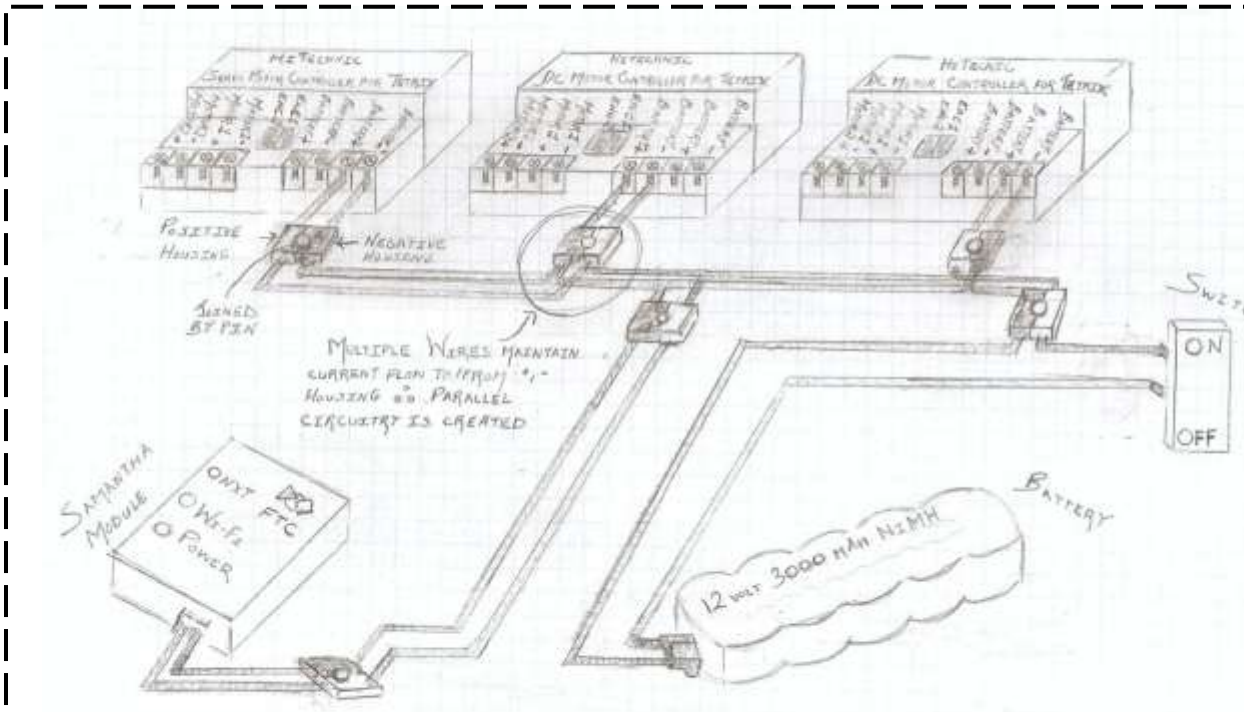
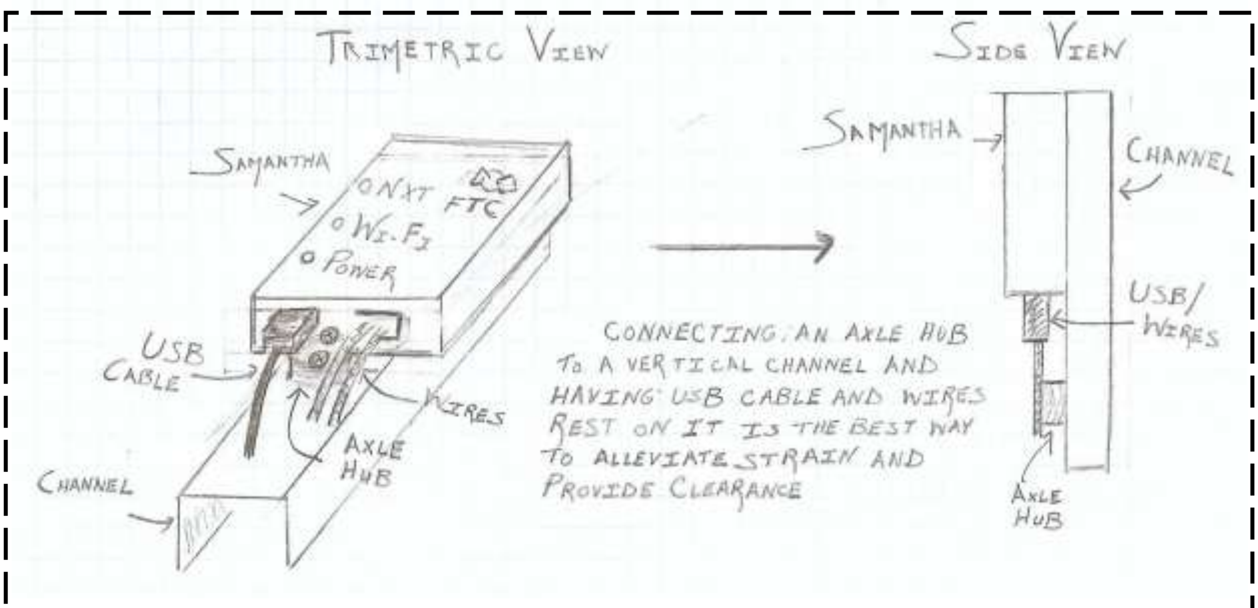
Advanced Mechanical Diagram - Anderson Powerpole Connections



Advanced Mechanical Diagram - Mounting Samantha Module



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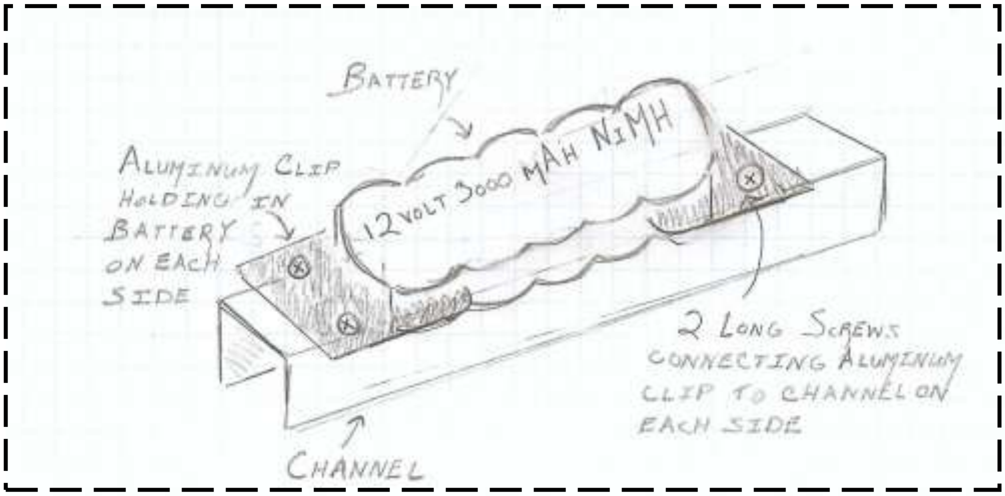
Advanced Mechanical Diagram - Securing Battery Pack



Advanced RobotC Program Notes – Programming Encoders and Light/Gyro/Infrared Sensors

AFIO

Light Sensor
- 0-100
- Avg. from for % ... not exact

Encoder
nMotorEncoder = getEncoderShidden()
while (abs(npow) 70 ++ time1 [T4] ...)

Batt. Voltage Bug w/ Sam!

Gyro - allows for detection of robot rotation - & course correction

left = negative (0 - 100)
right = positive (0 - 100)

LED Line up

while ((sensornum<17) || (Sensornum >55))

x = Sensor (7); // get sensor
= 27; // motor stop
n = 57; // motor
if (22 == some other num)

http.org/2003-04-26/

int distance_in_cm = 20;

while (SensorValue [SonarSensor] > distance_in_cm)
{
motor ...
motor ...
}

IR Sensor needs sideways placement
DON'T USE IT HEAD ON

Ultra Sonic has small sweet spot
- Continuous & Single mode
- Won't capture ... (Both w/ interference)
- Slow down & delay when processor is overloaded or too much memory

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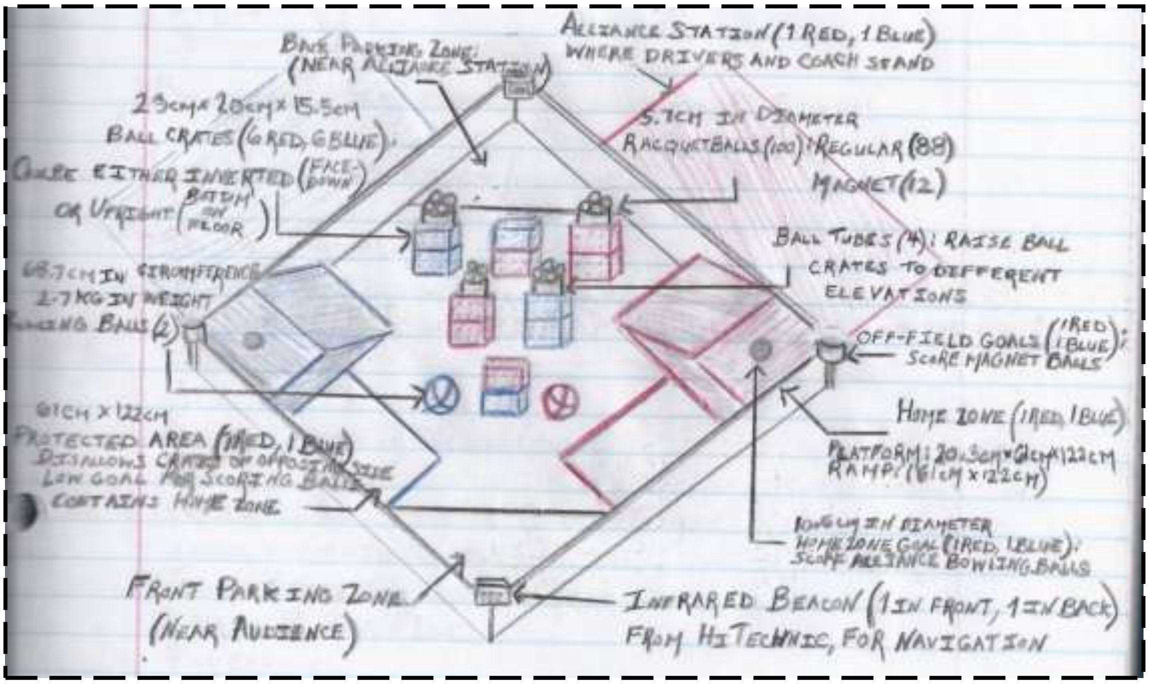
Game Reveal Diagram - 2011/12 FTC Season: BOWLED OVER Game Board



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Tuesday, September 20, 2011: 5 - 7 p.m.

Session # 1
Science Lab at St. Clare's School
(Staten Island, New York)

Attendance: Justin Cassamassino, Matthew Gulotta, Erika Olsen, Michelle Pagano, Amanda Parziale
Coach: Mrs. Mary Lee Parent Mentor: Mr. Joseph Pugliese

TASKS	REFLECTIONS
Again, watch the "FTC 2011 Full Kickoff and Game Animation Video," in order to better understand the ramifications of the BOWLED OVER challenge.	Our team sat as an attentive audience while watching the "FTC 2011 Full Kickoff Game Animation Video" on the SMART Board. After watching the game animation a multitude of times, we formulated questions that are critical to how we mechanically create our robot. The critical questions that face us include: 1. What kind of drive system will produce enough torque for our robot to travel up the home zone ramp? 2. How can we assemble a crate manipulating system working from within the chassis of our robot? 3. How can we construct a mechanism that will enable our robot to obtain racquetballs?
Brainstorm ideas based on Critical Question #1: What kind of drive system will create enough torque for our robot to travel up the home zone ramp?	Using **idler wheels** and **treads** as part of our robot's drive system seems to be the best way to produce force and traction for travelling up the home zone ramp. We based this hypothesis on observations of our GET OVER IT robot that had idler wheels and treads, and efficiently maneuvered up a very steep cliff.
Brainstorm ideas based on Critical Question #2: How can we assemble a crate manipulating system working from within the chassis of our robot?	Crate manipulating System: Idea A. The Conveyor Belt 1.Design: Chassis in the shape of a Π (front side open) Purpose: Leaves room for the actual conveyor belt 2.Design: Motorized conveyor belt running vertical between two parallel, vertical 288mm channels on the front side Purpose: Transport upright crates up and into base for stacking 3.Design: Motor, probably DC motor, within conveyor belt in order to move channels connected to plates back-and-forth. Purpose: Holds crates in a sandwich formation to transport them for stacking in robot chassis *Still need to figure out how to turn crates upright.
Brainstorm ideas based on Critical Question #3: How can we construct a mechanism that will enable our robot to obtain racquetballs?	In order to pick up racquetballs. we are looking to implement some kind of arm that ➢ Bends at its center by means of a motor ➢ Uses two 180° servos that each control one set of plates to either go up or down for squeezing and releasing racquetballs

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Mathcad Worksheet – Tread Calculations

Determining the work, as a function of frictional force, of the robot chassis with treads ...

Variables:

$mass := 5.32\ kg$ $acc_G := -9.81\ g$ $\mu_K := .8$ $acc_R := 0\ g$ $distance := .548\ m$

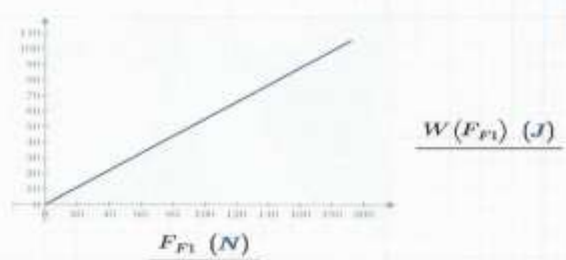
Equations:

$F_W := mass \cdot acc_G$ $F_N := mass \cdot acc_G \cdot \sin(18)$ $F_F := F_N$ $Work := F_F \cdot distance$

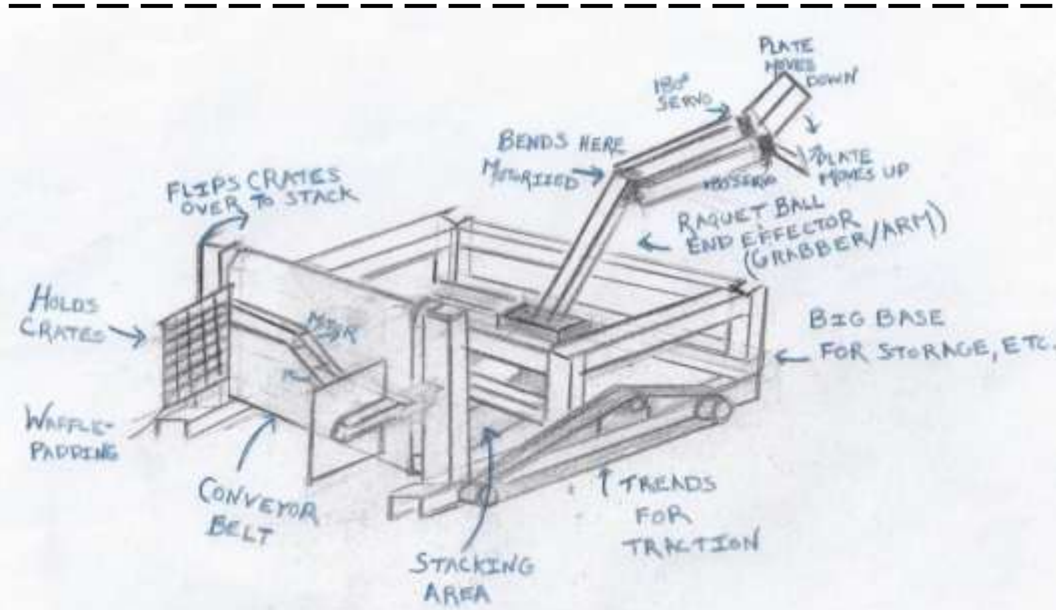
$F_W = -511.801\ N$ $F_N = 384.356\ N$ $F_F = 384.356\ N$ $Work = 210.627\ J$

$F_{F1} := 0\ N, 192.178\ N .. 384.35\ N$

$W(F_{F1}) := F_{F1} \cdot distance$



Robot Diagram – Idea for Creating BOWLED OVER Robot



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Thursday, September 22, 2011: 5 p.m. - 7 p.m.

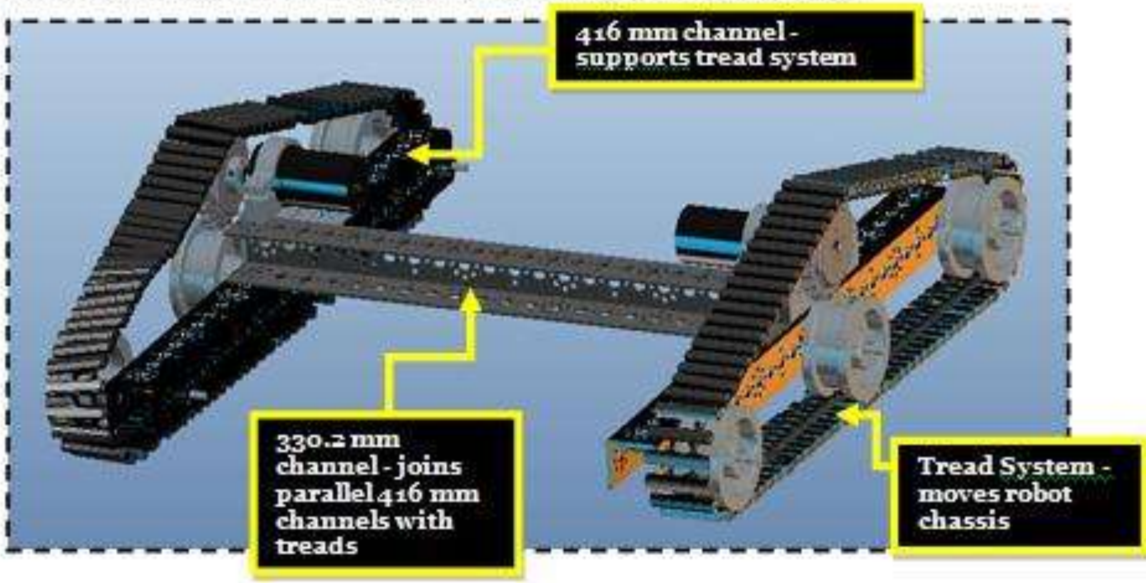
Session #2
St. Clare's School
(Staten Island, New York)

Attendance: Justin Cassamassino, Matthew Gulotta, Erika Olsen, Michelle Pagano, Amanda Parziale, James Pugliese
Coach: Mrs. Mary Lee Parent Mentor: Mr. Joseph Pugliese

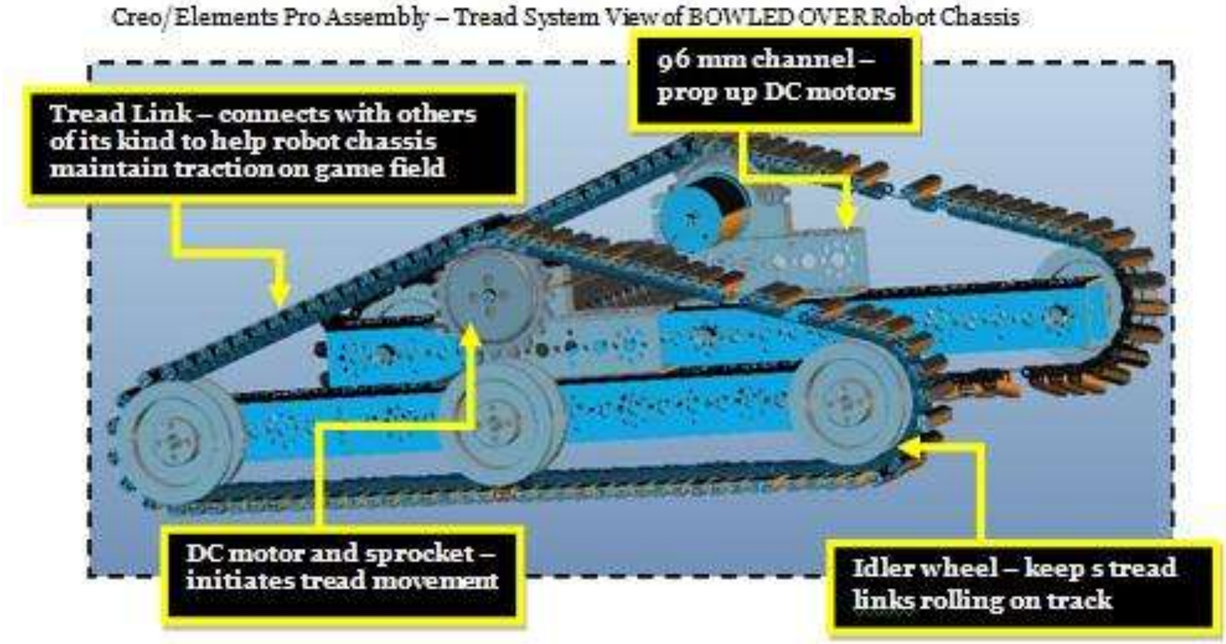
TASKS	REFLECTIONS
Now that our team has acquired a bowling ball, test the ability of our GET OVER IT robot chassis (with idler wheels and treads) ability to push the bowling up the home zone ramp.	Our team used the bridge from the GET OVER IT field and textbooks to, as accurately as possible, assemble the ramp. We then situated the robot chassis 40 cm away, and the bowling ball 30 cm away, from the sloped base of the ramp. This gave us a 10 cm head start in controlling the robot chassis, via Bluetooth connection and a tele-operated RobotC program, to gain momentum. After conducting multiple tests, we concluded that the robot chassis has enough mechanic and dynamic qualities in order to to effectively push the bowling ball upon collision.
Further analyze the results of our GET OVER IT robot chassis pushing bowling ball.	The robot chassis was successful in guiding the bowling ball up the ramp multiple times. This is because the robot chassis has a two DC motor drive system with treads running lengthwise to establish traction with the ground and ramp. Also, the front side of the robot chassis curves in to form a feasible guide for the bowling ball.
Determine how to construct a robot chassis for BOWLED OVER that is somewhat a revised version of our robot chassis for GET OVER IT.	Our plans of creating a BOWLED OVER robot chassis has same layout of idler wheels and treads as GET OVER IT robot chassis does, but with these alterations: 1. Using two 360 degree servos stationed on parallel sides of open base that act as gates to entrap bowling ball. 2. Attaching the 330.2 mm channel across the mid-center of the robot chassis to form an **H** formation, unlike our original idea of having a **Π** formation. 3. Propping up the two DC drive motors onto the mid-center 33.02 cm to allow for more room to store battery pack, DC motors, NXT brain, and wires.

Recorded by:	Date:	Journal Coordinator:	Date:

Creo/Elements Pro Assembly – Trimetric View of BOWLED OVER Robot Chassis



Creo/Elements Pro Assembly – Tread System View of BOWLED OVER Robot Chassis



Recorded by:	Date:	Journal Coordinator:	Date:

Mathcad Worksheet – Momentums of the Robot Chassis and Bowling Ball

Determining the momentum behind getting the ball rolling ...

Momentum Calculations

$RobotChassis := 1$

$BowlingBall := 2$ $RobotChassis + BowlingBall = 3$

$Object$	$Mass$	$Velocity$	$Momentum$
	(kg)	$\left(\frac{m}{s}\right)$	$\left(\frac{kg \cdot m}{s}\right)$
1	2.18	804	1752.72
2	2.722	0	0

$p_1 := 1752.72\ kg \cdot \frac{m}{s}$ $p_2 := 0\ kg \cdot \frac{m}{s}$

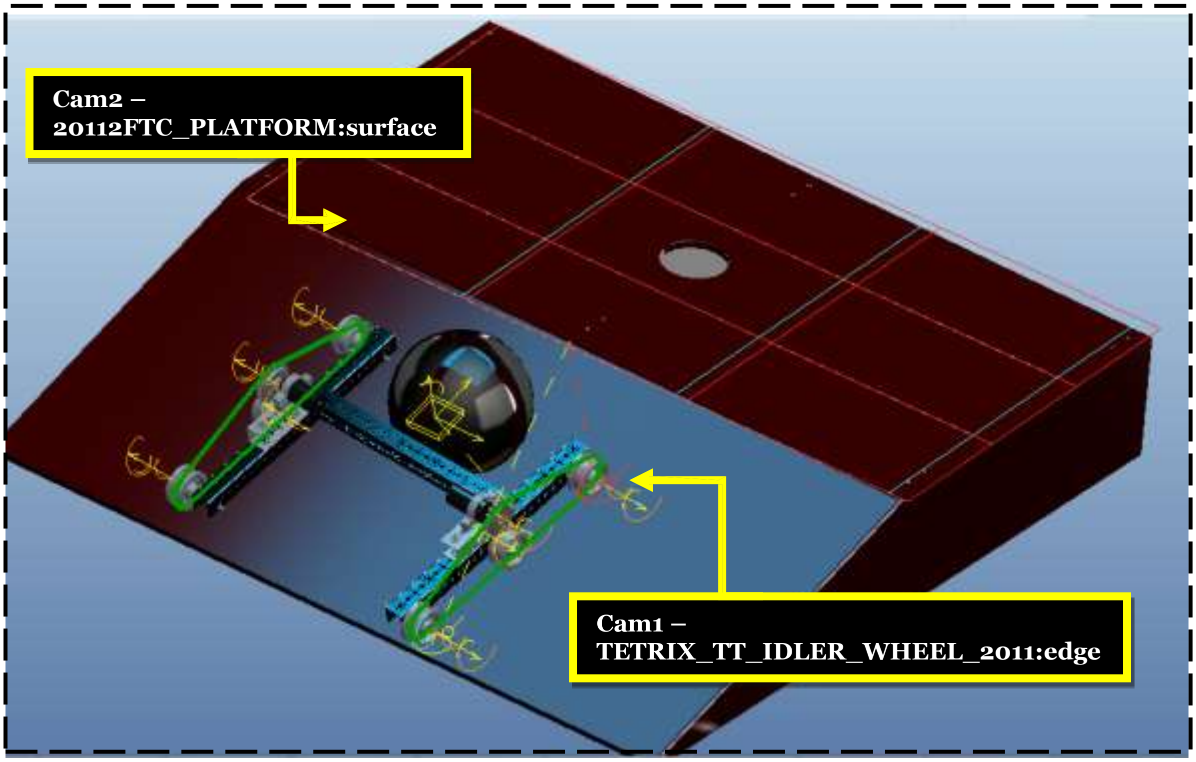
$p_1 + p_2 = 1752.72\ \frac{kg \cdot m}{s}$

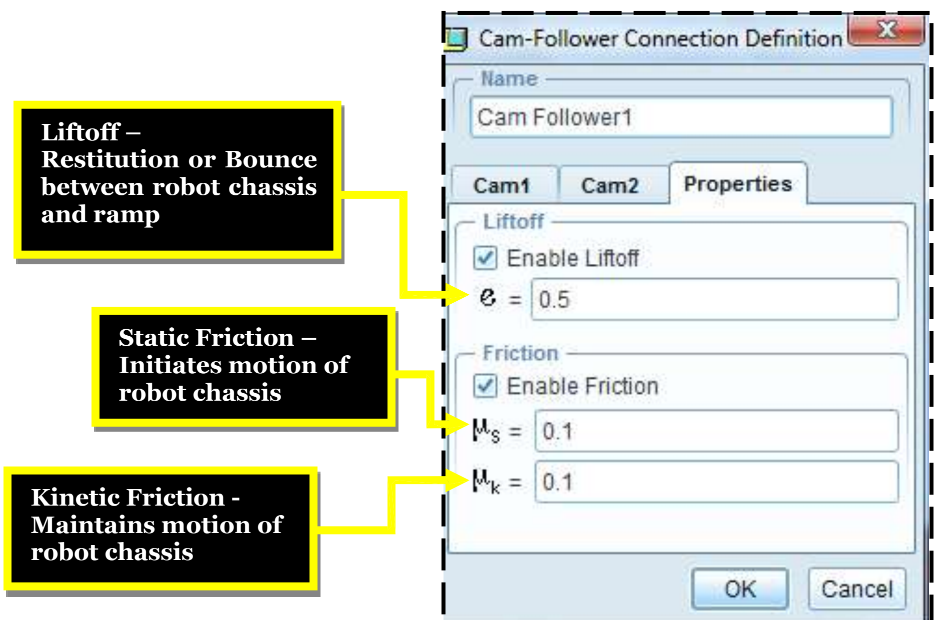
$p_3 := 1752.72\ kg \cdot \frac{m}{s}$

The total momentum of both the robot chassis and bowling ball moving together is equivalent to the momentum of the robot chassis. This is because the robot chassis started out moving, while the bowling ball did not

Recorded by:	Date:	Journal Coordinator:	Date:

Creo Elements/Pro Analysis – Dynamics of the Robot Chassis and Bowling Ball





Recorded by:	Date:	Journal Coordinator:	Date:

Tuesday, September 27, 2011: 5 - 7: 30 p.m.

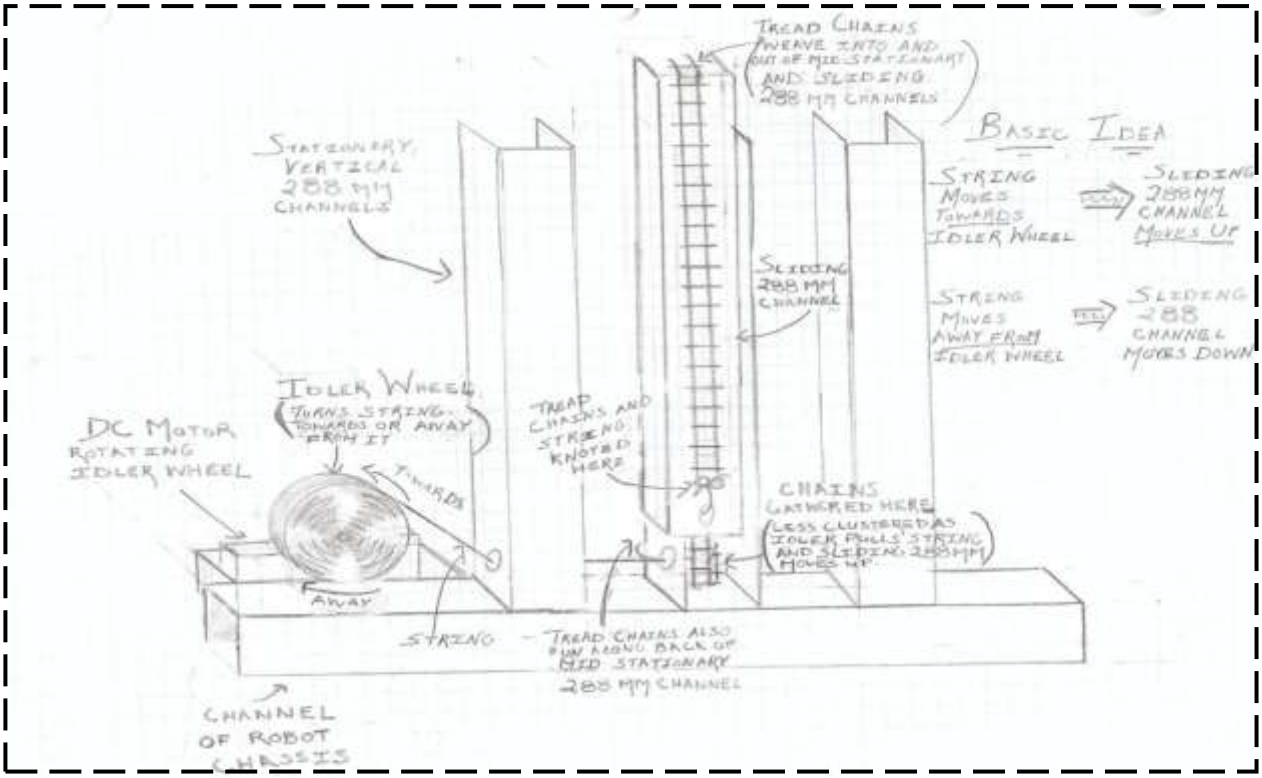
Session #3
St. Clare's School
(Staten Island, New York)

Attendance: Justin Cassamassino, Erika Olsen, Michelle Pagano, Amanda Parziale, Louis Pearson
Coach: Mrs. Mary Lee

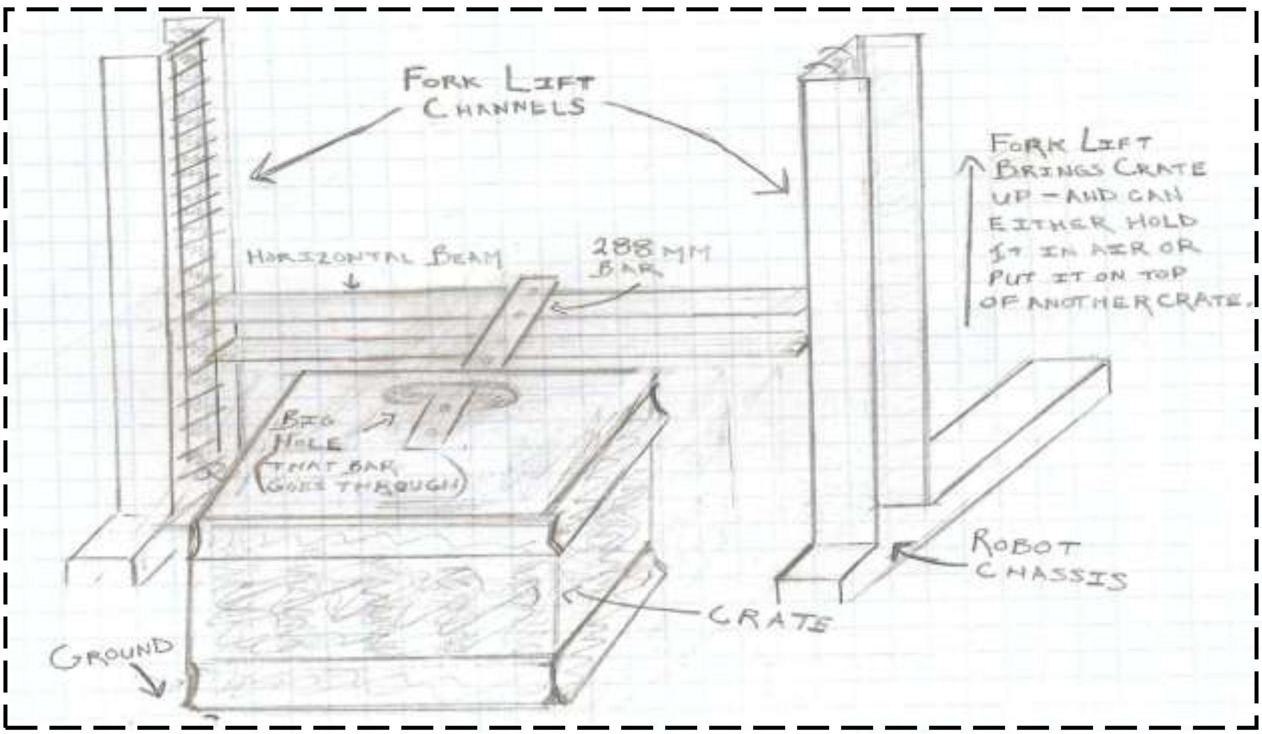
TASKS	REFLECTIONS
Discuss a new crate manipulating idea, the fork lift, that our team.	Performing research on sustainable vehicle loading mechanisms, here is the fork lift idea that we will carry on with building at least a prototype of: 3rd Fork Lift Design: Two channels that slide/interlock with one another, by means of belts and sprockets, on each of the two parallel sides of robot leading into the back closed side Source (with video) of Idea: http://www.howstuffworks.com/transport/engines-equipment/forklift.htm
Start constructing the 3rd fork lift design idea onto a prototype channel structure of the robot chassis.	Attached directly onto the lengthwise 416mm channels of our robot's chassis, the 3rd fork lift design that we are implementing includes: ➢ Three 288 mm channels stationed vertically and next to each other ➢ One 288 mm channel sliding into the mid stationed 288 mm channel ➢ Movement of the sliding 288 mm channel by means of pulling a string attached to a chain that is interwoven into the "channel system" To program the movement of the forklift accurately in RobotC 3.0, our team used Mathcad to find the number of rotations the motor will need to perform to raise the sliding channel to its maximum height, which is 275 mm. We found that, to raise the sliding channel to 275 mm, **1.1487** rotations must be done by the motor.
Working off of our fork lift design idea, come up with a way to somehow lift up crates.	We developed an idea on how to lift up crates (for stacking) by means of the fork lift ... ➢ One non-motorized 288 mm bar protruding from horizontal channel of fork lift mechanism so that, once 288 mm bar and big hole of ball crate are aligned, bars can hook into crate and allow fork lift to rotate it into upright position. Since the maximum height that the fork lift's sliding 288 mm channel can reach is 275 mm, the robot can stack up to three crates, which stacked are 685.8 mm in height However, we still need to figure out how to flip crates upright.

Recorded by:	Date:	Journal Coordinator:	Date:

Robot Diagram – Forklift design/ Tread Chain System



Robot Diagram – Crate Liftoff



Recorded by:	Date:	Journal Coordinator:	Date:

Mathcad Worksheet – Number of Motor Rotations for Lift Sliding Channel to Reach Maximum Height

How many rotations must the idler wheel perform in order to lift the sliding 288 mm channel to its maximum height above the robot chassis?

$maxht_{slidechannel} := 275\ mm$

$radius_{idlerwheel} := 38.1\ mm$

$circumference_{idlerwheel} := 2 \cdot \pi \cdot 38.1\ mm$

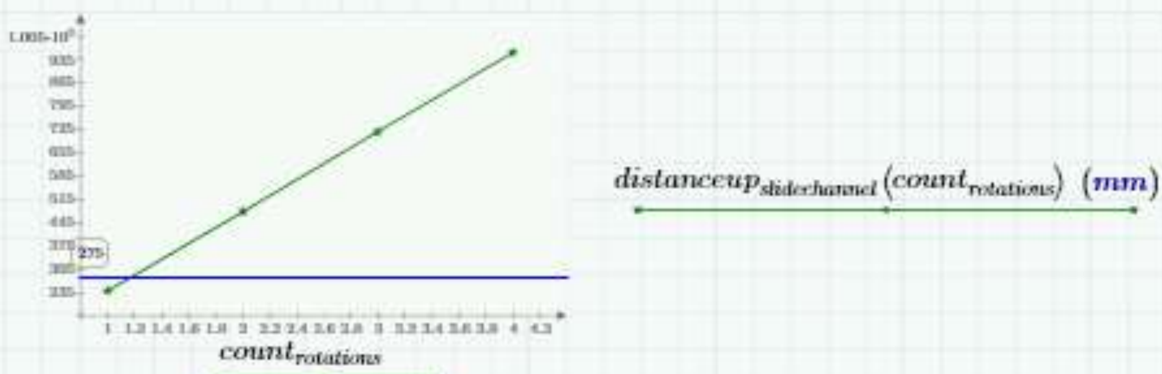
$circumference_{idlerwheel} = 239.389\ mm$

The circumference of the idler wheel is equivalent to the distance the sliding 288 mm channel moves up after the idler wheel rotates once.

$rotation_{idlerwheel} := 239.389\ mm$

$count_{rotations} := 1, 2 .. 4$

$distanceup_{slidechannel}(count_{rotations}) := 239.389\ mm \cdot count_{rotations}$



$max_{rotations} := 1.1487$

$distanceup_{slidechannel}(1.1487) = 274.986\ mm$

The maximum number of rotations that the idler wheel can rotate for the slide channel to reach it's maximum height is 1.1487. Knowing this can help us more accurately program the robot chassis in RobotC 3.0.

Recorded by:	Date:	Journal Coordinator:	Date:

Thursday, September 29, 2011: 5 - 7: 30 p.m.

Session #4
St. Clare's School
(Staten Island, New York)

Attendance: Justin Cassamassino, Erika Olsen, Michelle Pagano, Amanda Parziale, Louis Pearson
Coach: Mrs. Mary Lee Parent Mentor: Mr. Joseph Pugliese

TASKS	REFLECTIONS
Start dissembling our GET OVER IT robot since we are done running tests on it and we need the parts to construct our BOWLED OVER robot.	Our team said goodbye to our GET OVER IT robot while taking it apart. However, we said hello to all of its now individual parts – plates, 288 mm angled bars, various sized channels - that can be newly assembled in different ways.
Think of a way that our robot can accomplish another essential game board task: obtaining racquetballs and placing them into crates.	We developed an idea today for our BOWLED OVER robot to grab racquetballs specifically from the ground mat and put them into the crates that we are trying to stack. Our idea for a racquetball manipulator involves: ➢ Two sweepers that will move in synchronization and will each be motorized by DC motor stationed between and along the height of two 288mm channels standing parallel towards the mid section of the robot. After the racquetball manipulator obtains racquetballs and places them into crates, the robot will back away from crate and turn around to lift crate with the fork lift's crate manipulator. In order for the racquetball and crate manipulators to work, the crates need to be upright. We are still trying to figure out a mechanical process in order to lift crates upright. In competition, having an alliance team that is able to invert crates would be very helpful.
Store the home zone ramp/platform that Mr. Pugliese built.	Thank you to Mr. Pugliese for constructing a home zone ramp/platform for our team to practice driving the robot onto and from. We stored the home zone ramp/platform in the lab's back storage room.

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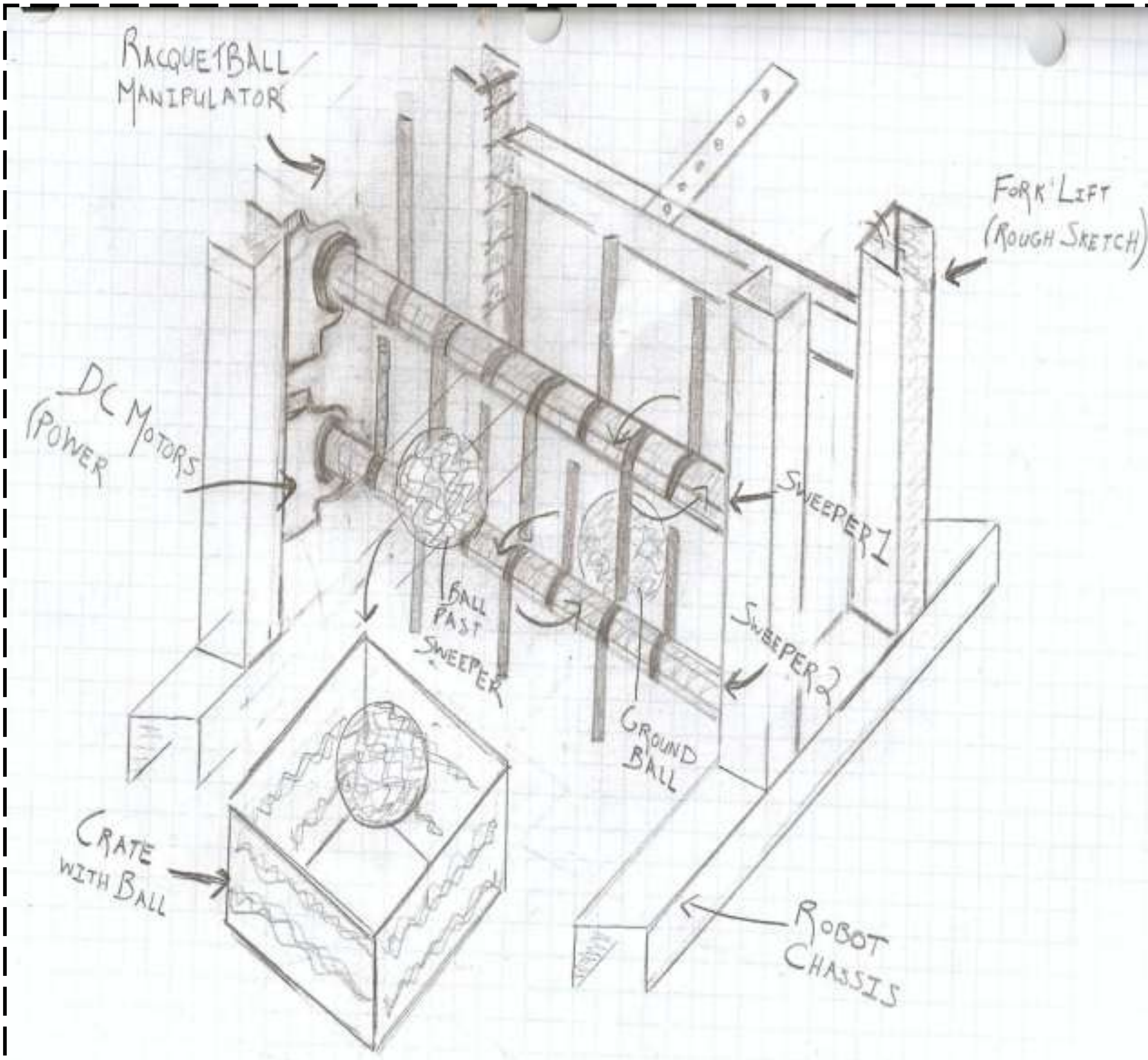
Robot Diagram – Racquetball Manipulator Design



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Tuesday, October 4, 2011: 5 - 8 p.m.

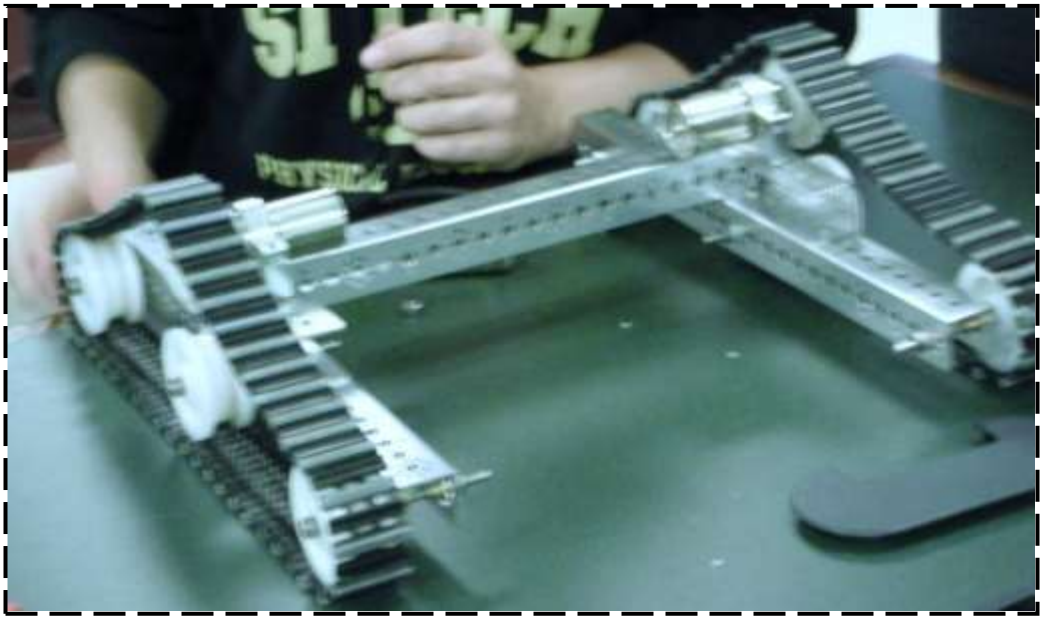
Session #5
St. Clare's School
(Staten Island, New York)

Attendance: Justin Cassamassino, Matthew Gulotta, Erika Olsen, Amanda Parziale, Michelle Pagano, Louis Pearson, James Pugliese
Coach: Mrs. Mary Lee Parent Mentor: Mr. Joseph Pugliese

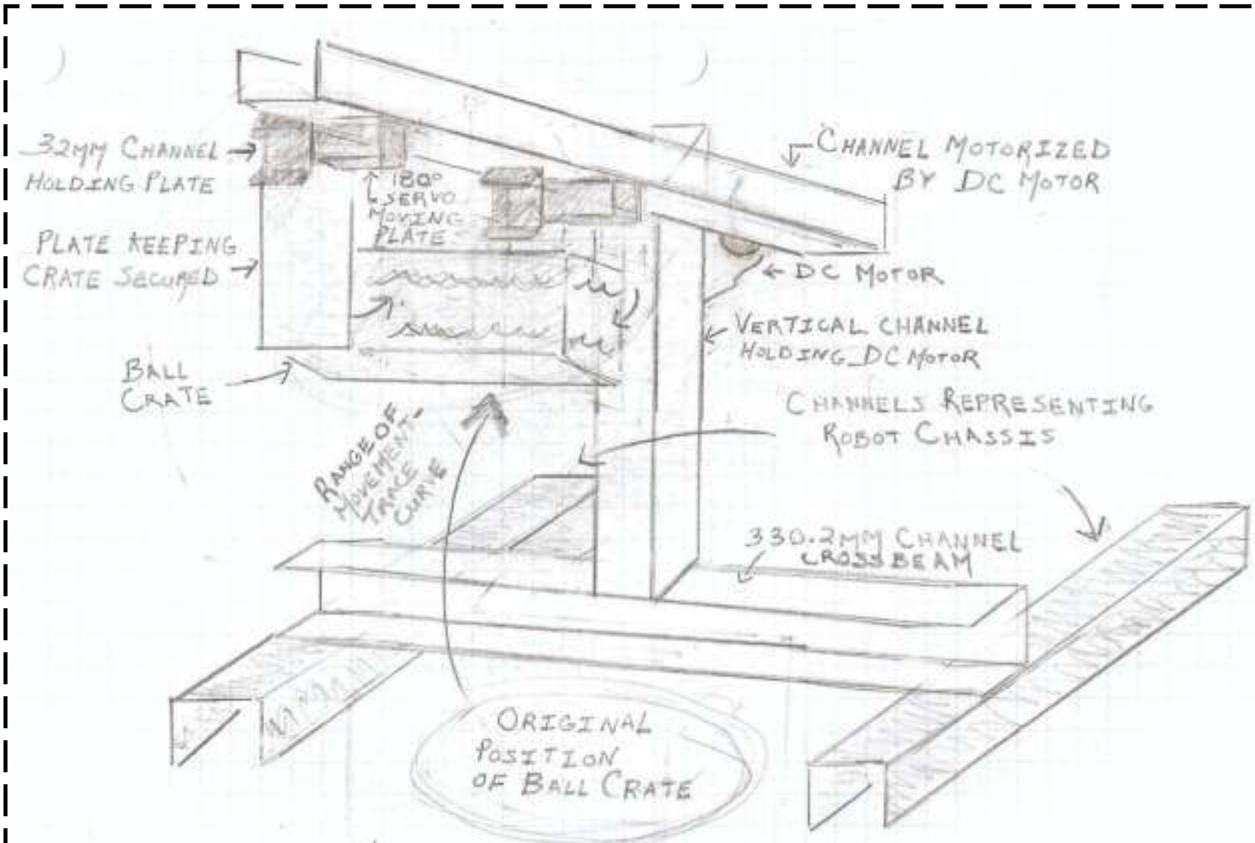
TASKS	REFLECTIONS
Since we have more individual parts from dissembling our GET OVER IT robot, start building the BOWLED OVER robot chassis.	We built the BOWLED OVER robot chassis successfully. The least complicated part of this endeavor was: ➢ Creating the **H** structure with the two parallel 416 mm channels and the 330.2 mm crossbeam. The most complicated parts were: ➢ Propping up the drive DC motors ➢ Meticulously aligning the sprockets (on DC drive motors)and idler wheels ➢ Elongating the treads with tread links without creating too much slack
Figure out an alternative way to acquire ball crates and stack them rather than using a fork lift system.	Our team tried to think of a different way to pick up ball crates and stack them, because, after building a prototype model, we determined that the fork lift system was too complicated and may make an error in game play. The Ball Crate Clutch Swinger that we are hoping to apply in lieu of our original fork lift has: ➢ Channel that is attached vertically onto 330.2 mm crossbeam of **H** base ➢ DC powered channel, attached onto vertical channel, that rotates forward for ball crate pick-up and backward for ball crate stacking ➢ **L**-shaped attachment at end of DC powered channel that lowers over ball crate, uses plates (motorized by 180° servos) at lower part to clutch onto ball crates, and has DC motor to help rotate ball crate

Recorded by:	Date:	Journal Coordinator:	Date:

Robot Photo – Complete BOWLED OVER Robot Chassis



Robot Diagram – Ball Crate Clutch Swinger



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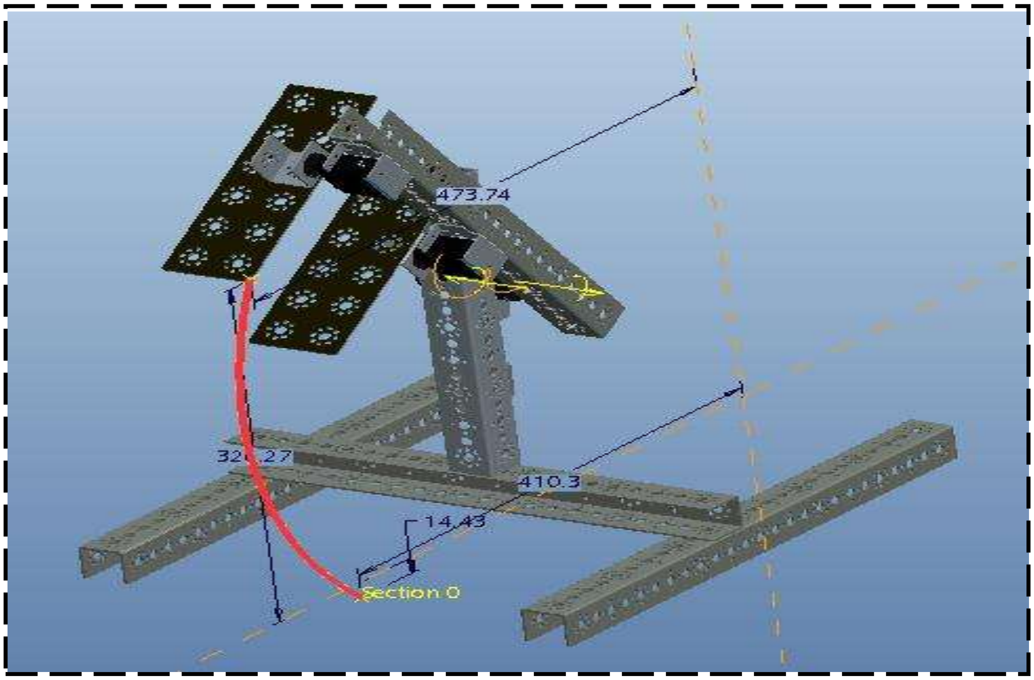
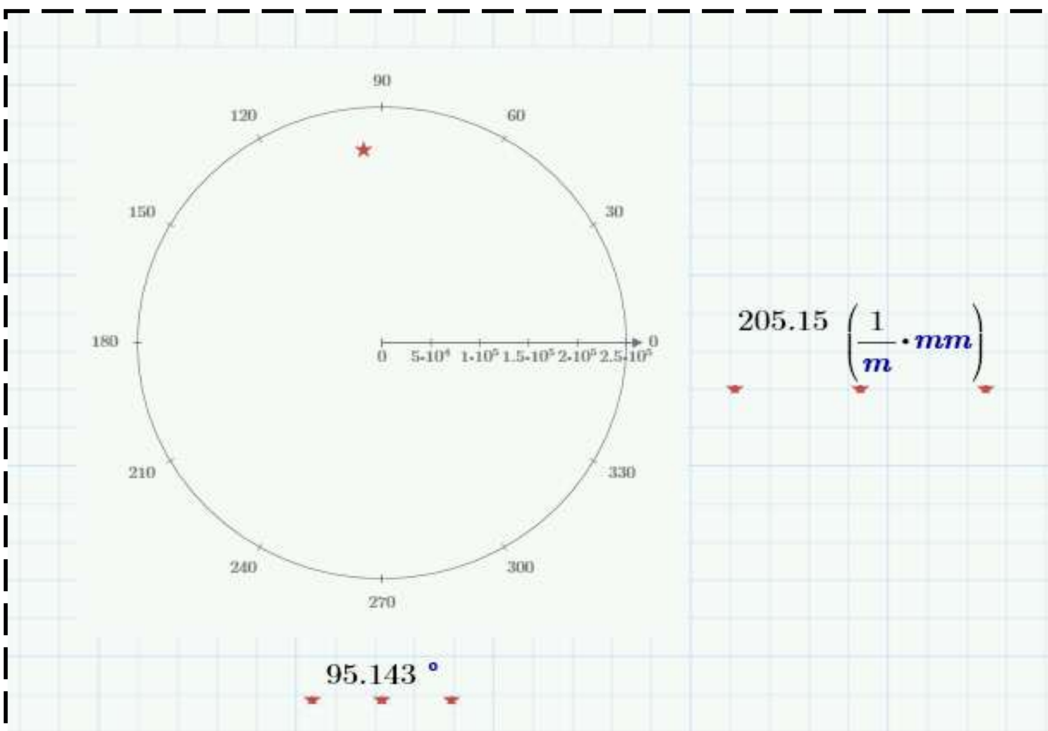
Creo Elements/Pro Analysis – Trace Curve of Ball Crate Clutch Swinger



Mathcad Worksheet – Angle Measurement from Trace Curve's Start Point to End Point



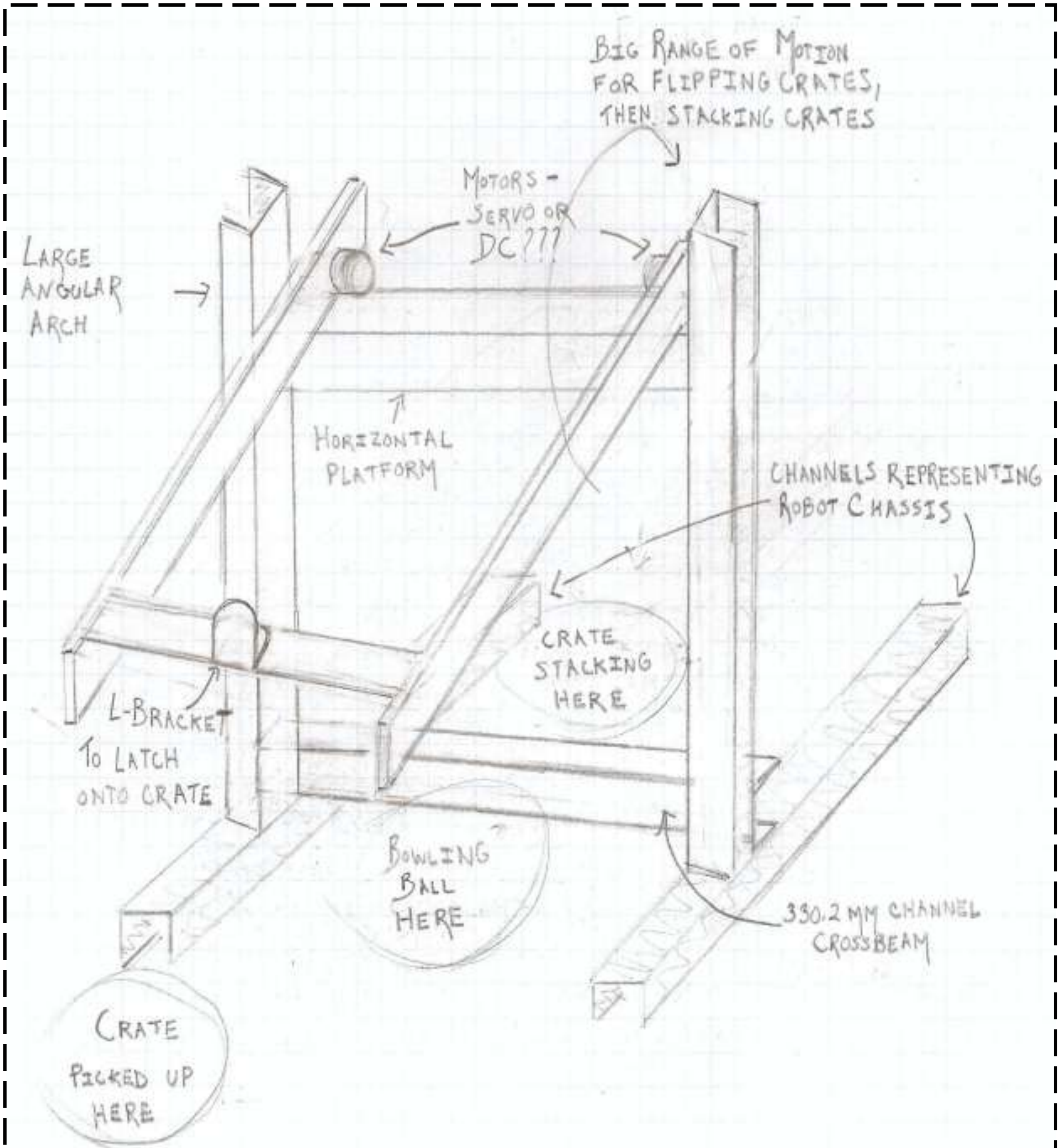
Thursday, October 6, 2011: 5 - 7:30 p.m.

Session #6 Attendance: Justin Cassamassino, Matthew Gulotta, Erika Olsen, St.
Clare's School Amanda Parziale, Michelle Pagano, Louis Pearson (Staten
Island, New York) Coach: Mrs. Mary Lee Parent Mentor: Mr. Joseph Pugliese

TASKS	REFLECTIONS
Reject ideas for building the ball crate manipulator that we determined are not feasible.	For turning the crates upright /stacking crates … Our team eliminated the following ideas, which we thought were too difficult and required too many attachment mechanisms to follow through with: ✕ The Fork Lift – Involves DC motors controlling the movement of string attached to chains so that the lift channels, which chains tread into, are able to glide in the vertical stationary frame located on the front end of the robot chassis. ✕ Ball Crate Clutch Swinger – Involves vertical stationary channel, located on the mid-part of the robot chassis, holding up a DC powered channel that rotates forward/backward and that contains an **L**-shaped attachment powered by DC motors and 180° servo motors for versatile movement.
Develop an ultimatum on how our team is going to construct the part of our BOWLED OVER robot that manipulates ball crates and keeps bowling ball in robot chassis.	Our team proposed a new design idea that we dub the Crate and Bowling Ball Duplexer. The built version of this idea combines tackling the missions of flipping/stacking crates and keeping the bowling ball secured within base The Crate Duplexer involves having: ➢ One large angular arch located on the mid-part of the robot chassis ➢ One set of two yet to be determined motors, located on the horizontal platform of the large angular arch, that controls an end effector to place crates in stacking formation (a little more simplistic than Ball Crate Clutch Swinger) and to keep the bowling ball within the robot chassis

Recorded by:	Date:	Journal Coordinator:	Date:

Robot Diagram – Preliminary Idea of Crate and Bowling Ball Duplexer



Recorded by:	Date:	Journal Coordinator:	Date:

Tuesday, October 11, 2011: 5 - 7:30 p.m.

Session #7
St. Clare's School
(Staten Island, New York)

Attendance: Justin Cassamassino, Matthew Gulotta, Erika Olsen, Amanda Parziale, Michelle Pagano, Louis Pearson, James Pugliese
Coach: Mrs. Mary Lee Parent Mentor: Mr. Joseph Pugliese

TASKS	REFLECTIONS
Construct an attachment within our BOWLED OVER robot chassis that can : 1. Guide the bowling ball up the ramp into the home zone goal in the end game 2. Store a crate for placing racquetballs inside	Our team successfully created a bowling ball and crate guide that is … ➢ Located in the first part of the **H**-shaped robot chassis ➢ Structured to fit –of the bowling ball's area: 96.36 mm ➢ Formed from 32mm channels and bent TETRIX plates
Test the robot chassis's ability to guide the bowling up the home ramp and goal by means of the bowling ball guide.	Since the BOWLED OVER robot chassis does not contain the battery pack, motor controllers, motors, and NXT battery connected in sequence, we mechanically (by hand) controlled the robot chassis with the bowling ball up the home zone ramp. And, even though we cannot yet control it by means of RobotC programming and the Samantha module, we concluded that the bowling ball guide within the robot chassis can effectively … ➢ Push the bowling ball into the home zone goal ➢ Still contain the bowling ball even if the robot chassis has to adjust/rotate itself to be positioned directly in front of the home zone goal
Assemble a technical platform (for battery pack, motor controllers, etc.) in the back portion of our robot chassis's **H** structure.	A main asset of our robot chassis is a storage area for the technical items so that the whole robot can move. The features of our robot's technical storage area include … ➢ Four full TETRIX plates making up the main platform part and extending the width of the robot chassis ➢ Two L-brackets and two partial TETRIX plate parts making up the support for the platform

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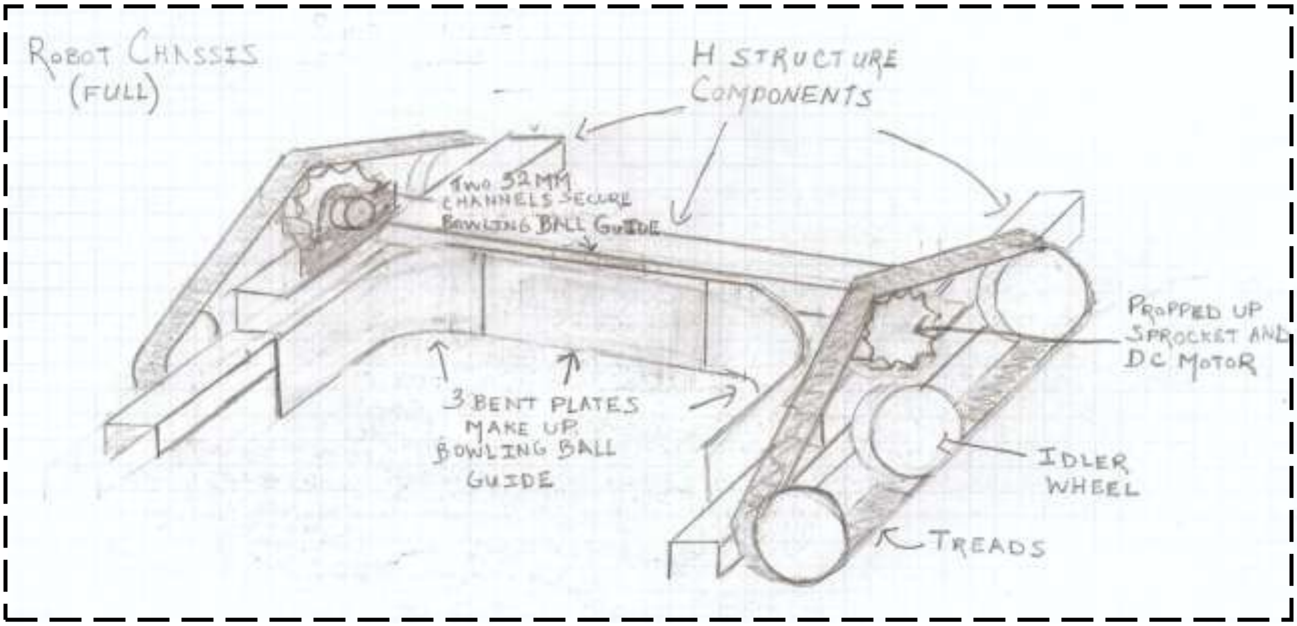
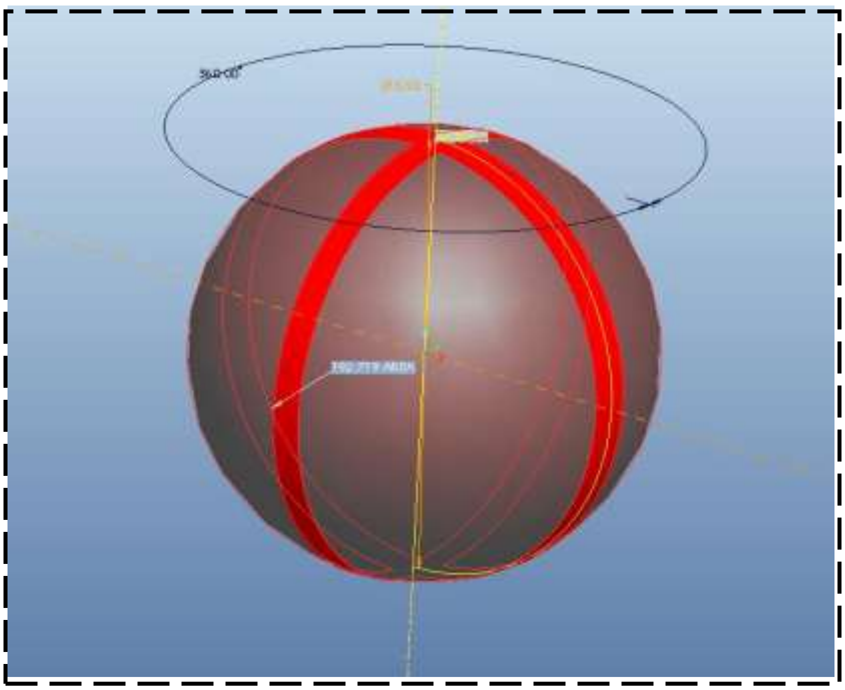
Robot Diagram – Bowling Ball and Crate Guide within Robot Chassis



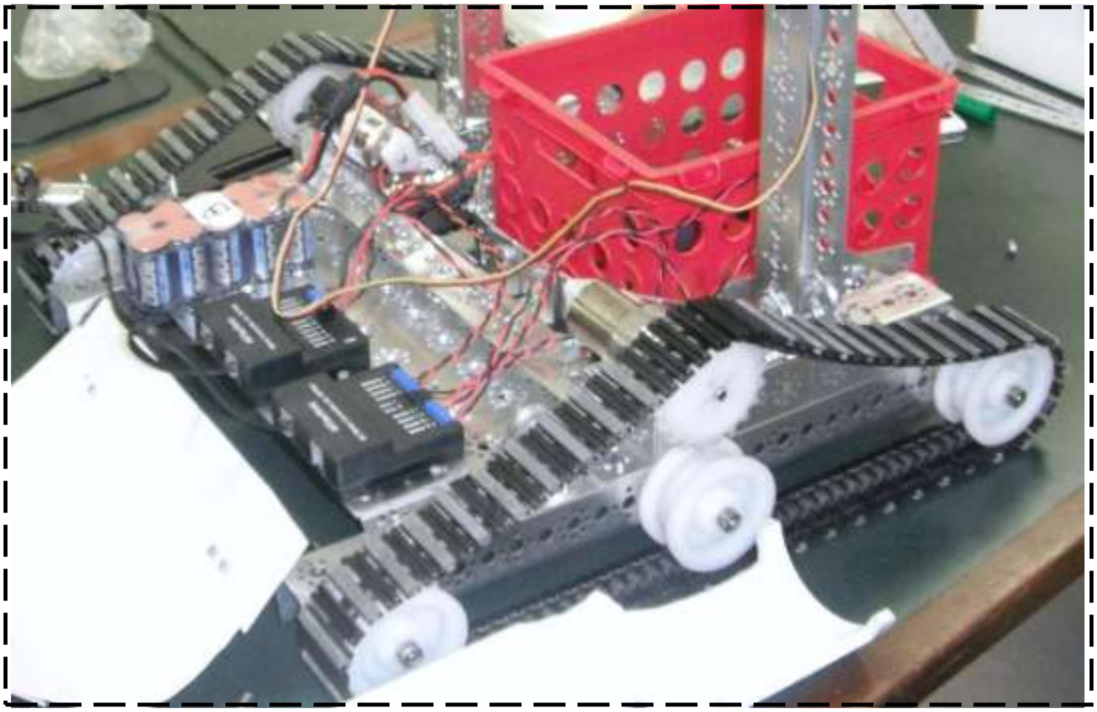
Creo Elements/Pro Analysis – Amount of Bowling Ball's Area that the Bowling Ball and Crate Guide will hold



The Bowling Ball and Crate Guide will hold ½ of the bowling ball's area, 192.719 mm. ½ of the bowling ball's area is 96.36 mm.

Recorded by:	Date:	Journal Coordinator:	Date:

Robot Photo – Technical Platform



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Thursday, October 13, 2011: 5 - 7:30 p.m.

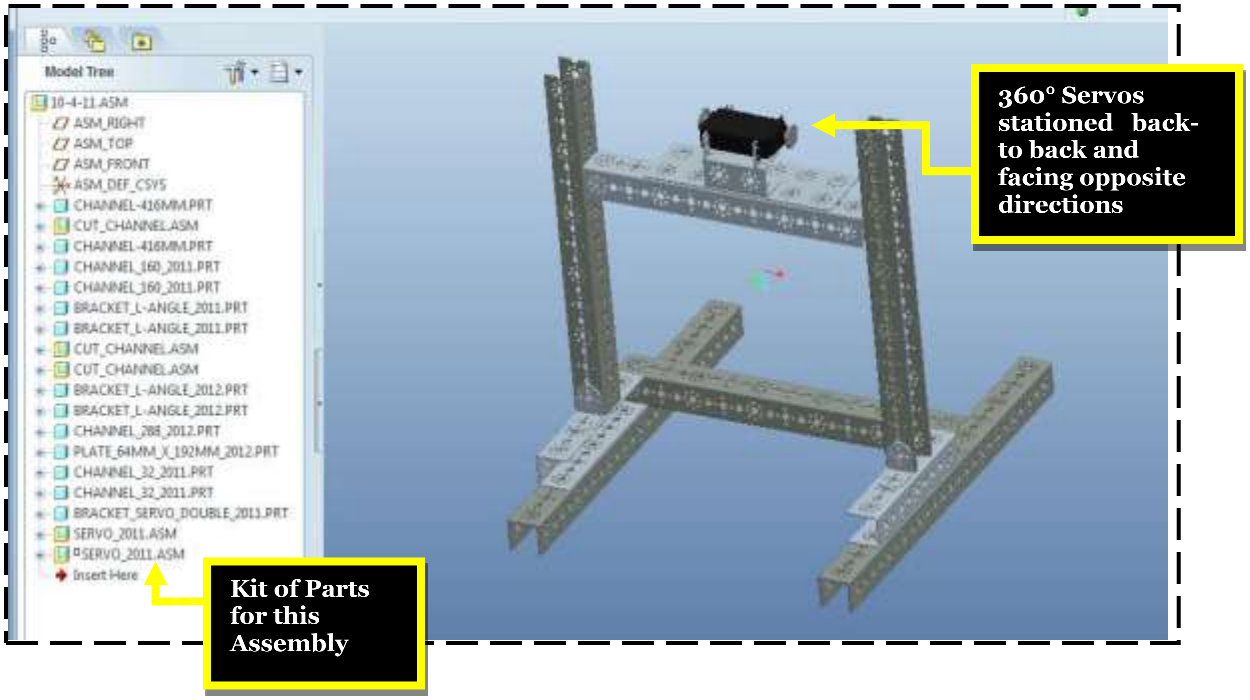
Session #8
St. Clare's School
(Staten Island, New York)

Attendance: Justin Cassamassino, Matthew Gulotta, Erika Olsen, Amanda Parziale, Michelle Pagano, Louis Pearson, James Pugliese
Coach: Mrs. Mary Lee

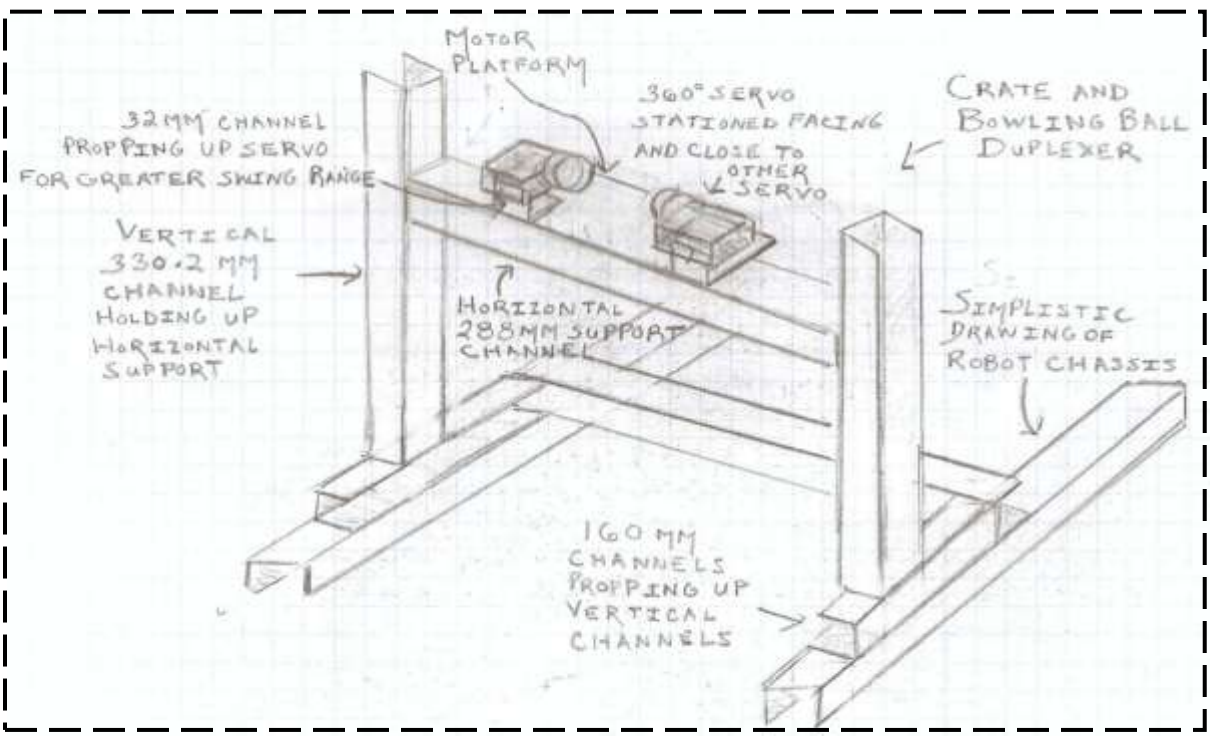
TASKS	REFLECTIONS
Start building the Crate and Bowling Ball duplexer as an upward continuation of our BOWLED OVER robot chassis.	Building the main frame for the Crate Bowling Ball Duplexer involved a lot of modifications and movement. Here are the steps we took to erect today's final design for the support assembly of the crate stacking duplexer. 1. Vertically Connecting two 330.2 mm channels to the front (bowling ball capturing side) of two parallel sides of the **H**-shaped robot chassis 2. Joining the tops of the two vertical 330.2 mm channels by means of a horizontal 288 mm channel
Evaluate the functions of the Crate and Bowling Ball Duplexer in order to correctly assign its motorized components.	The Crate and Bowling Ball Duplexer will function as an arm that will: ➢ Turn crates upright ➢ Situate crates into stacking position ➢ Keep bowling ball contained within robot chassis Based on this analysis, two 360° servos will work best to control the arm, especially in inverting the crates.
Determine how to appropriately align the two 360° servos, which will control the Crate and Bowling Ball Duplexer, on the horizontal support platform.	We connected the 360° servos for the Crate and Bowling Ball Duplexer in a couple positions on the horizontal platform before we were fully satisfied. Here are two positions we had the 360° servos in (with the second one being the position that is probably staying) ... 1. The two 360° servos facing each other and are close to one another ✘ Not Good: *Insufficient* amount of clearance between servos to build rest of arm and to adjust screws when needed 2. The two 360° servos facing opposite from one another and are back-to-back ✓ Good: *Sufficient* amount of clearance between servos to build a wide enough arm and to adjust screws when needed Another addition to motor arrangement – We propped up each of the 360° servos onto a 32 mm channel. The 32 mm channels will provide the servos with a greater range of swing distance.

Recorded by:	Date:	Journal Coordinator:	Date:

Creo Elements/Pro – ***Right*** Positioning of Crate and Bowling Ball Duplexer's 360° Servos



Robot Diagram – ***Wrong*** Positioning of Crate and Bowling Ball Duplezer's 360° Servos



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Thursday, October 20, 2011: 5 - 8 p.m.

Session #9
St. Clare's School
(Staten Island, New York)

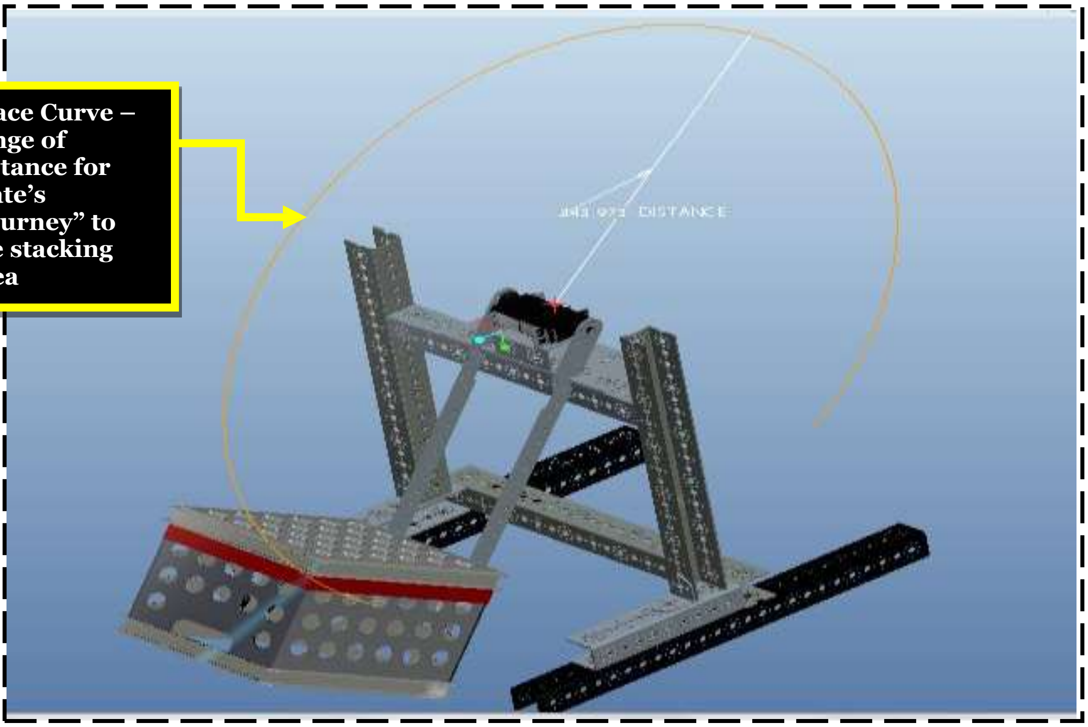
Attendance: Justin Cassamassino, Matthew Gulotta, Erika Olsen, Amanda Parziale, Michelle Pagano, Louis Pearson, James Pugliese
Coach: Mrs. Mary Lee

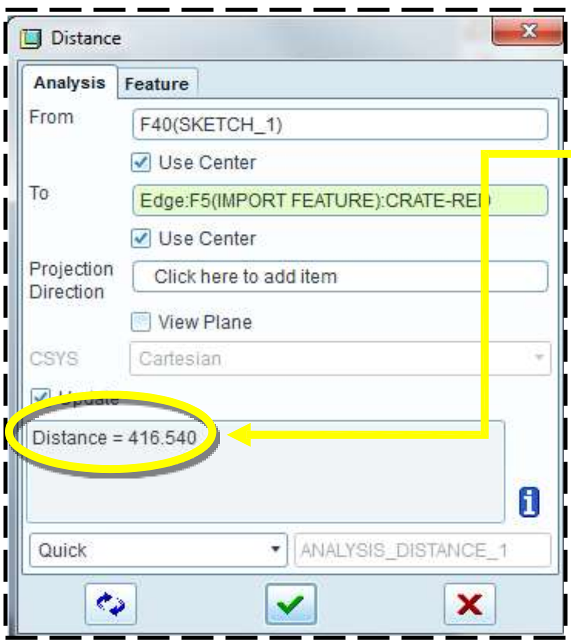
TASKS	REFLECTIONS
Figure out how to build the actual arm of the Crate and Bowling Ball Duplexer onto the two 360° servos.	Like we stated in a previous entry, the Crate and Bowling Ball Duplexer must be able to … ➢ Turn crates upright ➢ Situate crates into stacking position ➢ Keep bowling ball contained within robot chassis While going through the above primary functions of the duplexer arm, we suddenly recalled our GET OVER IT robot's baton catcher arm. We now want to construct a duplexer arm that is similar to the baton catcher arm. The baton catcher arm had … ➢ 180-270° servos (difference: duplexer arm will have 360° servos) ➢ Bars and flat brackets forming one long rod from each servo ➢ Attachment connected to outer ends of rods
Start the actual construction of the Crate and Bowling Ball Duplexer	We built the preliminary duplexer arm that has … ➢ Two 288 mm bars and flat bracket connected to form one longer rod on each of the two 360° servos ➢ Combined short bar/flat brackets/L-brackets connected to end (farthest part from servos) ➢ Cut flat bracket joining the two outer ends of two long rods ➢ One 32 mm channel connected to the cut flat bracket to invert/carry crates Later addition to the preliminary duplexer arm… Waffle padding surfacing the 32 mm channel to get a better grip on crates
Program (via RobotC) the crate stacking duplexer to move.	The new RobotC 3.0 and Robot Virtual Worlds have been giving us difficulties, so we will not be able to program the crate stacking duplexer to move tonight. We will seek RobotC help from RoboMatter and Saturday's workshop at NYU-Poly .

Recorded by:	Date:	Journal Coordinator:	Date:

Creo Elements/Pro Analysis – Duplexer Arm in the Process of Lifting and Stacking Crate

Trace Curve – range of distance for crate's "journey" to the stacking area





416.54 mm is the distance (radius) from the servo to the gAAAApoint where crate and duplexer arm meet. Knowing this will help our team adjust the duplexer arm to better latch onto the crate.

Recorded by:	Date:	Journal Coordinator:	Date:

Saturday, October 22, 2011: 8:30 a.m. - 4 p.m.

New York City FTC Kickoff/Workshops
NYU-Poly
(Brooklyn, New York)

Attendance: Matthew Gulotta, Erika Olsen, Michelle Pagano, Amanda Parziale, Louis Pearson
Coach: Mrs. Mary Lee

TASKS	REFLECTIONS
Upon arriving and signing in for the NYC FTC Kickoff/Workshops, attend opening ceremonies in the auditorium of NYU-Poly.	Our team gained very useful information in opening ceremonies. For instance, we learned that the up-to-date resources for NYC FIRST include: Twitter@NYCFIRST , www.facebook.com/nycfirst , www.youtube.com/nycfirst , and BIT.LY/nycfirst. These up-to-date resources will further help our team become more in tuned with the BOWLED OVER game. Also, we must register for upcoming NYC FTC workshops and scrimmages, especially the 8-hour PTC workshop.
Learn about TETRIX developments in the PITSCO building component of today's workshops.	In the PITSCO building component, our team was given a TETRIX binder and DVD equipped with building and design tutorials and challenges. We also learned about new TETRIX products, which include: ➢ Bigger 4 inch omni wheels ➢ Thermal (heat) fuse for DC motor, so it will not blow out ➢ 250 mm axle ➢ Encoder Mount
Gain knowledge and techniques concerning the Samantha module in the RobotC programming component of today's workshops.	In the RobotC workshop, we learned that the best way to keep the Samantha module working is to hook it directly into the battery. This means to setup parallel circuitry by hooking the battery into two switches, one switch for the way of the motor controllers and NXT, while the other switch for the way of the Samantha module.
Demonstrate how to create an award winning engineering journal in the Team Skills component of today's workshops.	Our team was glad to give a helping hand to teams seeking advice on the technicalities of maintaining a stellar engineering journal. Here are the main points we discussed … ➢ Organize an engineering journal into different sections ➢ Format entries to accurately document a team's progress ➢ Establish either a traditional or electronic documentation Incorporate various materials into an engineering journal to make a team a candidate for a plethora of awards, including THINKS, INNOVATE, and CONNECT.
Learn and assist in the PTC component of today's workshops.	Helping Mike Stuart and Jordan Cox (both from PTC) facilitate Creo Elements/Pro lessons and activities showed how well our team knew its Creo! We were able to teach first time PTC team users how to: ➢ Adjust the view of a model ➢ Alter the type of material a component is made out of ➢ Perform an analysis to synthesize the trace curve of an assembly ➢ Assign constraints to a component to make it behave in a certain way

Recorded by:	Date:	Journal Coordinator:	Date:

Thursday, October 27, 2011: 5 - 8 p.m.

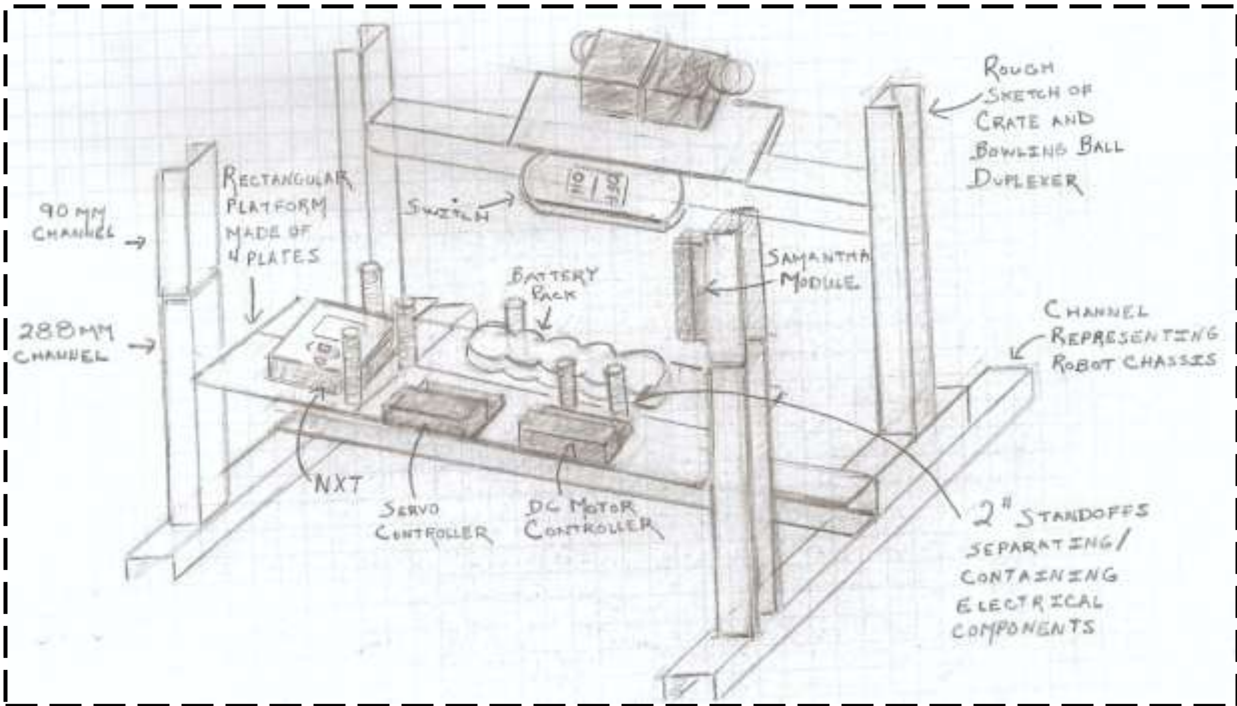
Session #10
St. Clare's School
(Staten Island, New York)

Attendance: Justin Cassamassino, Matthew Gulotta, Erika Olsen, Michelle Pagano, Amanda Parziale, Louis Pearson, James Pugliese
Coach: Mrs. Mary Lee Parent Mentor: Mr. Joseph Pugliese

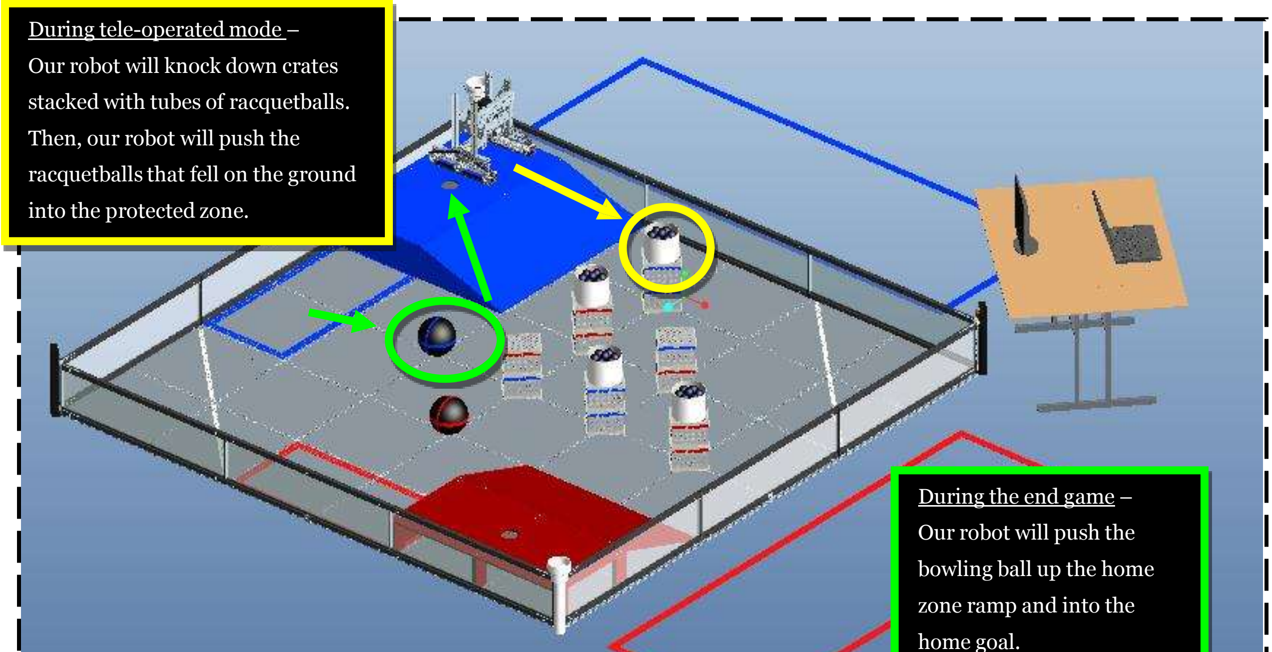
TASKS	REFLECTIONS
Determine how to safely store the electrical components (battery, motor controllers, NXT) within our BOWLED OVER robot.	Our team cannot store the electrical components in the back of the **H**-shaped robot chassis anymore, because that area will now be used for stacking crates. The new area where we will store the battery, motor controllers and NXT is elevated; however, it is stationed a little lower than horizontal platform of the Crate and Bowling Ball Duplexer. The new electrical area includes: ➢ Rectangular platform made of four plates ➢ Six 2 inch standoffs attached vertically and spaced on four plates in order to separate battery, motor controllers and NXT from one another ➢ 288 mm and90 mm channels stacked together to hold up rectangular, four plate platform
Setup the Samantha module vertically and high up on our robot for optimal Wi-Fi connections.	We placed the Samantha module vertically, towards the top of one of the two stacked combinations of 288 mm and 90 mm channels holding up the rectangular, four plate platform for the electrical equipment. Since the Samantha module is vertical and high up, we are hoping that there wouldn't be any problems with connecting to the Wi-Fi network.
Create a program via RobotC for our robot to move.	Our team created a program for our robot to … ➢ Move its DC drive motors ➢ Run by means of the two toggles switches of one joystick in the j tele-operated (joystick control) mode. The name of the program is **10-27-11_teleop.** We ran **10-27-11_teleop** by means of Bluetooth, because the Wi-Fi in the science lab is not working. **10-27-11_teleop** ran successfully.
Devise our robot's plan of attack for Saturday's NJ FTC "Halloween Scrimmage."	We developed some strategies for our robot to gain the most points that it can on the BOWLED OVER game field at Saturday's scrimmage. Our robot will not use the Crate and Bowling Ball Duplexer, because we are still getting the hang of how to control its two 360° servos. However, we plan for our robot to … ➢ Push racquetballs into the protected area *~ 1 point each ~* ➢ Guide the bowling ball up into the home zone goal *~ 30 points ~* We also must take into consideration what our alliance teams are able to do. Our robot may be better at defense.

Recorded by:	Date:	Journal Coordinator:	Date:

Robot Diagram – Electrical Area



Creo Elements/Pro Analysis – Game Plan for Saturday's NJ FTC "Halloween Scrimmage"



<u>During tele-operated mode</u> – Our robot will knock down crates stacked with tubes of racquetballs. Then, our robot will push the racquetballs that fell on the ground into the protected zone.

<u>During the end game</u> – Our robot will push the bowling ball up the home zone ramp and into the home goal.

Recorded by:	Date:	Journal Coordinator:	Date:

Saturday, October 29, 2011: 8:30 a.m. - 1 p.m.

New Jersey FTC "Halloween Scrimmage"
River Dell High School
(Oradell, New York)

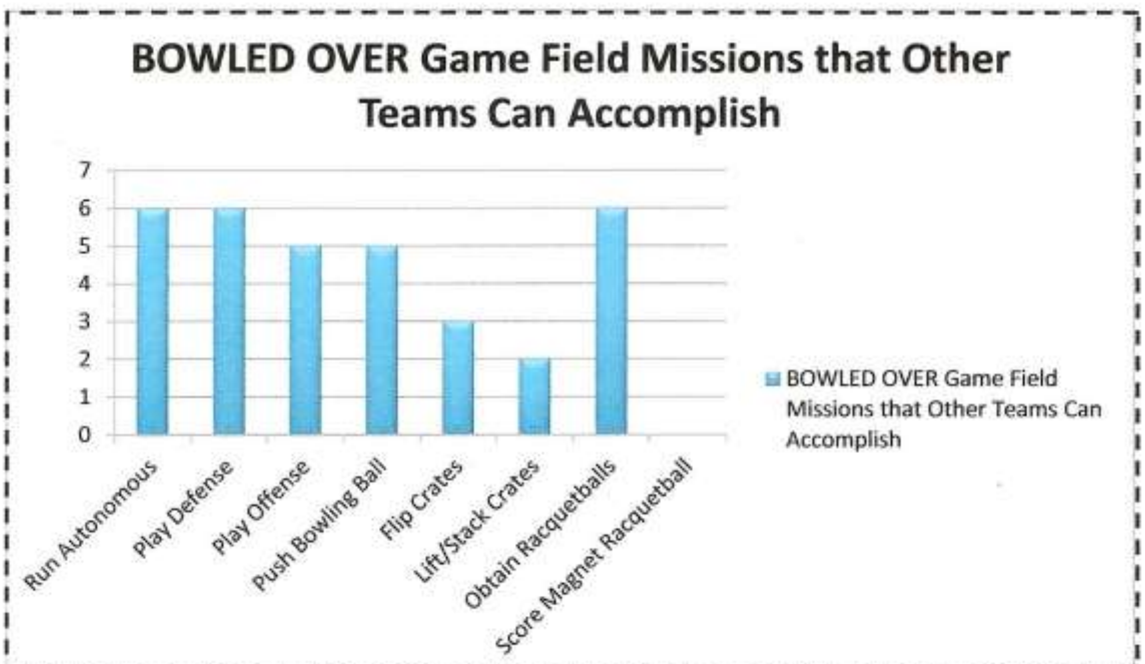
Attendance: Justin Cassamassino, Matthew, Michelle Pagano, Amanda Parziale, Louis Pearson, James Pugliese
Coach: Mrs. Mary Lee Parent Mentor: Mr. Joseph Pugliese

TASKS	REFLECTIONS
Organize equipment in our pit area located in Riverdell H.S.'s cafeteria.	Here are the types of key equipment that we organized on our pit table ... ➢ Robot – must be prepared for inspection and robot matches ➢ Tools – needed to adjust parts of robot and tighten its nuts and boltd ➢ IBM Thinkpad 3 (laptop) – used to test robot's movement for both practice and competition ➢ Small Dell (laptop) – used to adjust CAD model of robot ➢ Extension cords – needed to supply extra power ➢ Engineering journal – documents our team;s journey this season thus far
Participate in our team's judging interview at 8:30 a.m.	Our interview went well, and the judges were very nice. Here are some of the materials we discussed with the judges ... ➢ Members of our team, and each of their roles (programmer, builder) ➢ How our robot works, and the processes we undertook to make it what it is today ➢ CAD model – portrays how our robot works ➢ Engineering journal – elucidates design processes and calculations taken to create robot
Take our robot to hardware and software inspections	Hardware Inspection – ✓ Robot fit within 18" x 18" x 18" box ✓ Robot is made of all allowable materials, though we need to make sure that we bring a bill of materials next time ✗ Robot did not have team numbers, but we fixed that at our pit table Software Inspection – ✓ It took several attempts to finally connect the Samantha module to the Field Control Ssystem. We controlled our robot for 30 seconds via the RobotC program **10-27-11_teleop.**
Scout out prospective teams to form alliances with in the elimination rounds.	We asked the following questions to other teamsin orderto find out what their robots can accomplish ... 1. Do you have an autonomus program? 2. Do you play defense and/or offense ? 3. Can you push bowlingball into a goal in AUTO and/or TELEOP? 4. Can you flip crates? 5. Can you lift/stack crates? 6. Can you obtain racquetballs? 7. Can you score the magnet racquetball?

Recorded by:	Date:	Journal Coordinator:	Date:

TASKS (Continued)	**REFLECTIONS (Continued)**
Create a RobotC program that our robot can use to score in the autonomous mode of a BOWLED OVER game match.	We created an autonomous program for our robot to drive straight down the ramp and run into a stack of two crates and a racquetball tube. This autonomous program will ➢ Knock crates (with tube of racquetballs on top) down, and possibly ➢ Get us ready for scoring racquetballs in the tele-operated mode
Control our robot to perform in the actual BOWLED OVER robot matches	Our robot's performance placed 8th out of 17 teams. Here is what we observed during game matches: ➢ One DC drive motor connector became unplugged ➢ Robot was able to push racquetballs to protected area ➢ Robot's treads got stuck on racquetballs ➢ AUTO program enabled robot to knock down crates topped with racquetball tube; however, program caused robot to drive too far ➢ Crate and Bowling Ball Duplexer (especially 360° servos) got torn off by another robot

Scouting Chart – Data Collected from Six FTC Teams (not including us) at the "Halloween Scrimmage"



Tuesday, November 1, 2011: 5 - 8 p.m.

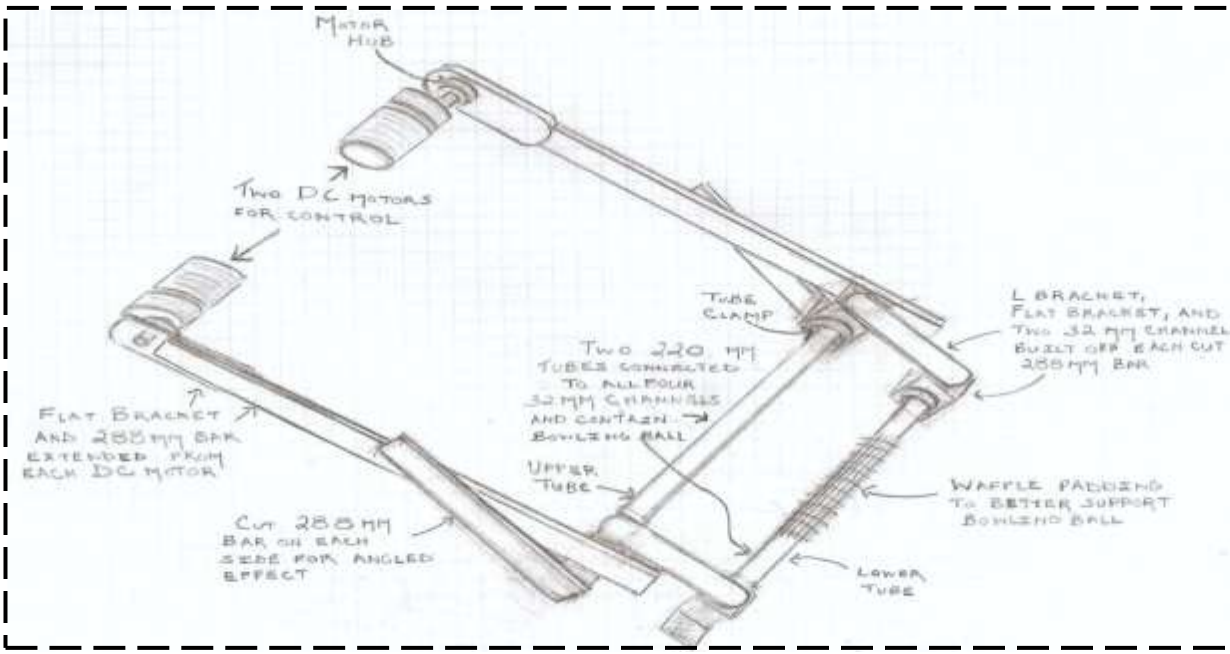
Session #11
St. Clare's School
(Staten Island, New York)

Attendance: Justin Cassamassino, Matthew Gulotta, Erika Olsen, Michelle Pagano, Amanda Parziale, Louis Pearson, James Pugliese

Coach: Mrs. Mary Lee Parent Mentor: Mr. Joseph Pugliese

TASKS	REFLECTIONS
Determine how to recreate Crate and Bowling Ball Duplexer after a robot ripped it off during the NJ FTC "Halloween Scrimmage".	Our team developed ideas on how to erect a more robust Crate and Bowling Ball Duplexer, which will have ... ➢ Two DC motors for control ➢ 220 mm bar and flat bracket extended from each DC motor ➢ 125.57 mm bar cut from 288 mm bar on each side for angled effect ➢ L, flat bracket, and two 32 mm channels built off each cut 288 mm bar ➢ Two 220 mm tubes connected to all four 32 mm channels ➢ Waffle padding on lower 288 mm tube for support
Define how the Crate and Bowling Ball Duplexer will work.	The Crate and Bowling Ball Duplexer will use the ... ➢ **220 mm tubes** to keep the bowling ball contained ➢ **Waffle padding** on lower 288 mm tube to provide better support to bowling ball and reduce "clinking" with it
Define **ANOTHER** function of the Crate and Bowling Ball Duplexer	The Crate and Bowling Ball Duplexer can also be used to ... ➢ Drag the tube of racquetballs off of the two stacked crates and into an inverted crate contained by the Crate and Bowling Ball guide while the robot backs up.

Robot Diagram – Potential, Robust Crate and Bowling Ball Duplexer



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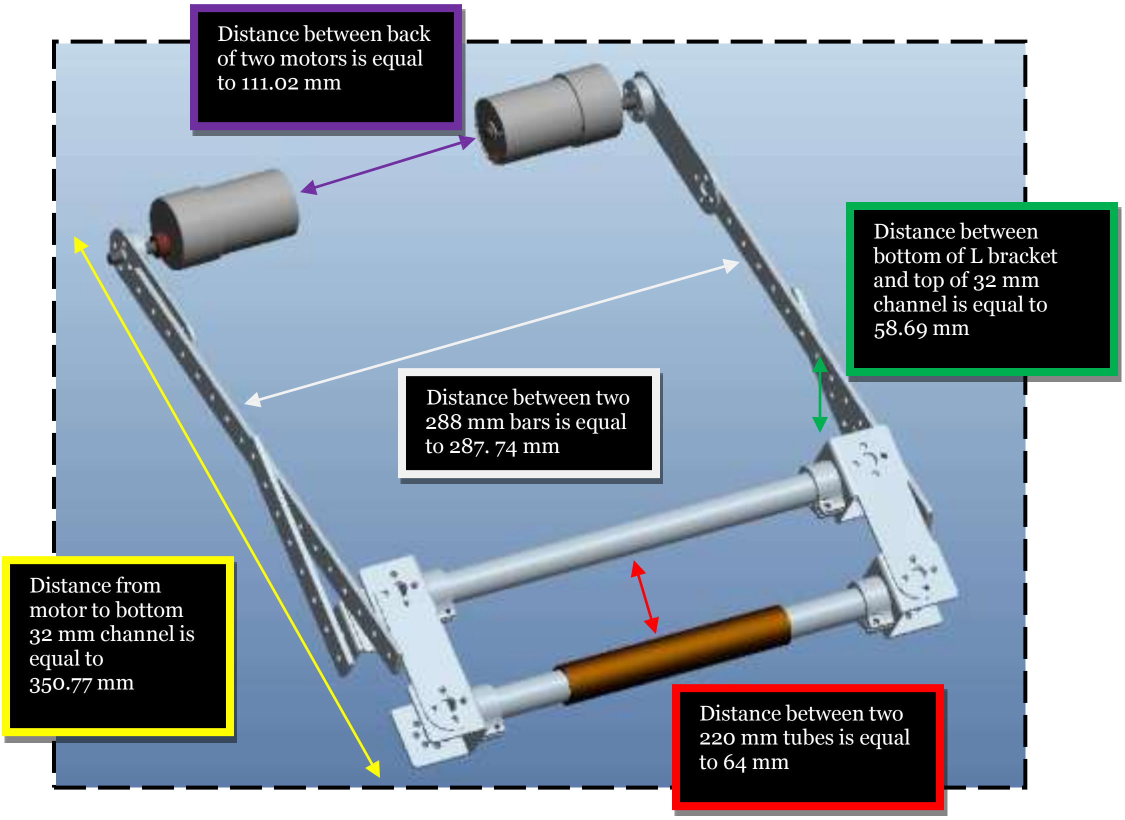
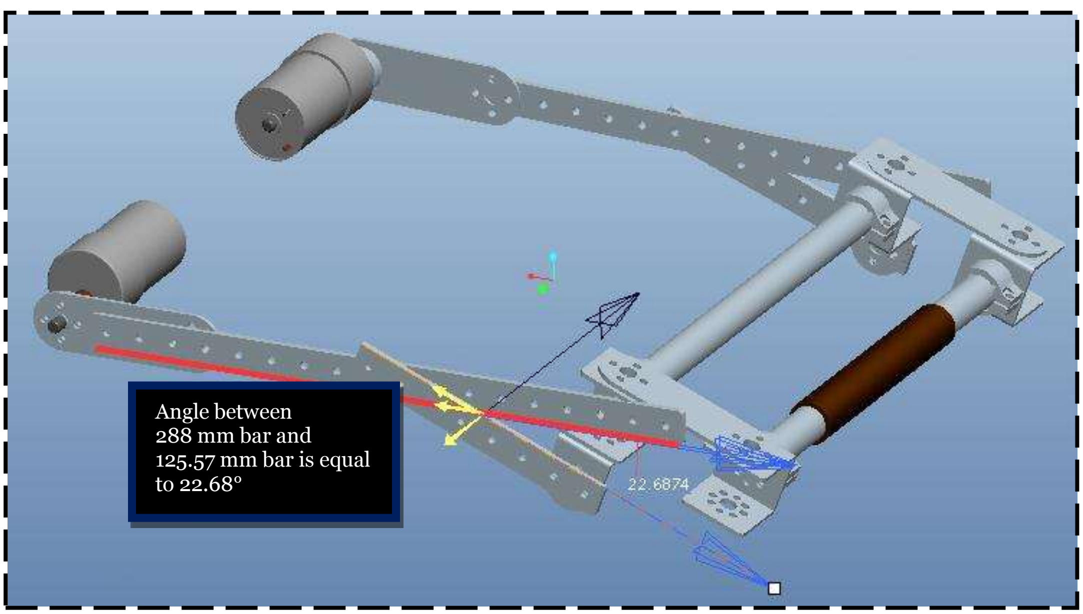
Creo Elements/Pro Analysis – Potential Distances for Crate and Bowling Ball Duplexer



Creo Elements/Pro Analysis – Potential Angle for Crate and Bowling Ball Duplexer



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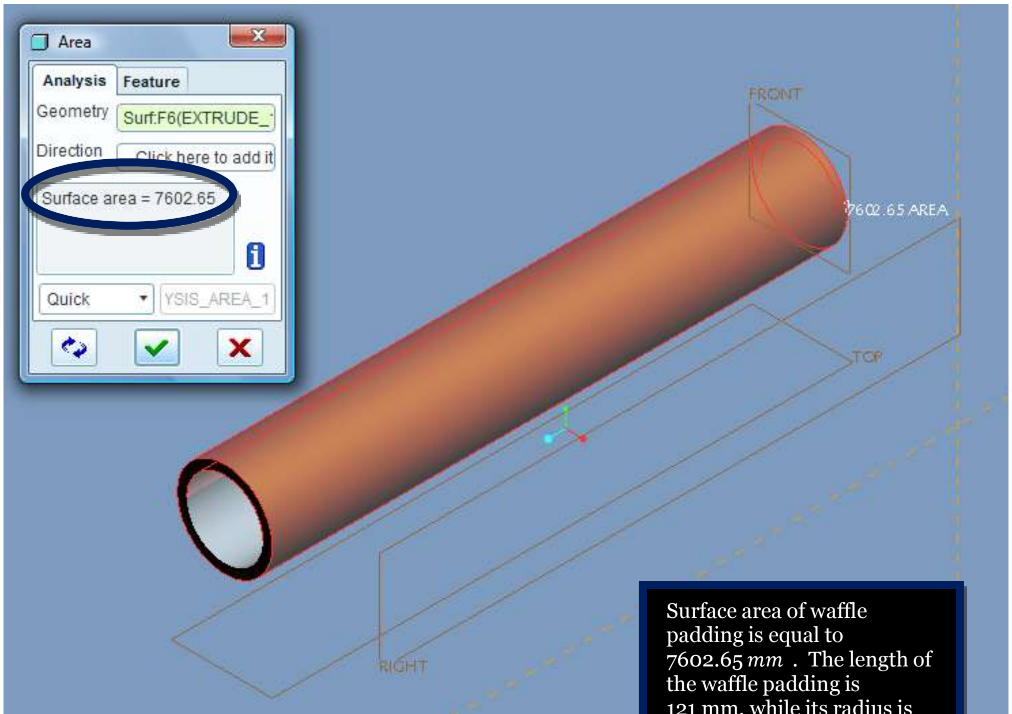
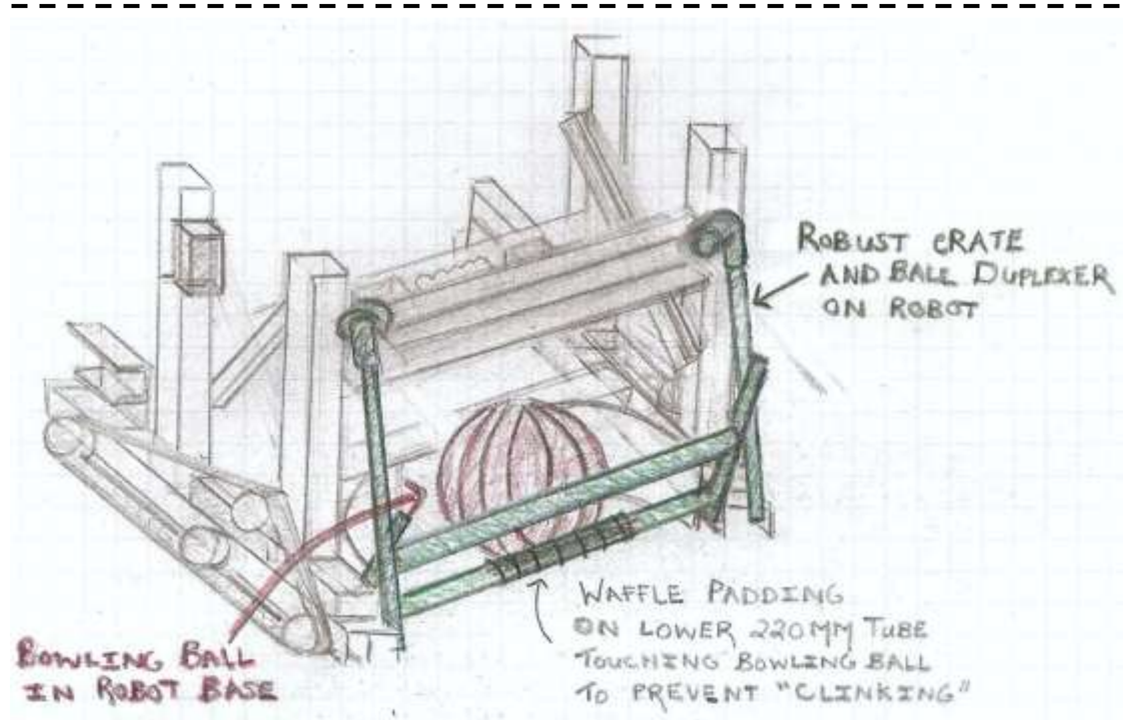
Creo Elements/Pro Analysis – Potential measurements for waffle padding on Crate and Bowling Ball Duplexer



Surface area of waffle padding is equal to 7602.65 mm . The length of the waffle padding is 121 mm, while its radius is 10 mm.

Robot Diagram – Function of Crate and Bowling Ball Duplexer (in its potential position) to contain bowling ball



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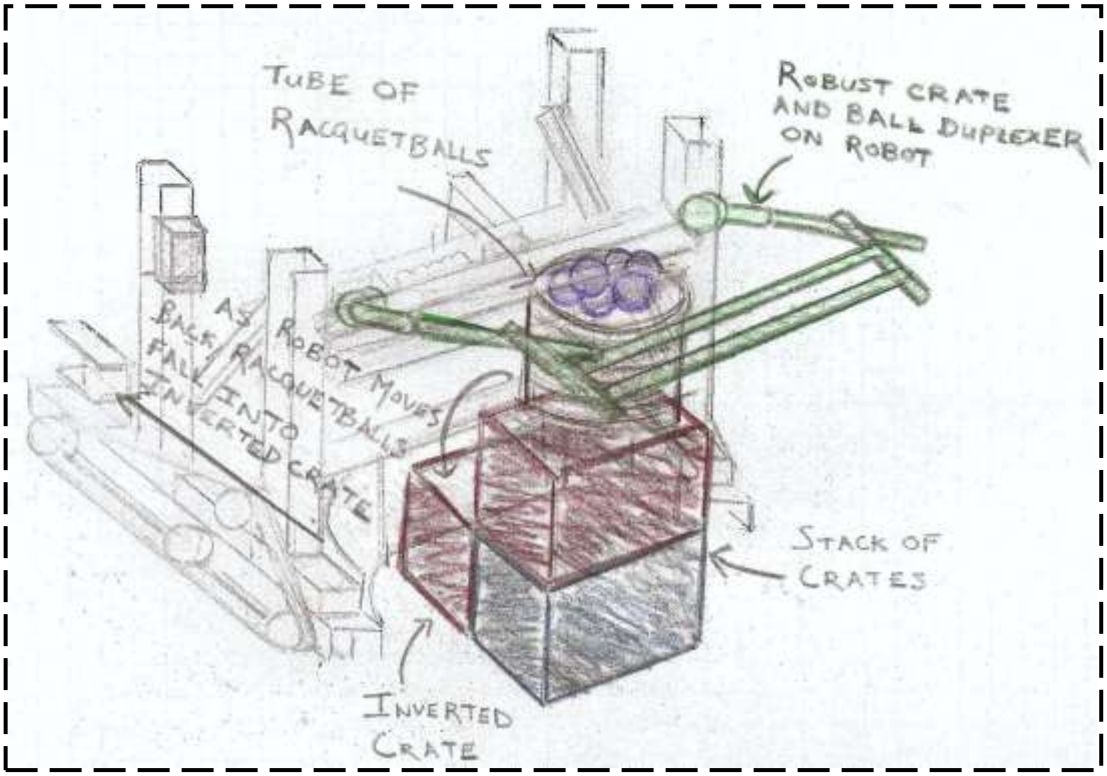
Robot Diagram – Function of Crate and Bowling Ball Duplexer (in its potential position) to get racquetballs into crate



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Thursday, November 10, 2011: 5 - 8 p.m.

Session #12
St. Clare's School
(Staten Island, New York)

Attendance: Justin Cassamassino, Matthew Gulotta, Michelle Pagano, Amanda Parziale, James Pugliese
Coach: Mrs. Mary Lee
Parent Mentor: Mr. Joseph Pugliese

TASKS	REFLECTIONS
Build the Crate and Bowling Ball Duplexer onto the robot.	Here are the steps our team undertook to build the new, robust Crate and Bowling Ball Duplexer (use specifications from Session #11) ... 1. Add a 96 mm and a 160 mm channel to the horizontal 288 mm channel of the duplexer's large angular arch for more room to attach DC motors 2. Position two DC motors in motor mounts onto 96 mm and 160 mm channels and face them outward from robot 3. Connect a flat bracket and a 288 mm bar to form a long rod from each DC motor 4. Connect 125.57 mm bar to each 288 mm bar at angle of 22.68° 5. Join the two 125.57 mm bars by two 220mm tubes/ four 32 mm channels/ two flat brackets 6. Use two zip-ties to secure waffle padding around the lower 288 mm tube so that the duplexer will provide more support for the bowling ball and not "clink" with it
Test the Crate and Bowling Ball Duplexer's ability to drag the tube of racquetballs into a crate stored in the robot chassis.	Here are the various methods we used to test dragging the tube of racquetball from the stack of crates into the upright crate in robot chassis ... ✗ 1st Method: Connecting a cut (127.57 mm) bar jutting out from the center of the upper 220 mm tube of the duplexer arm Observation: Duplexer arm with cut bar jutting out did not effectively pull full tube of racquetballs (about 25) into crate ✓ 2nd Method: Horizontally connecting a 288 mm bar along the end of the duplexer arm Observation: Duplexer arm with horizontal bar at end successfully pulls practically full tube of racquetballs into upright crate.

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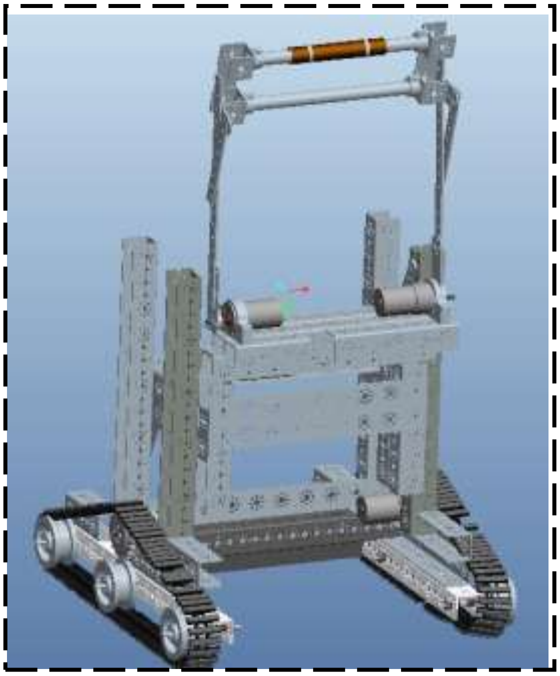
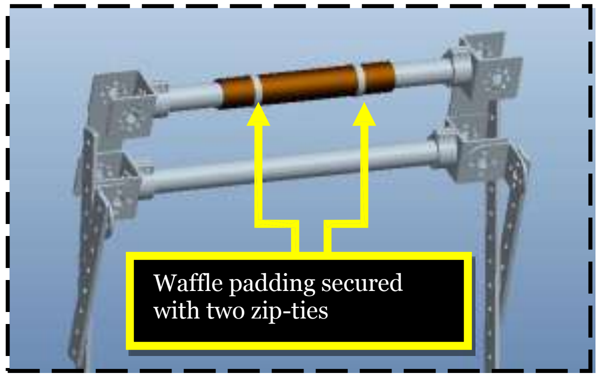
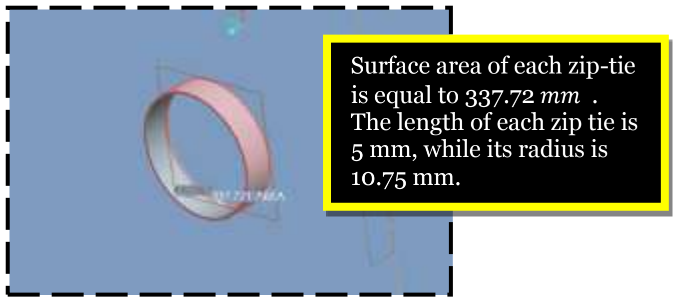
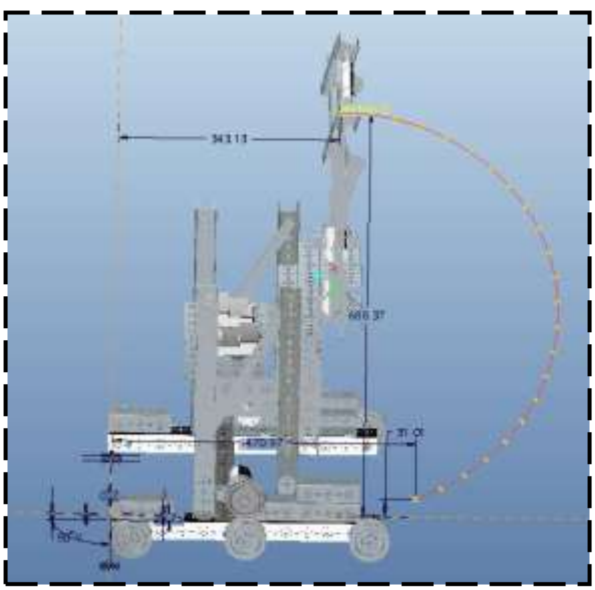
Creo Elements/Pro Analysis – Views of Crate and Bowling Ball Duplexer

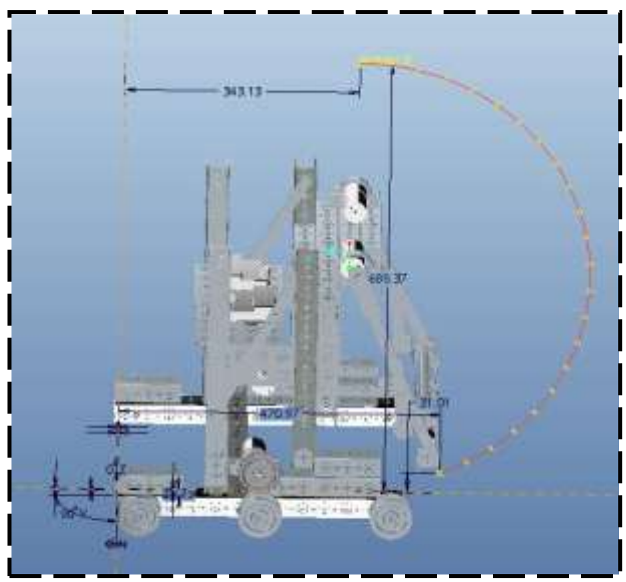






Creo Elements/Pro Analysis – Range of Movement for Crate and Bowling Ball Duplexer





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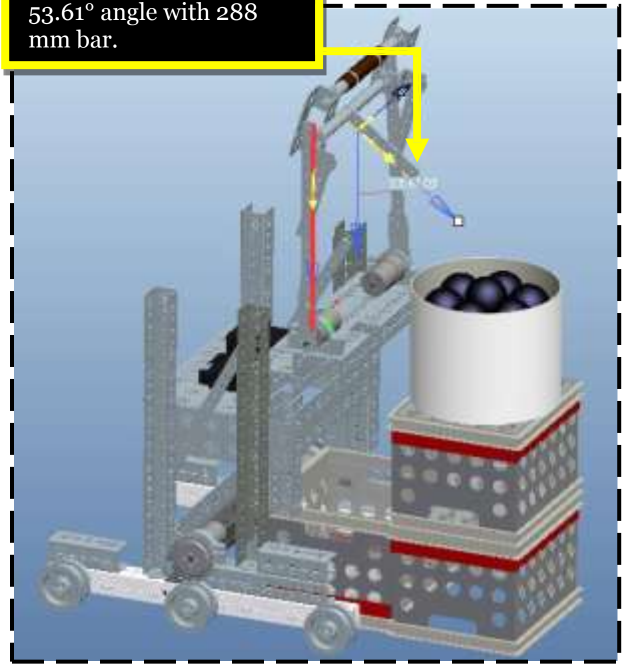
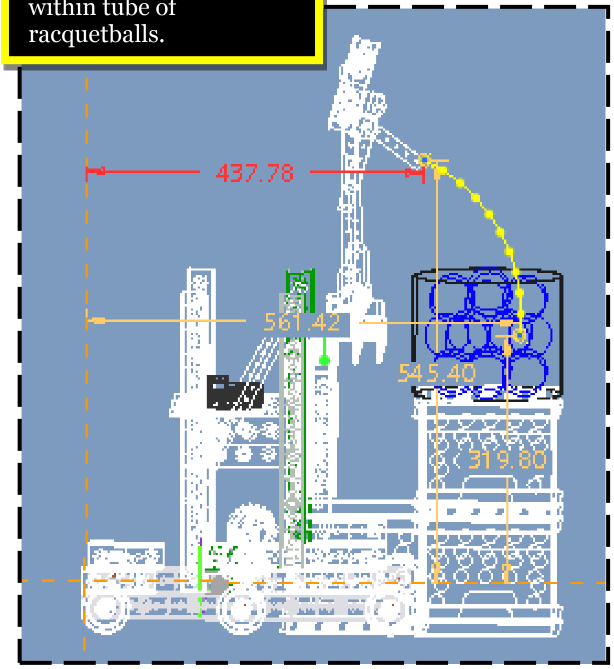
Creo Elements/Pro Analysis – 1st **method** for getting racquetballs from tube on stacked crates into inverted crate

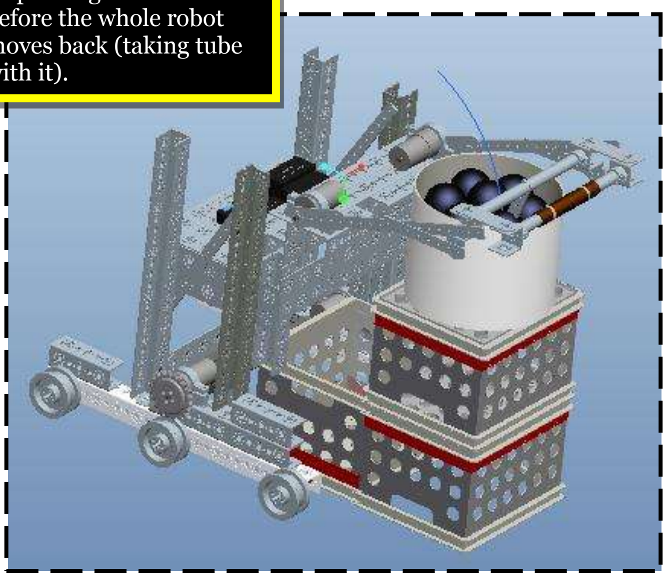
127.57 mm (cut) bar juts out from the upper 220 mm tube. It forms 53.61° angle with 288 mm bar.



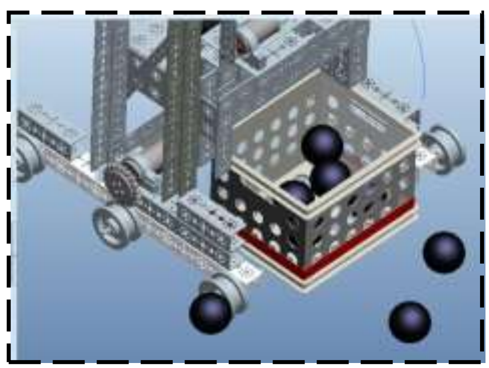
The trace curve shows the path the 127.57 mm bar takes to secure self within tube of racquetballs.



Crate and Bowling Ball Duplexer goes down before the whole robot moves back (taking tube with it).

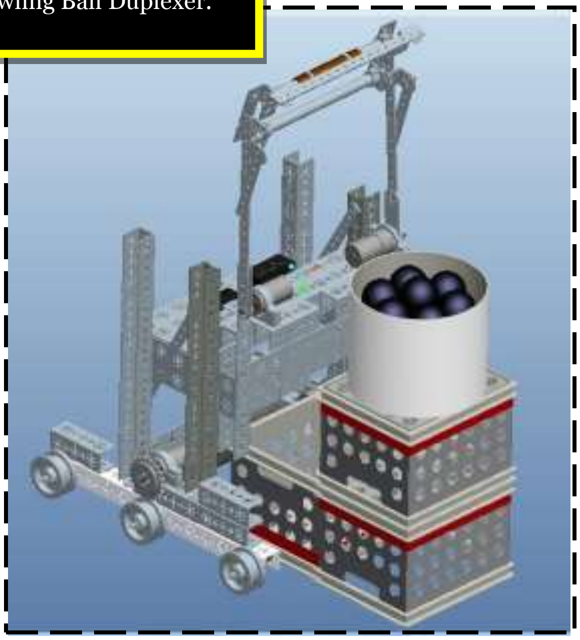


127.57 mm bar is not successful in helping pull full tube of racquetballs into the crate. This is because 127.57 mm bar enables tube to only tilt slightly when robot moves back.

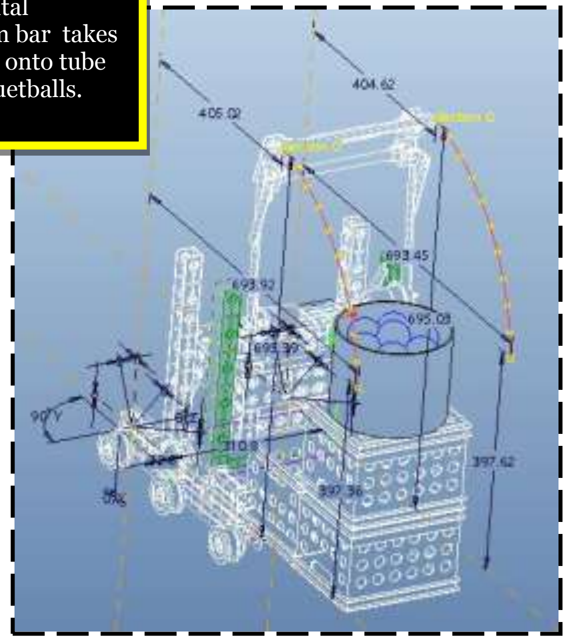


Creo Elements/Pro Analysis – **2nd method** for getting racquetballs from tube on stacked crates into inverted crate

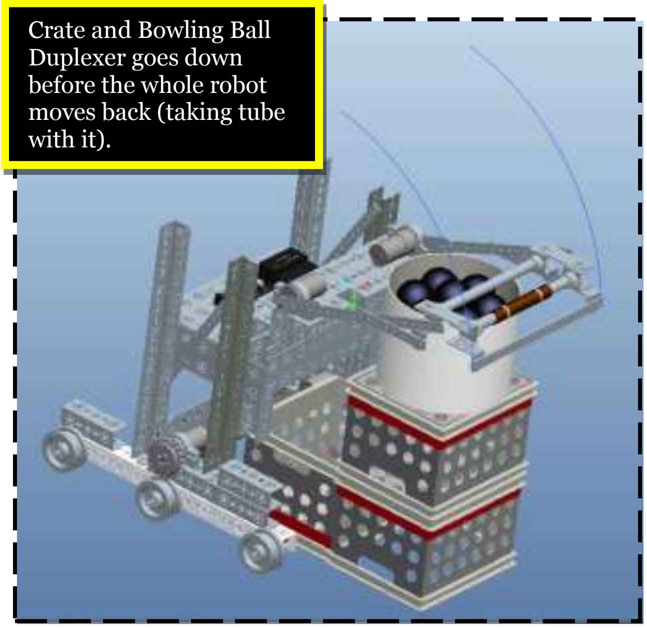
288 mm bar is attached horizontally along bottom of Crate and Bowling Ball Duplexer.



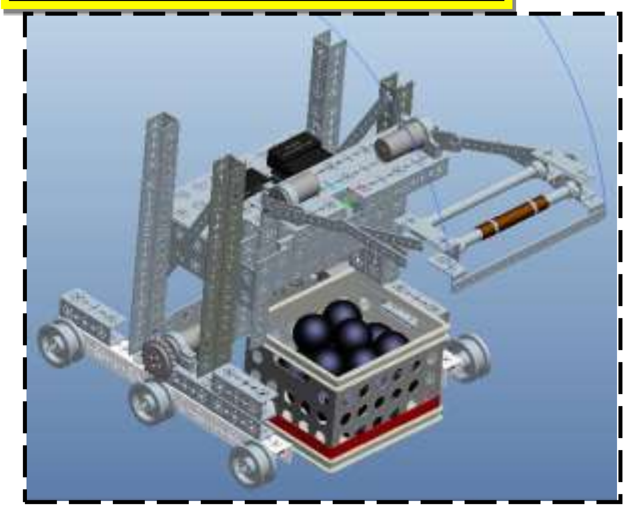
Trace curves show the path the horizontal 288 mm bar takes to latch onto tube of racquetballs.



Crate and Bowling Ball Duplexer goes down before the whole robot moves back (taking tube with it).



Horizontal 288 mm bar is successful in helping pull many racquetballs into the crate. This is because the horizontal 288 mm tube provides support to tube of racquetballs when robot moves back.



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Saturday, November 12, 2011: 9 - 5 p.m.

NYC FTC Hardware & Software (PTC Focus) Workshop
New York City College of Technology
(Brooklyn, New York)

Attendance: Justin Cassamassino, Matthew Gulotta, Michelle Pagano, Amanda Parziale, Louis Pearson, James Pugliese
Coach: Mrs. Mary Lee Parent Mentor: Mr. Joseph Pugliese

TASKS	REFLECTIONS
Set up laptops and power supply in the PTC classroom.	Getting our laptops and power supply ready was efficient. Mike Stuart (Project Manager of PTC's Academic Program) and Dmitry Orlov (Program Manager of PTC's Academic Program) were the two instructors of today's workshop. Mike even downloaded the Robotics Hands-on-Workshop Windchill/Creo/Mathcad training materials onto our laptops.
Learn more about the new Windchill Domain: Windchill PDM/ProjectLink 10.0.	Since our team has already registered for this season's new team account in Windchill PDM/ProjectLink 10.0, we wanted to familiarize ourselves with its various capabilities. Some of the capabilities of Windcill PDM/ProjecLink 10.0 features … ➢ New URL: https://firstrobotics.ptc.com ➢ Navigator bar on the left side of the screen ➢ Team tab (in Navigatior) that shows everyone invited to project and team member roles ➢ Access given to only the Project Manager to create roles and invite team members to project ➢ Abilities by one member at a time to check out, modify, and check in a document (Project manager can also check in document.) ➢ Ability of Project manager to send members a quick link of a document via e-mail so that they can check out that document Overall, our team finds that Windchill PDM/ProjectLink 10.0 works more efficiently and has better navigation than the previous version of Windchill ProjectLink that we used last season.
Assist in the Creo Elements/Pro portion of the PTC Workshop.	Working to teach other FTC teams how to better use Creo Elements/Pro was a great experience in two ways, which include helping fellow team members out and being able to reinforce our Creo rendering skills.

Recorded by:	Date:	Journal Coordinator:	Date:

Tuesday, November 15, 2011: 5 - 8 p.m.

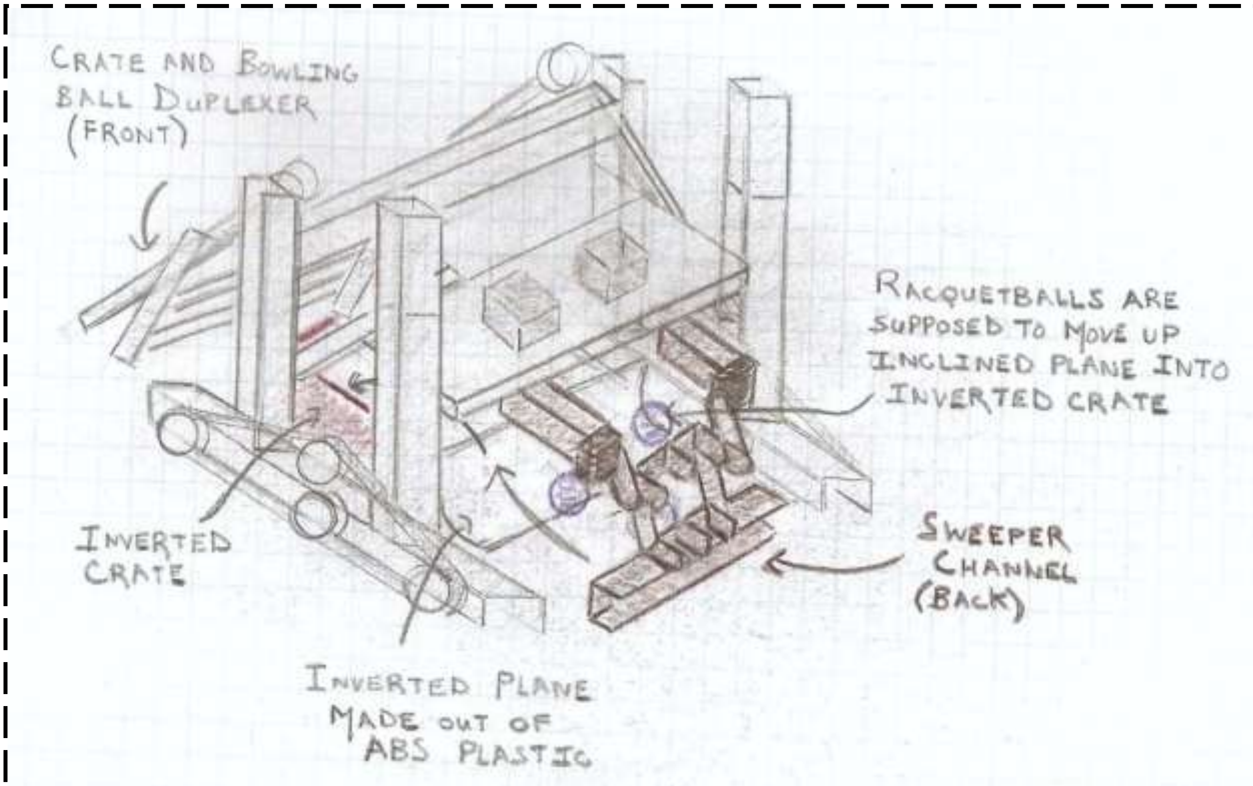
Session # 13
St. Clare's Schoool
(Staten Island, New York)

Attendance: Matthew Gulotta, Michelle Pagano, Amanda Parziale, Louis Pearson, James Pugliese
Coach: Mrs. Mary Lee
Parent Mentor: Mr. Joseph Pugliese

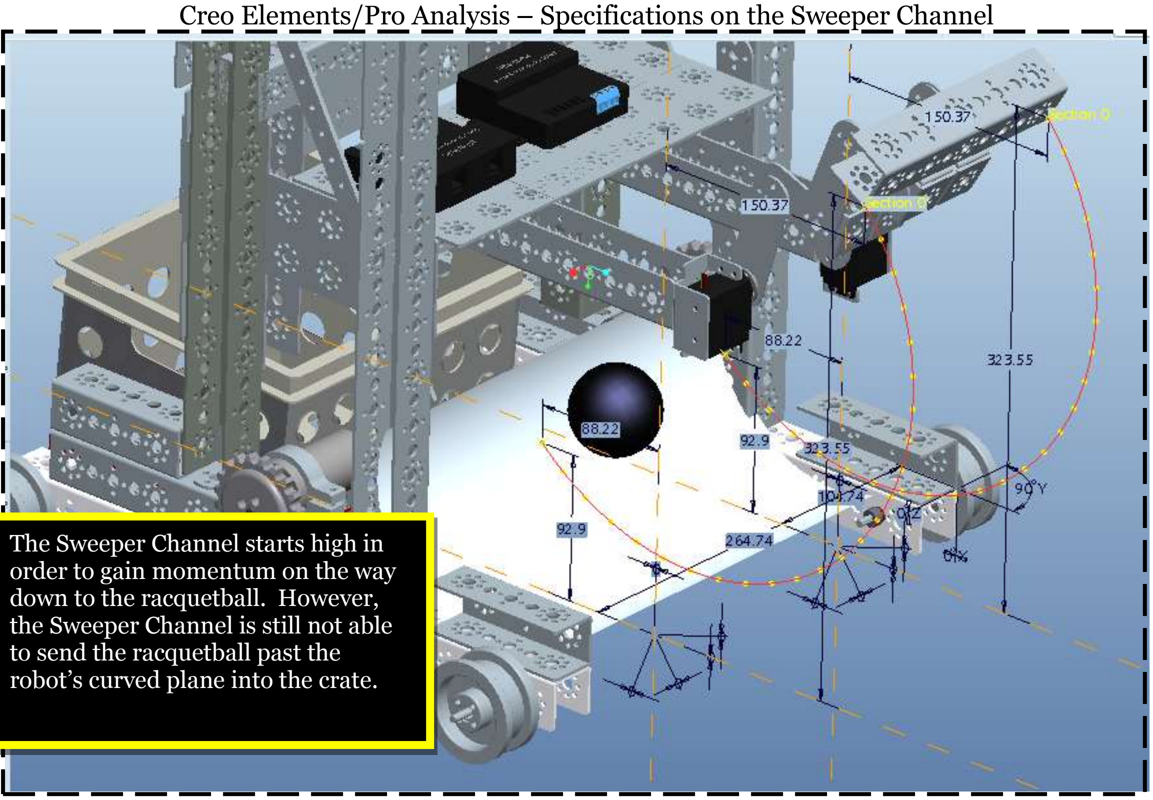
TASKS	REFLECTIONS
Determine how to build a racquetball manipulator by actually building our different ideas for it.	The Racquetball Manipulator will enable our robot to somehow lead racquetballs up an inverted crate contained in our robot's base. We thought of two different design ideas for building the Racquetball Manipulator onto the side of our robot that is opposite from the Crate and Bowling Ball Duplexer. These two design ideas include: 1. Sweeper Channel 2. Clamper
Build the Sweeper Channel onto our robot.	**Design Idea 1: Sweeper Channel -** Function: The Sweeper Channel pushes racquetball up a curved plane, through the robot, and into the inverted crate behind the Crate and Bowling Ball Duplexer. The "arm" (160 mm) channels are controlled by two 180° servos. Observations: Sweeper Channel did not effectively push the racquetballs high enough on the curved plane so that they could drop into the inverted crate. We will find an alternative way to build a racquetball manipulator.
Build the Clamper onto our robot.	**Design Idea 2: Clamper** Function: The Clamper acts as a hand that uses a movable ABS plastic plate to help grab up to three racquetballs. The Clamper needs the robot to turn around before letting balls go into an inverted crate. The "arm" (160 mm) channels are controlled by 180° servos; the movable ABS plastic plate is also controlled by two 180° servos. Observations: The Clamper successfully used the movable ABS plastic plate to scope up to three racquetballs. The movable ABS plastic plate and the stationary metal plate tightly held the racquetballs. The Clamper had difficulty in placing the racquetballs into the inverted crate because the "arm" servos, burdened with the weight of the racquetballs, struggled to lift high. However, in competition, having the robot deliver racquetballs to the low goal counts for points.

Recorded by:	Date:	Journal Coordinator:	Date:

Robot Diagram – The Sweeper Channel (doomed design idea)



Creo Elements/Pro Analysis – Specifications on the Sweeper Channel



The Sweeper Channel starts high in order to gain momentum on the way down to the racquetball. However, the Sweeper Channel is still not able to send the racquetball past the robot's curved plane into the crate.

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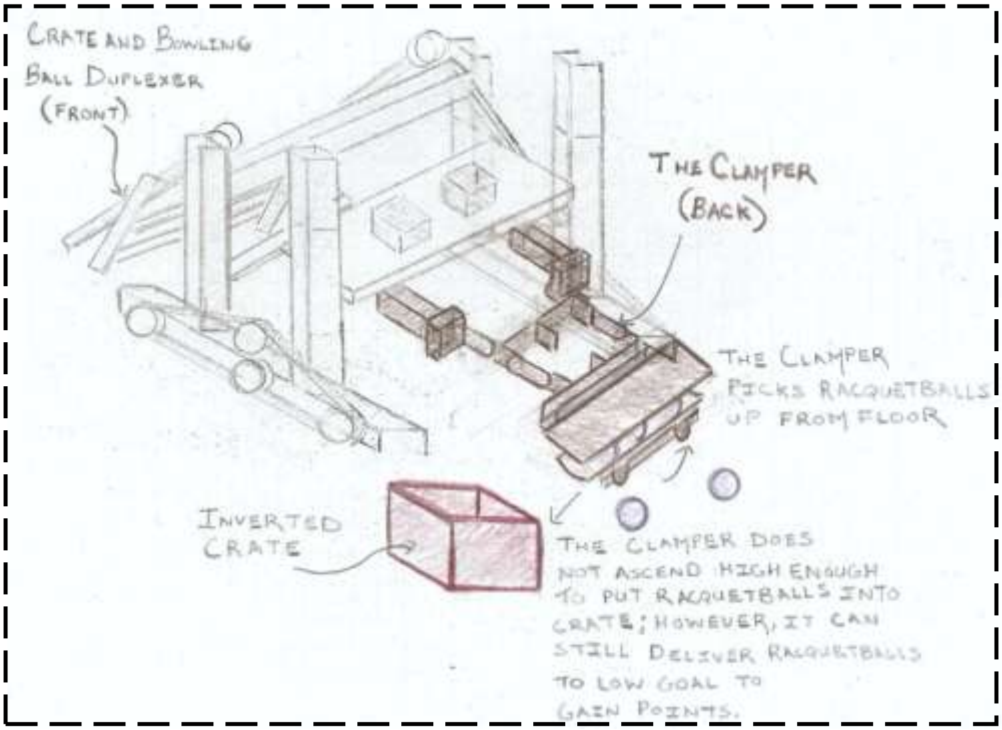
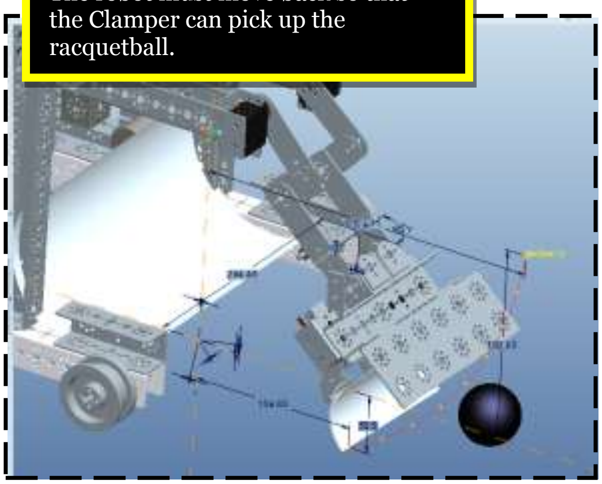
Robot Diagram – The Clamper (advantageous design idea)

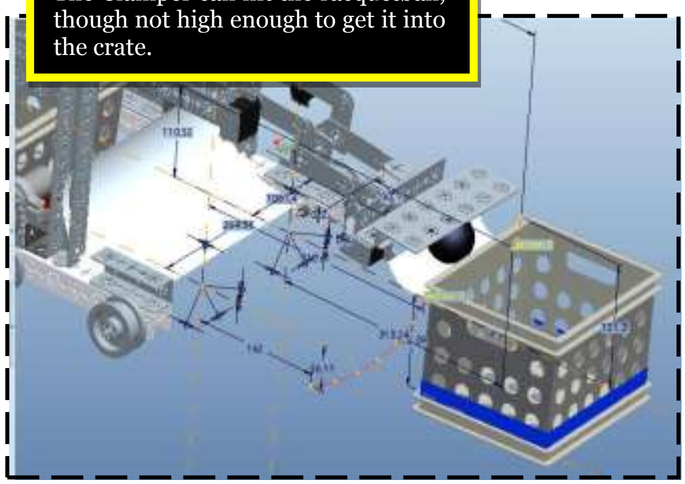


Creo Elements/Pro Analysis – Specifications on the Clamper

The robot must move back so that the Clamper can pick up the racquetball.



The Clamper can lift the racquetball, though not high enough to get it into the crate.



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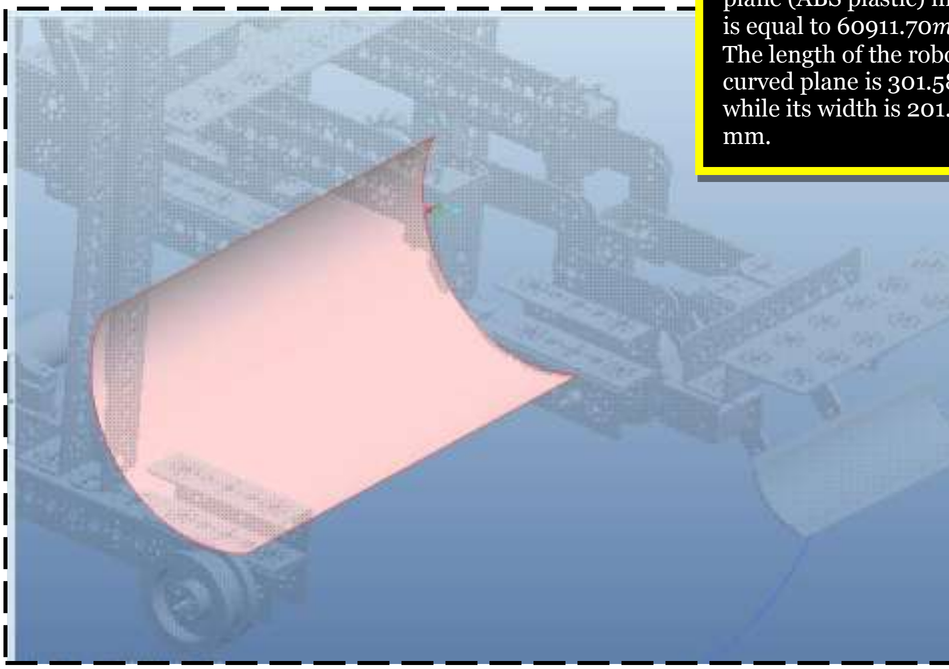
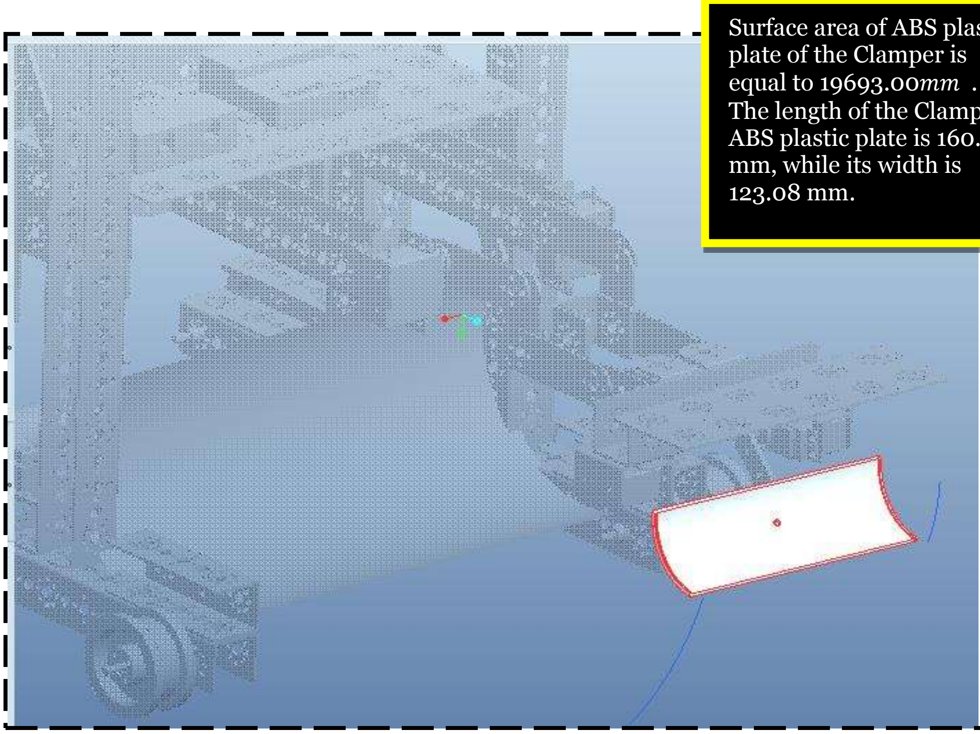
Creo Elements/Pro Analysis – Measurements for Curved Plane (ABS Plastic) in robot

Surface area of curved plane (ABS plastic) in robot is equal to 60911.70*mm* . The length of the robot's curved plane is 301.58 mm, while its width is 201.96 mm.



Creo Elements/Pro Analysis – Measurements for ABS Plastic Plate of the Clamper

Surface area of ABS plastic plate of the Clamper is equal to 19693.00*mm* . The length of the Clamper's ABS plastic plate is 160.00 mm, while its width is 123.08 mm.



FTC Team #2864 BOWLED OVER: Engineers at Work

Thursday, November 17, 2011: 5 - 8 p.m.

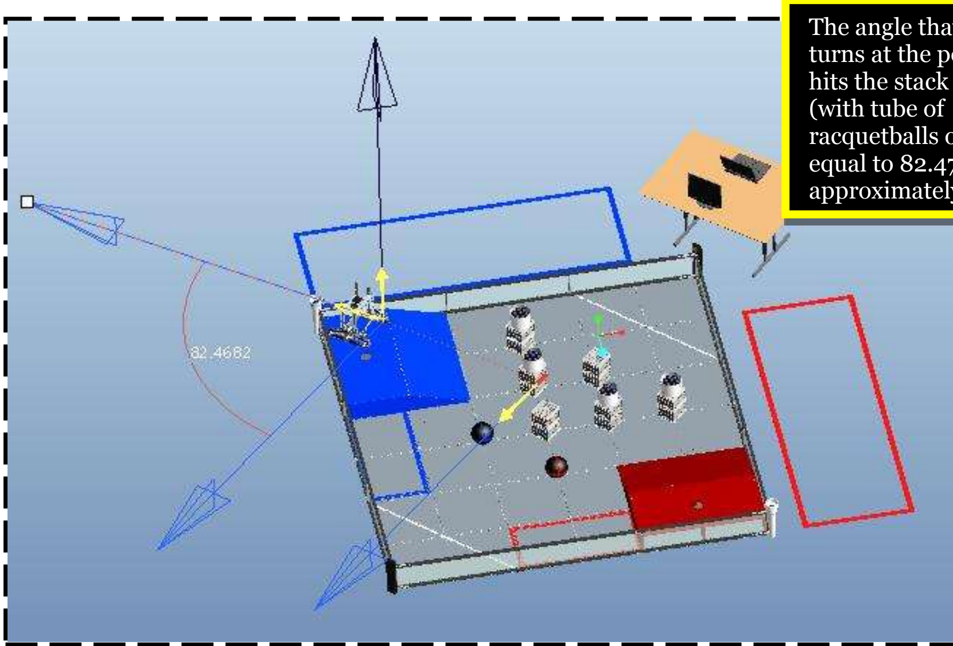
Session # 14
St. Clare's Schoool
(Staten Island, New York)

Attendance: Matthew Gulotta, Michelle Pagano, Amanda Parziale, Louis Pearson, James Pugliese
Coach: Mrs. Mary Lee Parent Mentor: Mr. Joseph Pugliese

TASKS	REFLECTIONS
Run and review the RobotC programs that our team wants the robot to do during the autonomous mode of BOWLED OVER robot matches during Sunday's NJ FTC Qualifier at Cherokee High School.	In autonomous: 1. If our robot starts out on the BLUE home zone platform, it will drive straight into/knock down the middle stack of red crates with the tube of racquetballs on top. Then, the robot will turn right and drive the blue bowling ball into the front parking zone. 2. If our robot starts out on the RED home zone platform, it will first remain stationary for .75 seconds to not interfere with the alliance robot performing a task. After the .75 seconds, the robot will drive straight into/knock down the middle stack of blue crates with the tube of racquetballs. Then, the robot will turn left and drive the red bowling ball into the front parking zone.
Perform the joystick controlled mode of robot runs to help determine our strategies for obtaining the maximum amount of points during the tele-operated part of the BOWLED OVER robot matches during Sunday's NJ FTC Qualifier at Cherokee High School	In tele-operated mode (before End Game), our robot will be able to: 1. Use the Crate and Bowling Ball Duplexer to drag tube of racquetballs off of the stack of crates and into inverted crate. 2. Use the Racquetball Manipulator (the Clamper version) to obtain racquetballs from the ground and place them in the low goal In tele-operated mode (during End Game), our robot will be able to: 1. Use the Crate and Bowling Ball Duplexer to contain the bowling ball and deliver it to the home zone goal.

Recorded by:	Date:	Journal Coordinator:	Date:

Creo Elements/Pro Analysis – Angle determinations for our robot's turning in autonomous (BLUE side)



The angle that the robot turns at the point after it hits the stack of crates (with tube of racquetballs on top) is equal to 82.47°, or approximately 90.00°.

RobotC Analysis – Autonomous Program for when robot starts on BLUE side

```
task main()
{
  initializeRobot();

  waitForStart(); // Wait for the beginning of autonomous phase.

  /////////////////////////////////////////////////////////////
  /////////////////////////////////////////////////////////////
  ////                                                     ////
  ////    Add your robot specific autonomous code here.    ////
  ////                                                     ////
  /////////////////////////////////////////////////////////////
  /////////////////////////////////////////////////////////////


{
forward(75);
wait1Msec(3000);

backward(75);
wait1Msec(800);

pointTurn(right, 75);
wait1Msec(1400);

motor[motorD] = 65;
motor[motorE] = 80;
wait1Msec(5000);

  }
}
```

Robot drives forward from BLUE home zone platform to stacked crates (topped with tube of racquetballs).

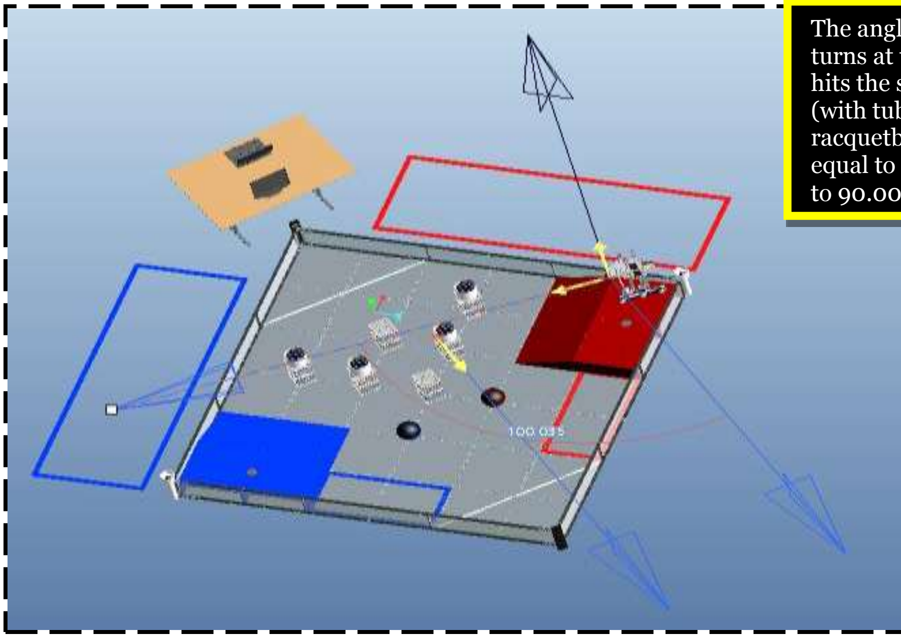
Robot slightly backs up from crates and tube of racquetballs that it knocked down.

Robot performs a sharp turn towards the RIGHT at an angle of about 90°.

Robot drives BLUE bowling ball into back parking zone and tries to curve in too.

Recorded by:	Date:	Journal Coordinator:	Date:

Creo Elements/Pro Analysis – Angle determinations for our robot's turning in autonomous (RED side)



The angle that the robot turns at the point after it hits the stack of crates (with tube of racquetballs on top) is equal to 100.03°, close to 90.00°.

RobotC Analysis – Autonomous Program for when robot starts on RED side

```
task main()
{
  initializeRobot();

  waitForStart(); // Wait for the beginning of autonomous phase.

  ///////////////////////////////////////////////////////////////
  ///////////////////////////////////////////////////////////////
  ////                                                       ////
  ////    Add your robot specific autonomous code here.      ////
  ////                                                       ////
  ///////////////////////////////////////////////////////////////
  ///////////////////////////////////////////////////////////////


{
  motor[motorD] = 0;
  motor[motorE] = 0;
  wait1Msec(750);

forward(75);
wait1Msec(3000);

backward(75);
wait1Msec(800);

pointTurn(left, 75);
wait1Msec(2000);

motor[motorD] = 65;
motor[motorE] = 80;
wait1Msec(5000);

  }
}
```

First, our robot's movement is delayed for .75 seconds so that our robot does not run into the alliance robot

Robot drives forward from RED home zone platform to stacked crates (topped with tube of racquetballs).

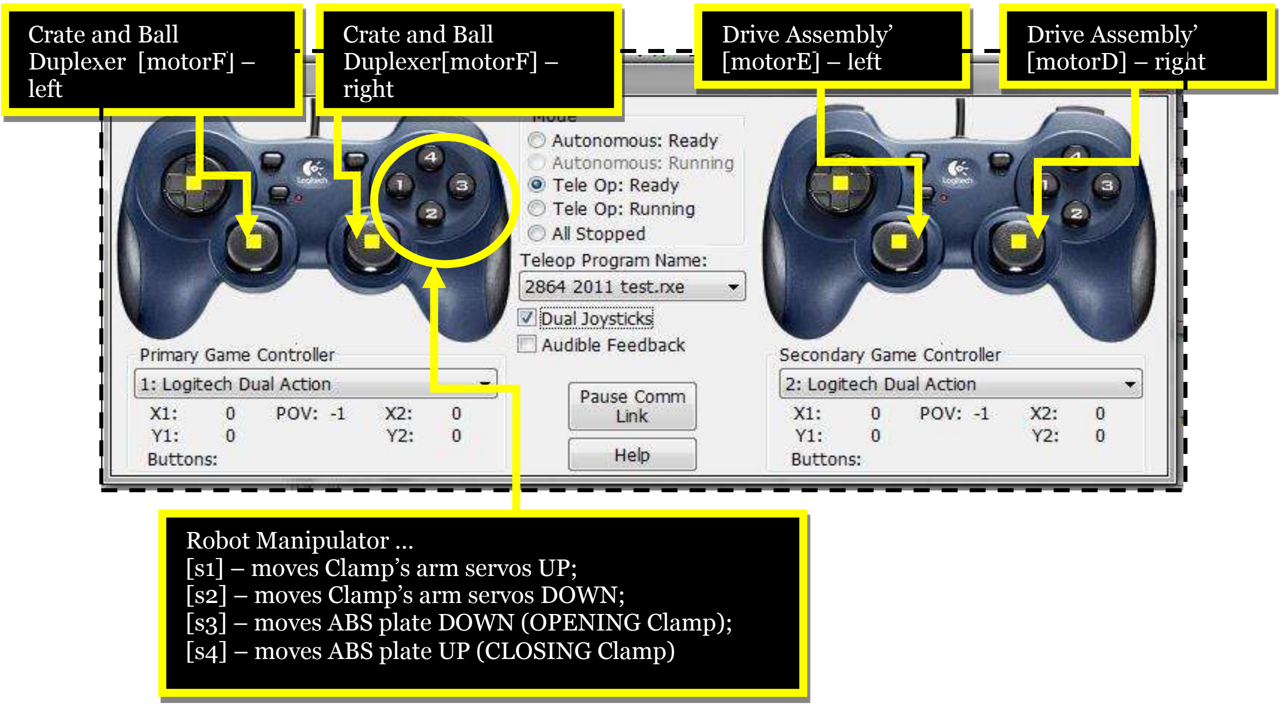
Robot slightly backs up from crates and tube of racquetballs that it knocked down.

Robot performs a sharp turn towards the LEFT at an angle a little greater than 90°.

Robot drives RED bowling ball into back parking zone and tries to curve in too.

Recorded by:	Date:	Journal Coordinator:	Date:

RobotC Analysis – Joystick Controllers Breakdown for Tele-operated mode



RobotC Analysis – Tele-operated program in reconstruction

```

task main()
{
  initializeRobot();

  waitForStart();   // wait for start of tele-op phase

  while (true)
  {
   /////////////////////////////////////////////////////////////
  while (1 == 1)
  {
        if(joystick.joy1_y2 < 10 && joystick.joy1_y2 > -10)
    {
      motor[motorD] = 0;
    }
    else
    {
      motor[motorD] = joystick.joy1_y2;
    }

    if(joystick.joy1_y1 < 10 && joystick.joy1_y1 > -10)
    {
      motor[motorE] = 0;
    }
    else
    {
      motor[motorE] = -joystick.joy1_y1;
    }
  }
}
}

```

The range for the joystick's toggles to move the drive assembly back and forth is equal to$[-10, 10]$.

Recorded by:	Date:	Journal Coordinator:	Date:

Sunday, November 20, 2011: 9 a.m. - 4 p.m.

NJ FTC Qualifier #1
Cherokee High School
(Marlton, New Jersey)

Attendance: Justin Cassamassino, Matthew Gulotta, Erika Olsen, Michelle Pagano, Amanda Parziale, Louis Pearson, James Pugliese
Coach: Mrs. Mary Lee Parent Mentor: Mr. Joseph Pugliese

TASKS	REFLECTIONS
Bring our robot to mechanical and software inspections.	Mechanical Inspection – We gave the inspector a bill of materials for both our robot's Tetrix and non-Tetrix bill of materials, which were approved. Our robot also had an easy time fitting within the 18" x 18" x 18" box. Software Inspection – Our robot efficiently connected to the Samantha Wi-Fi system. Upon successful connection, we drove our robot through the 2 minute test drive of tele-operated mode. During the 2 minutes, we controlled our robot to use the Crate and Bowling Ball Duplexer to bring the bowling ball to the home zone goal. Operation = Success.
Talk to the judges about our team.	We explained various things such as our team's origination, the robot's evolution from the season's start, Creo/Windchill/Mathcad projects, engineering journal, community outreach, and sponsorship. The judges enjoyed speaking to us and we enjoyed speaking to them.
Compete in the day's robotics matches.	Our robot achieved 5th place overall and made it into the semi-finals. Based on the results of today's runs, we will make improvements on our robot in the upcoming robotics sessions. These include: ➢ Fixing and aligning the idler wheels correctly ➢ Widening the Bowling Ball Guide ➢ Establishing a flip/pick-up mechanism for crates (better than one we designed in earlier entries) ➢ Shielding tread tracks ➢ Revising Racquetball Manipulator ➢ Reinforcing Crate and Bowling Ball Duplexer ➢ Wrapping DC motors with so that their wire tabs do not come off ➢ Testing servo controller (for Racquetball Manipulator's servos) ➢ Adjusting RobotC tele-operated and autonomous programs
Attend the Awards & Closing Ceremony	The Awards & Closing Ceremony was awesome! Here is a breakdown of where our team stood: 1st place winner of the MOTIVATE Award 2nd place finalist for the PTC DESIGN Award 3rd place finalist for the THINK Award 3rd place finalist for the INSPIRE Award We qualified for the NJ FTC Championship!!!

Recorded by:	Date:	Journal Coordinator:	Date:

Photo – Our team getting the nuts and bolts tight for mechanical inspection, software inspection, and robot runs

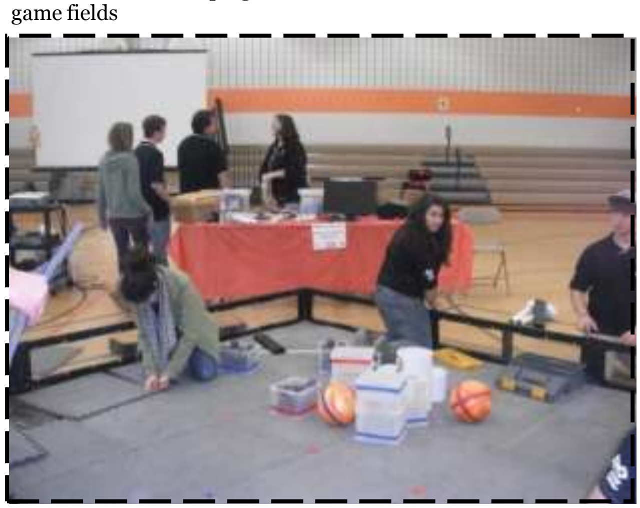
Photo – Our team talking to the judges about our team, robot, community outreach, etc.

Photo – Our robot heading (however, without the bowling ball) to the front parking zone in a match

Photo – Our robot lifting up its Crate and Bowling Ball Duplexer in order to push racquetball tube off of crate stack

Photo – Our team holding the MOTIVATE Award that it won

Photo – Our team helping break down the BOWLED OVER game fields



Recorded by:	Date:	Journal Coordinator:	Date:

Thursday, December 1, 2011: 5 - 8 p.m.

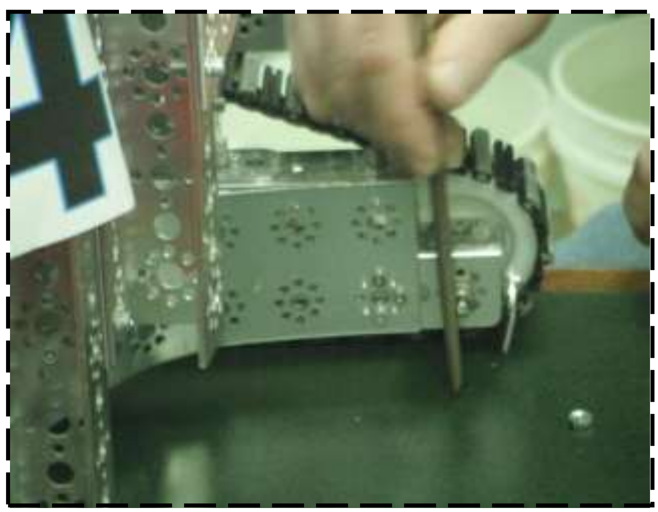
Session# 15
Science lab at St. Clare's School
(Staten Island, New York)

Attendance: Justin Cassamassino, Matthew Gulotta, Erika Olsen
Michelle Pagano, Amanda Parziale, Louis Pearson, James Pugliese
Coach: Mrs. Mary Lee Parent Mentor: Mr. Joseph Pugliese

TASKS	REFLECTIONS
Shave the axles of the front two idler wheels that are helping move the tread tracks and are on side of Crate and Bowling Ball Duplexer.	Mr. Pugliese helped us shave the axles of the front two idler wheels. We needed to shave the axles in order to keep the bowling ball from hitting the idler wheel axles when the Crate and Bowling Ball Duplexer brings it in. If the idler wheel axles were hit in such a way by the bowling ball, then they would not rotate well and the tread tracks would not move correctly.
Test servo controller that is on our robot.	Our robot's servo controller was giving us trouble at Sunday's NJ FTC Qualifier #1. When we tested the servo controllers today, they were not allowing the Clamper's (Racquetball Manipulator's two servos to move. To ensure that the Clamper's two servos were still working, we tested them with a different (working) servo controller.
Determine and solve a problem that we are having within our RobotC tele-operated program.	We found that the problem with one of our RobotC programs was that servo_s1_c2_1 (servo 1, continuous rotation) was not being rightly identified. Rightfully identifying servo_s1_c2_1 involved hooking the USB from our programming laptop to our robot and downloading the fantom.DLL files in order to obtain the latest NXT drivers.

Photo – Mr. Pugliese helping shave idler wheel axles shorter (1)

Photo – Mr. Pugliese helping shave idler wheel axles shorter (2)



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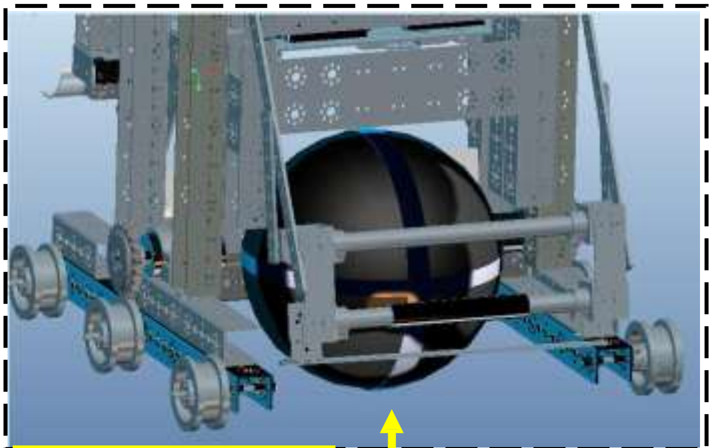
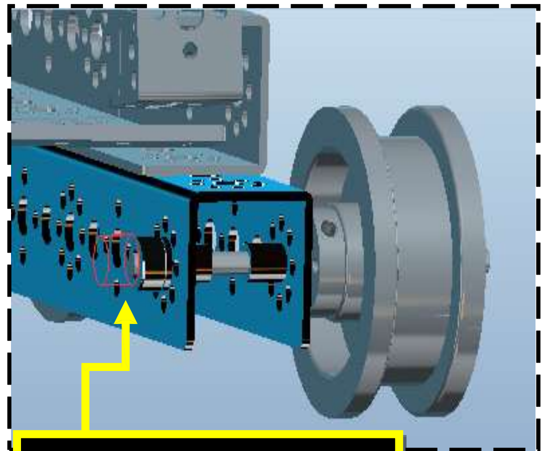
Creo Elements/Pro Analysis – Bowling ball's ability to now not interfere with front idler wheel axles

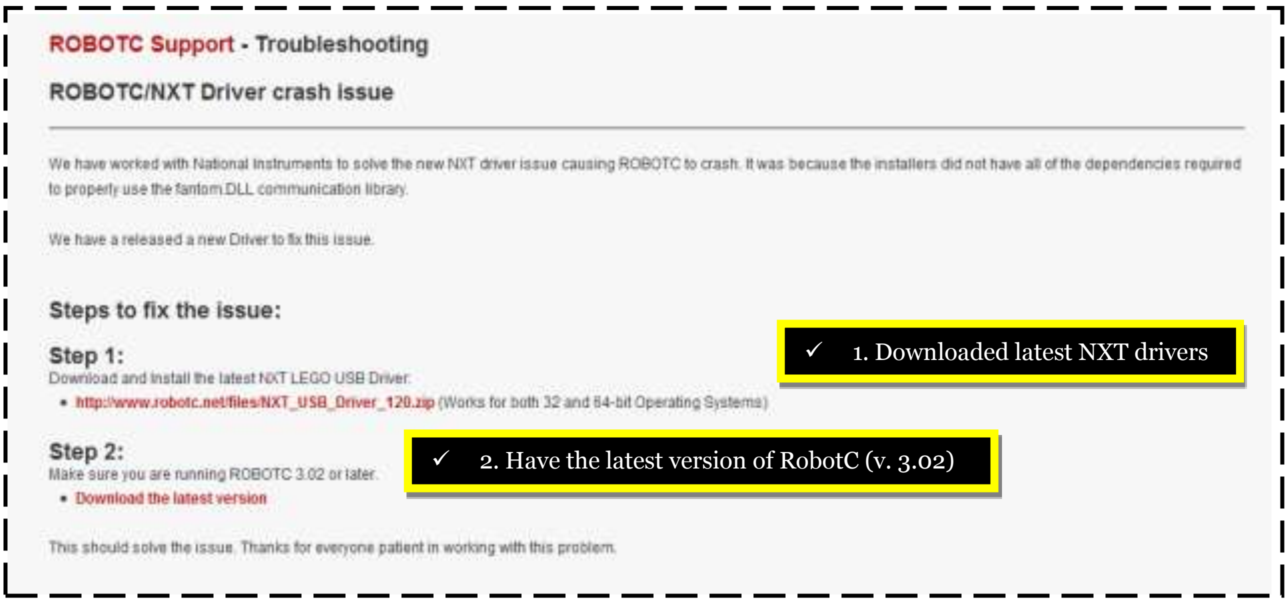


Bowling ball is behind Crate and Bowling Ball Duplexer without a problem.



Front idler wheel axles are shaven. (The red outline shows how much of the idler wheel axles were shaven off, which is equal to 8 mm.)

RobotC Analysis – Steps to solving problem with missing servo_s1_c2_1



ROBOTC Support - **Troubleshooting**

ROBOTC/NXT Driver crash issue

We have worked with National Instruments to solve the new NXT driver issue causing ROBOTC to crash. It was because the installers did not have all of the dependencies required to properly use the fantom.DLL communication library.

We have a released a new Driver to fix this issue.

Steps to fix the issue:

Step 1:
Download and install the latest NXT LEGO USB Driver.
- http://www.robotc.net/files/NXT_USB_Driver_120.zip (Works for both 32 and 64-bit Operating Systems)

✓ 1. Downloaded latest NXT drivers

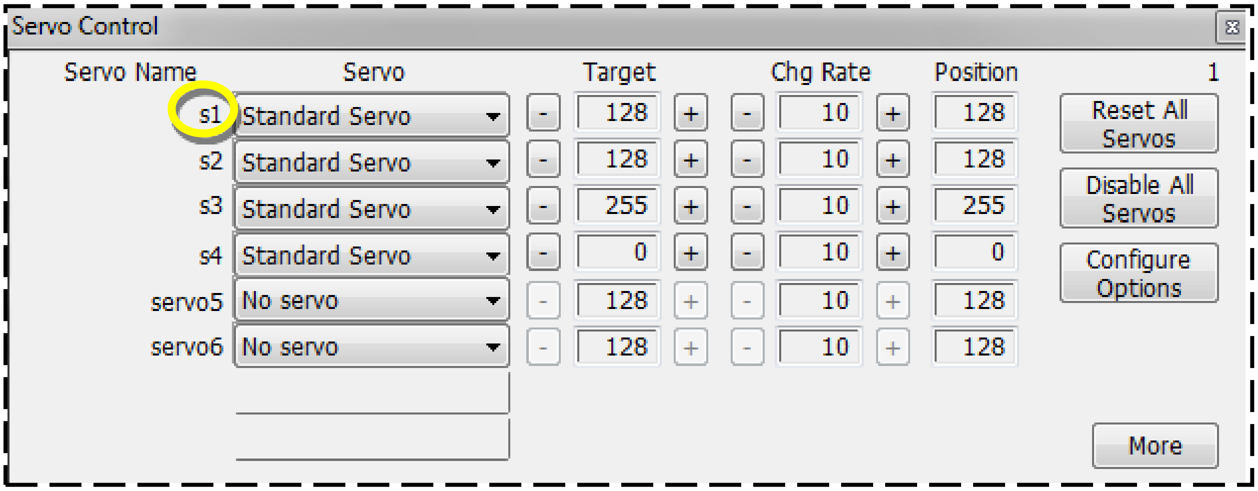
Step 2:
Make sure you are running ROBOTC 3.02 or later.
- Download the latest version

✓ 2. Have the latest version of RobotC (v. 3.02)

This should solve the issue. Thanks for everyone patient in working with this problem.

Recorded by:	Date:	Journal Coordinator:	Date:

RobotC Analysis – Debugger window being set up to see if servo_s1_c2_1 works



Recorded by:	Date:	Journal Coordinator:	Date:

Tuesday, December 6, 2011: 5 - 8 p.m.

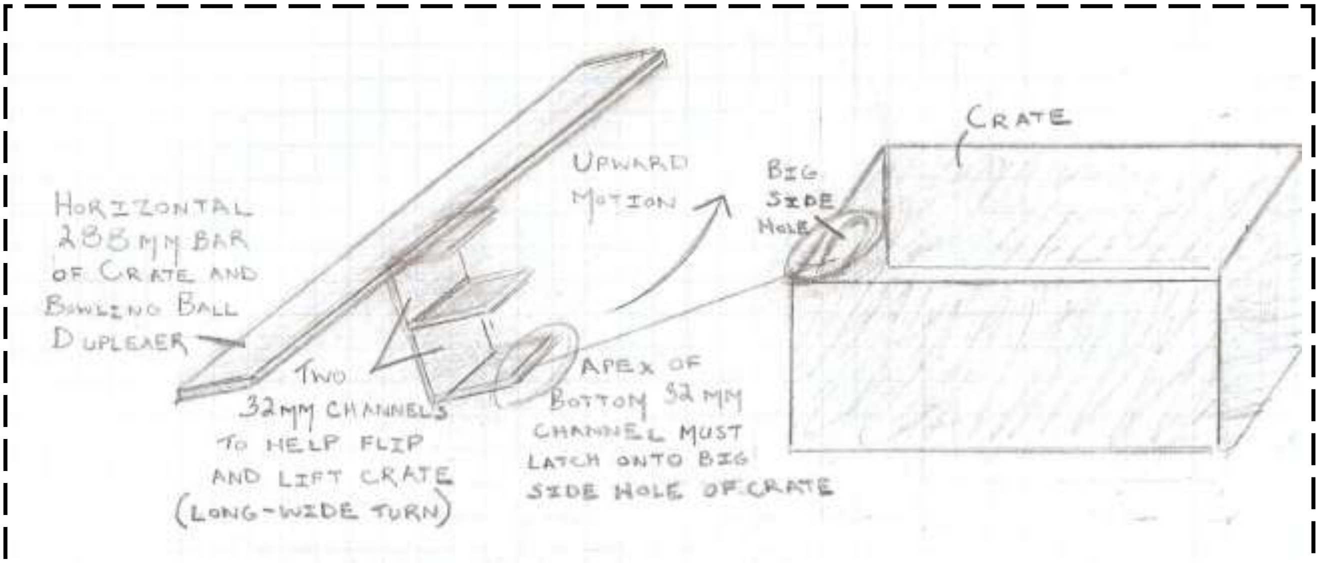
Session# 16
Science lab at St. Clare's School
(Staten Island, New York)

Attendance: Justin Cassamassino, Matthew Gulotta, Erika Olsen, Michelle Pagano, Amanda Parziale,
Coach: Mrs. Mary Lee Parent Mentor: Mr. Joseph Pugliese

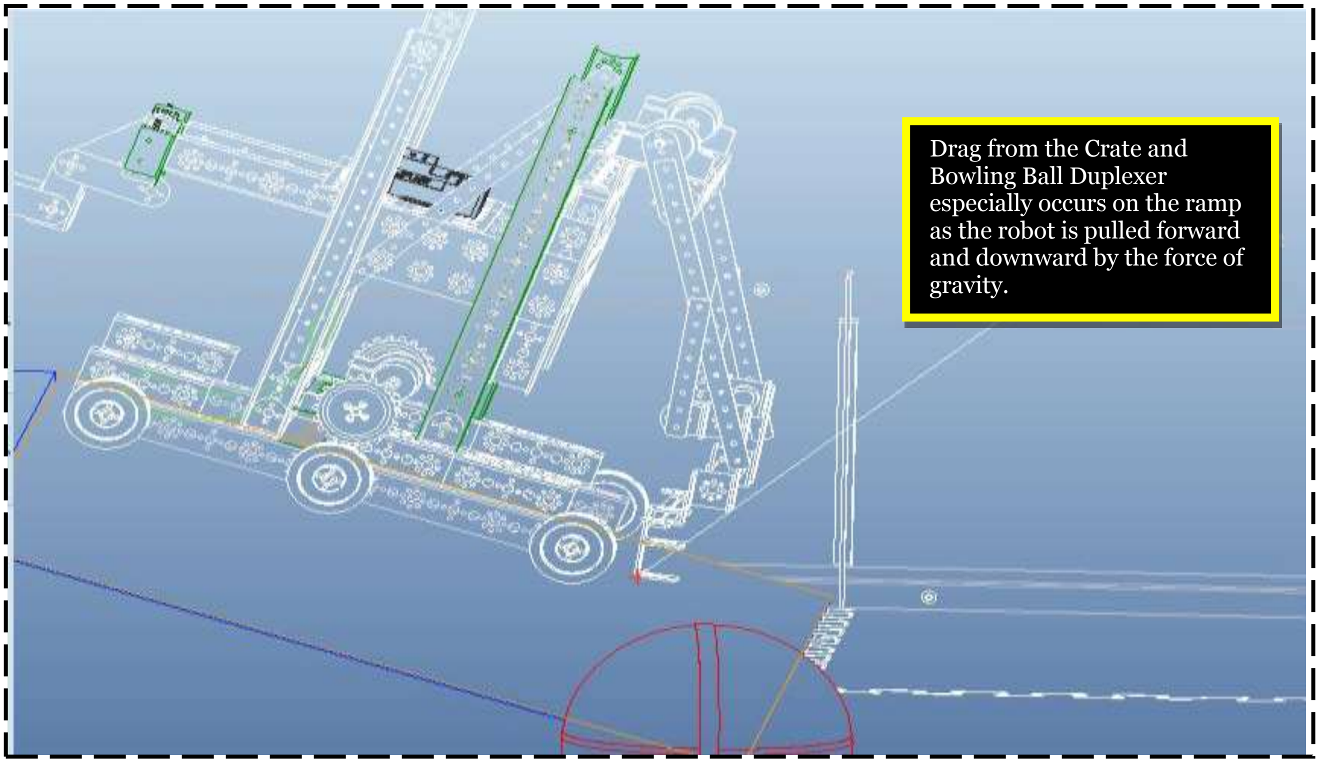
TASKS	REFLECTIONS
Brainstorm a way for Crate and Bowling Ball Duplexer to easily flip and lift crates.	× Our original idea for handling crates involved … picking up each crate, as it was upside down, with a long arm. As it rotated, the long arm flipped, and dropped the crates in stacking formation. This process was done to each crate until, three crates were stacked. ✓ Our new idea for handling crates involves … Flipping one crate upright using the Crate and Bowling Ball Duplexer. Then, the Crate and Bowling Ball Duplexer will lift up the one upright crate. We think this process will be easier and quicker than stacking three crates
Determine what will involve adjusting the robot for handling crates.	Factors to consider: 1. Adding a bracket to the horizontal 288 mm bar of the Crate and Bowling Ball Duplexer to help flip and lift crate 2. Programming the Crate and Bowling Ball Duplexer to rise at an optimal speed in order to flip crate upright 3. Ensuring that the Crate and Bowling Ball Duplexer is gently controlled to come up so that the bracket latches onto the crate with precision 4. Fixing the Clanper so that it effectively catches and rises high enough to place racquetball into upright crate before Crate and Bowling Ball Duplexer lifts it up.
Get a head start on adjusting the robot to handle crates.	Today, we worked on factor to consider 1. Until it found the best way, our team mechanically experimented with many ways to build a bracket onto the horizontal 288 mm channel of the Crate and Bowling Ball Duplexer. One of these ways involved using two 32 mm channels, but they caused the Crate and Bowling Ball Duplexer to drag while the robot traveled down the ramp. We concluded that attaching one 32 mm bracket for latching onto the crate and one flat bracket for keeping the crate in a high position were the best way.

Recorded by:	Date:	Journal Coordinator:	Date:

Robot Diagram – Details on doomed two 32 mm channels design

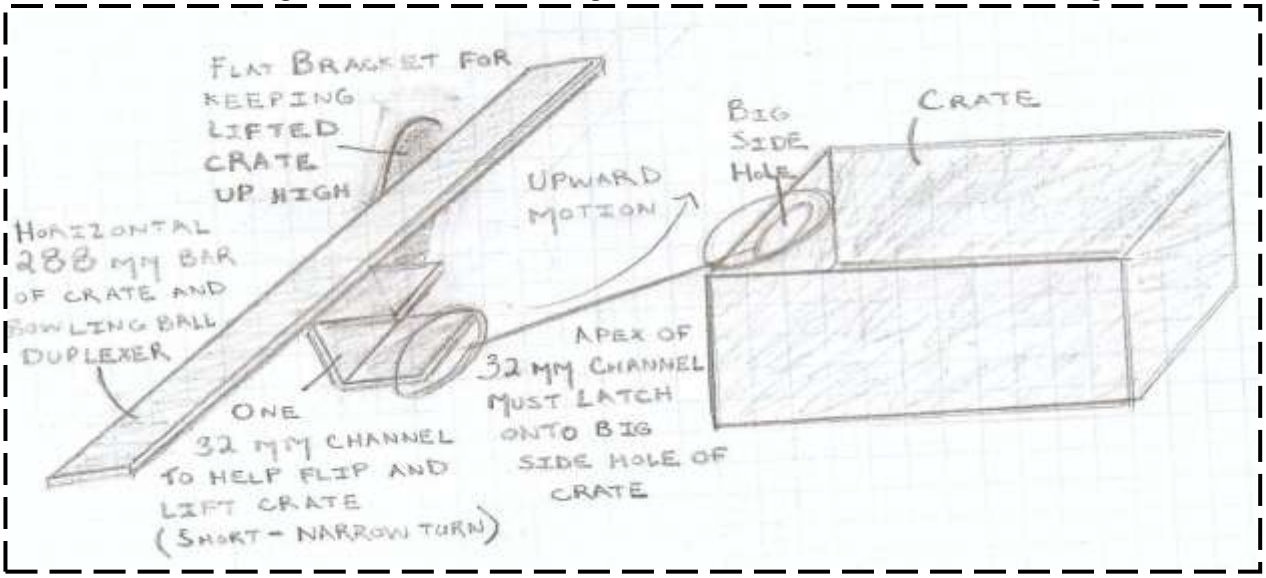


Creo Elements/Pro Analysis – Two 32 mm channels causing Crate and Ball Duplexer to drag on ramp

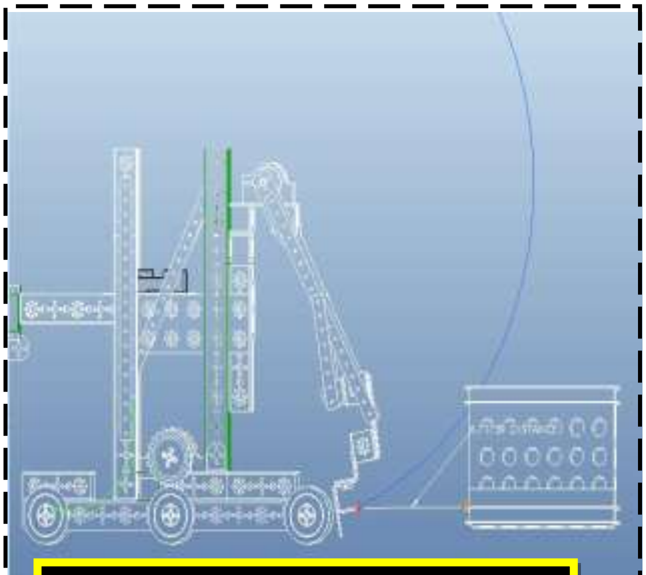


Recorded by:	Date:	Journal Coordinator:	Date:

Robot Diagram – Details on advantageous 32 mm channel and flat bracket design

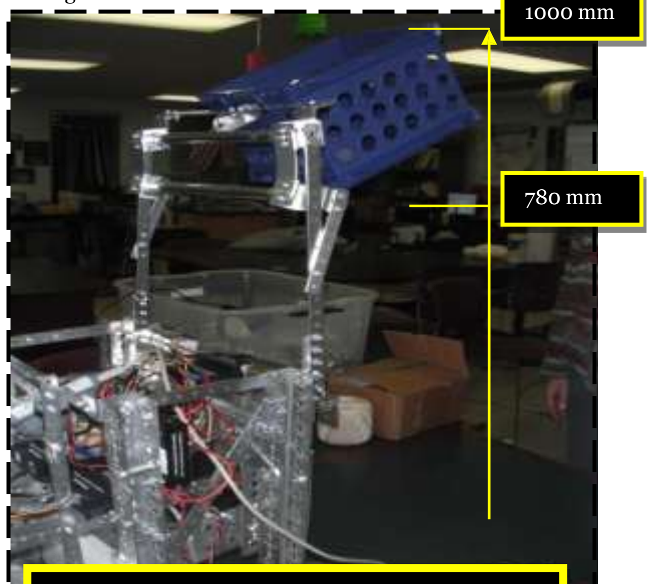


Creo Elements/Pro Analysis – Distance that Crate and Bowling Ball Duplexer (with 32 mm channel, flat bracket) be at from crate



In order to effectively latch onto the crate, the vertex of the 32 mm channel must be a distance of 6.72 mm away from the crate

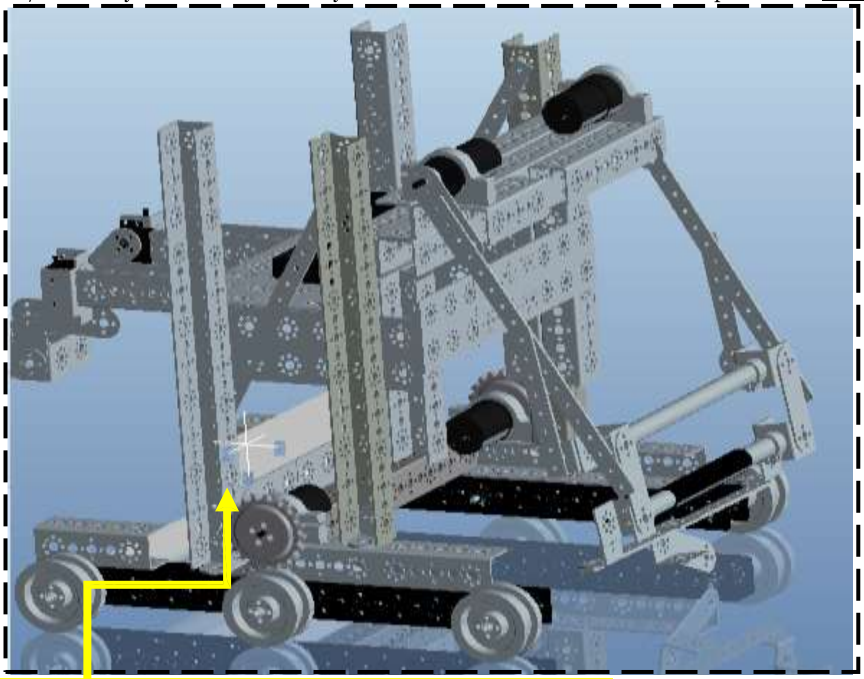
Creo Elements/Pro Analysis – Highest point that Crate and Bowling Ball Duplexer can raise crate with racquetball must inside from ground



The 32 mm channel of the Crate and Bowling Ball Duplexer can lift the crate between 780 mm to 1000 mm to achieve a score of 40 – 50 points.

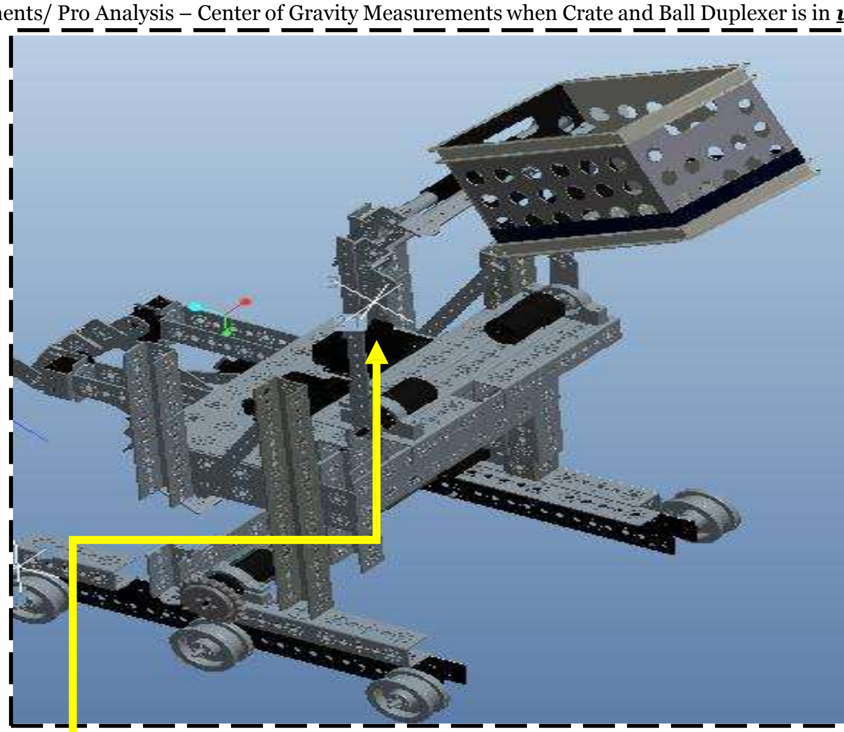
Recorded by:	Date:	Journal Coordinator:	Date:

Creo Elements/ Pro Analysis – Center of Gravity Measurements when Crate and Ball Duplexer is in ***down*** position



CENTER OF Gravity coordinates:
X Y Z 1.7694565e+02 -1.9420506e+02 -2.8622488e+02 mm

Creo Elements/ Pro Analysis – Center of Gravity Measurements when Crate and Ball Duplexer is in ***up*** position



CENTER OF GRAVITY coordinates:
X Y Z 1.7704538e+02 -4.0029994e+02 -2.5392062e+02 mm

Recorded by:	Date:	Journal Coordinator:	Date:

Thursday, December 8, 2011: 5 - 8 p.m.

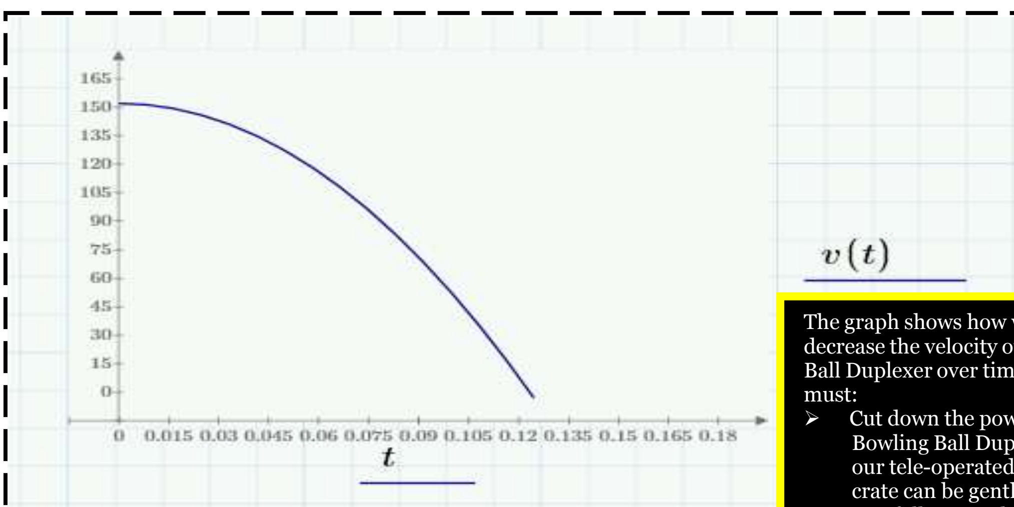
Session# 17
Science lab at St. Clare's School
(Staten Island, New York)

Attendance: Justin Cassamassino, Matthew Gulotta, Erika Olsen, Michelle Pagano, Amanda Parziale, Louis Pearson, James Pugliese
Coach: Mrs. Mary Lee Parent Mentor: Mr. Joseph Pugliese

TASKS	REFLECTIONS
Work on factors to consider 2 and 3 for adjusting the robot for handling crates. Factors 2 and 3 involve programming the Crate and Ball Duplexer to flip, latch onto a crate with precision.	In order for our robot to flip and lift a crate effectively, we had to diligently program our robot. We programmed the two DC motors of the Crate and Bowling Ball Duplexer to move by means of only one toggle stick. Using one toggle stick will enable both DC motors to move at the exact same time. Before, however, the two DC motors of the Crate and Bowling Ball Duplexer were moved by means of two toggle sticks. Using two toggle sticks was hard, because even the slightest human error, in moving both two DC motors at the same time, could have caused the Crate and Bowling Ball Duplexer to break or the two DC motors to burn out.
Determine the velocity and height each as a function of time that the Crate and Bowling Ball Duplexer must be at for manipulating the crate	The DC motors of the Crate and Bowling Ball Duplexer has an initial velocity equal to 152 rpm (rotations per minute) and an initial height equal to 37.9 mm. We went through a series of calculations in order to track the velocities and positions of the Crate and Ball Duplexer up until it reaches maximum height (to lift crate). We measured the specific velocities and positions over a period of one second, which is the time it takes for the Crate and Bowling Ball to reach its maximum height.

Mathcad Worksheet – Velocity of Crate and Bowling Ball Duplexer as a function of time

$$v(t) := -10000\ t^2 + 152$$



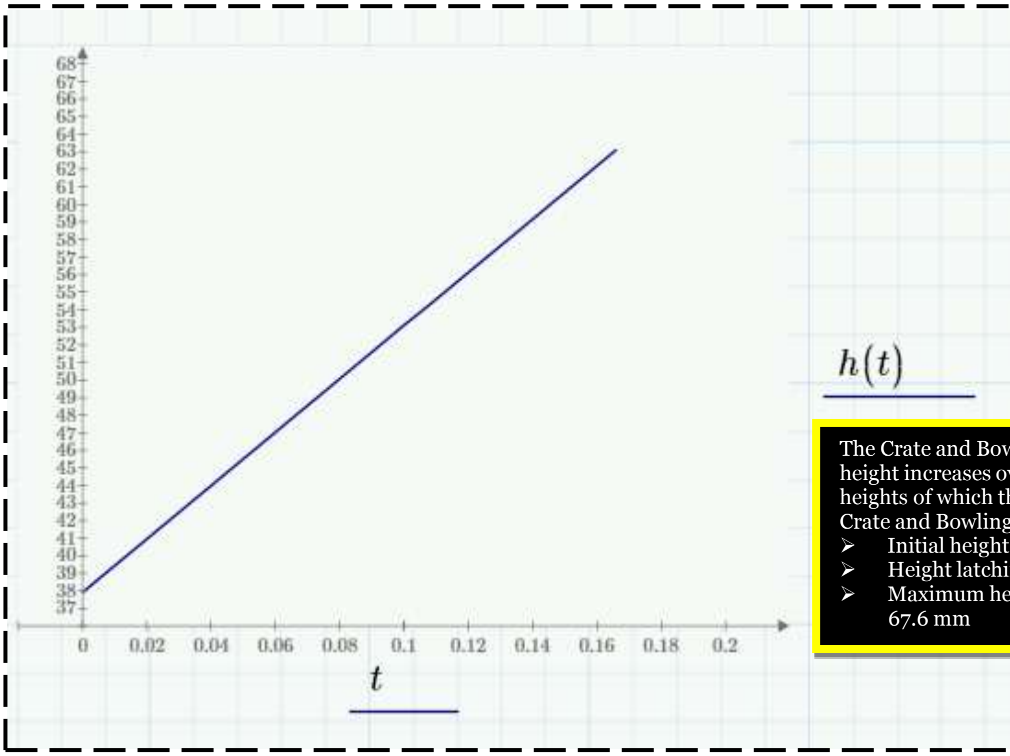
The graph shows how we want to gradually decrease the velocity of the Crate and Bowling Ball Duplexer over time. To achieve this, we must:

- Cut down the power of the Crate and Bowling Ball Duplexer's DC motors in our tele-operated program so that the crate can be gently lifted with finesse.
- Carefully control the Crate and Bowling Ball Duplexer and not stop it abruptly once it reaches maximum height.

Recorded by:	Date:	Journal Coordinator:	Date:

Mathcad Worksheet – Height of Crate and Bowling Ball Duplexer as a function of time

$$h(t) := 37.9 - 3\ t^3 + 152\ t$$



The Crate and Bowling Ball Duplexer's height increases over time. Specific heights of which the 32 mm channel of the Crate and Bowling Ball Duplexer reaches:

- Initial height = 37.9 mm
- Height latching onto crate =52. 5 mm
- Maximum height for lifting crate = 67.6 mm

Recorded by:	Date:	Journal Coordinator:	Date:

Tuesday, December 13, 2011: 5 - 8 p.m.

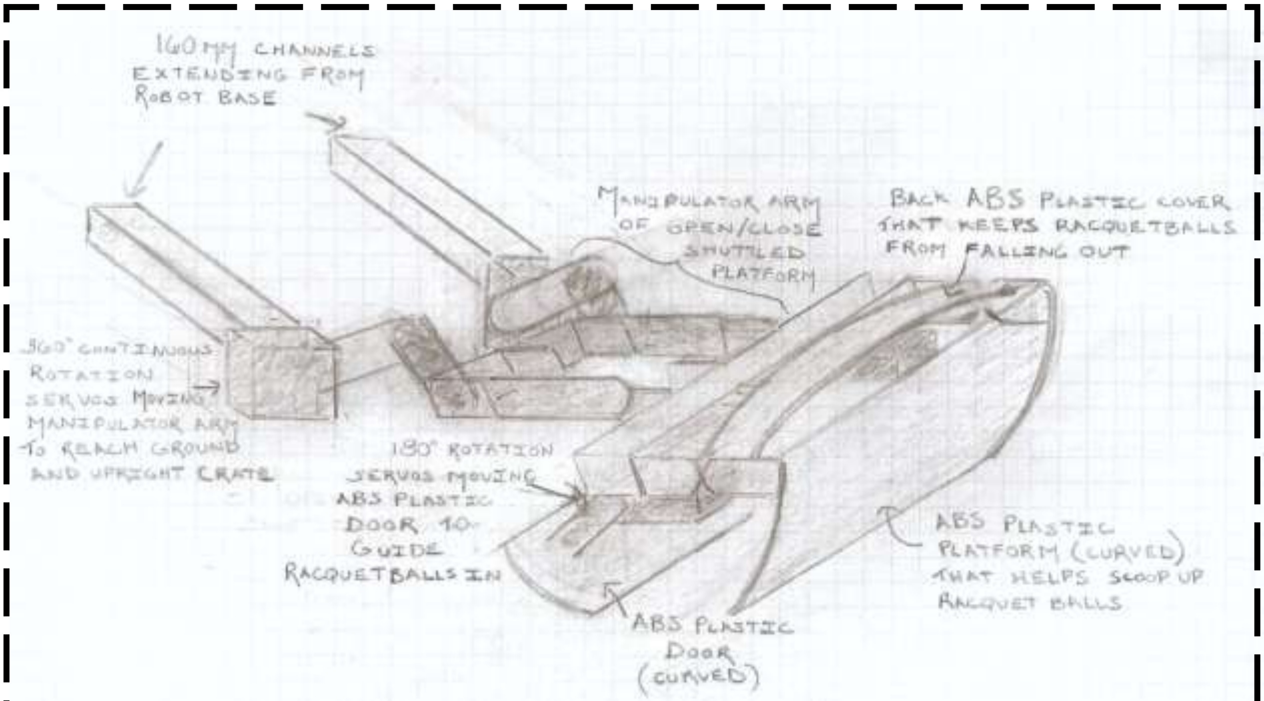
Session# 18
Science lab at St. Clare's School
(Staten Island, New York)

Attendance: Justin Cassamassino, Erika Olsen Michelle Pagano, Amanda Parziale, Louis Pearson, James Pugliese
Coach: Mrs. Mary Lee Parent Mentor: Mr. Joseph Pugliese

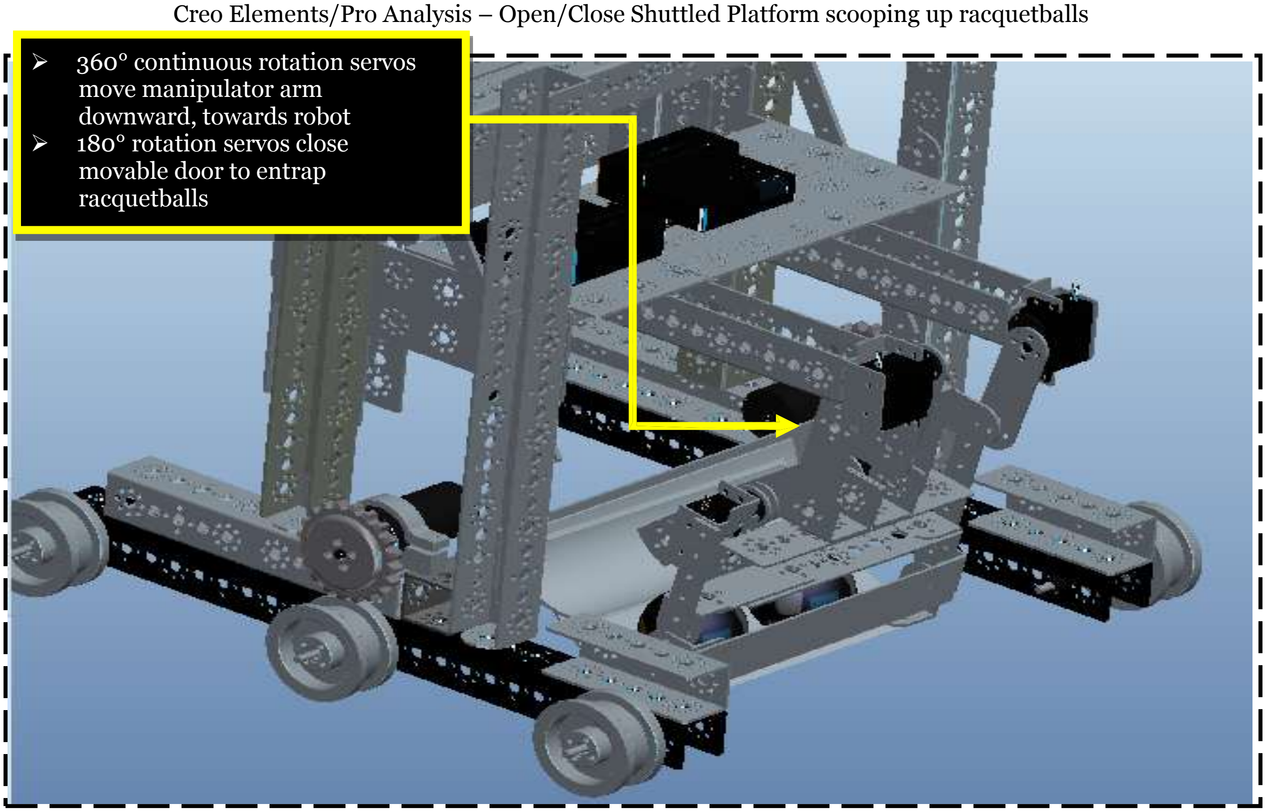
TASKS	REFLECTIONS
Brainstorm ideas on how to improve the ***structure*** of the Racquetball Manipulator.	The Clamper was a pretty good version of the Racquetball Manipulator; however, it had trouble grasping the racquetballs at NJ FTC Qualifier #1. In order to improve the structure of the Racquetball Manipulator, we plan to build a shuttled platform at the base of manipulator arm. The shuttled platform will be opened in the back by means of a motorized door. We will dub this new racquetball manipulator idea the " Open/Close Shuttled Platform"
Brainstorm ideas on how to improve the ***movement*** of the Racquetball Manipulator.	The problem with the Clamper was that its 180° arm servos were not able to raise the racquetballs high enough in order to place them into the upright crate. We plan to change the 180° rotation servos controlling the arm to 360° continuous rotation servos, which are strong and will help lift the Open/Close Shuttled Platform even higher.
Build the "Open/Close Shuttled Platform" (new Racquetball Manipulator) onto the robot.	Our team dismantled the Clamper and started constructing the Open/Close Shuttled Platform at the end of the manipulator arm. To build he Open/Close Shuttled Platform, we … ➢ Attached the 360° continuous rotation servos to control the manipulator arm ➢ used cut sheets of ABS plastic to form the shuttled platform part ➢ curved the ABS plastic platform bottom so that it can easily move in circular motion ➢ used a cut sheet of ABS plastic to form the door to guide the racquetballs in ➢ added 180° rotation servos to both open and close door

Recorded by:	Date:	Journal Coordinator:	Date:

Robot Diagram – New racquetball manipulator, Open/Close Shuttled Platform

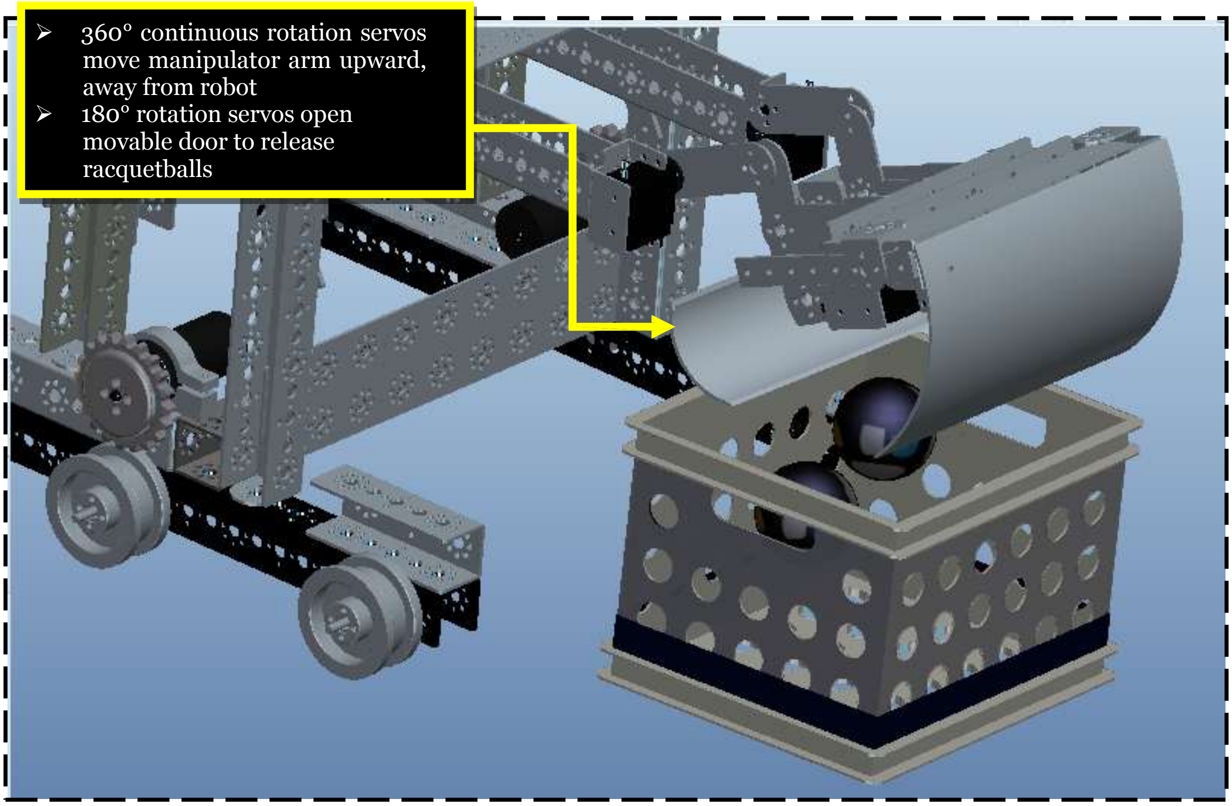


Creo Elements/Pro Analysis – Open/Close Shuttled Platform scooping up racquetballs



Recorded by:	Date:	Journal Coordinator:	Date:

Creo Elements/Pro Analysis – Open/Close Shuttled Platform scooping up racquetballs



Recorded by:	Date:	Journal Coordinator:	Date:

Thursday, December 15, 2011: 5 - 8 p.m.

Session# 19
Science lab at St. Clare's School
(Staten Island, New York)

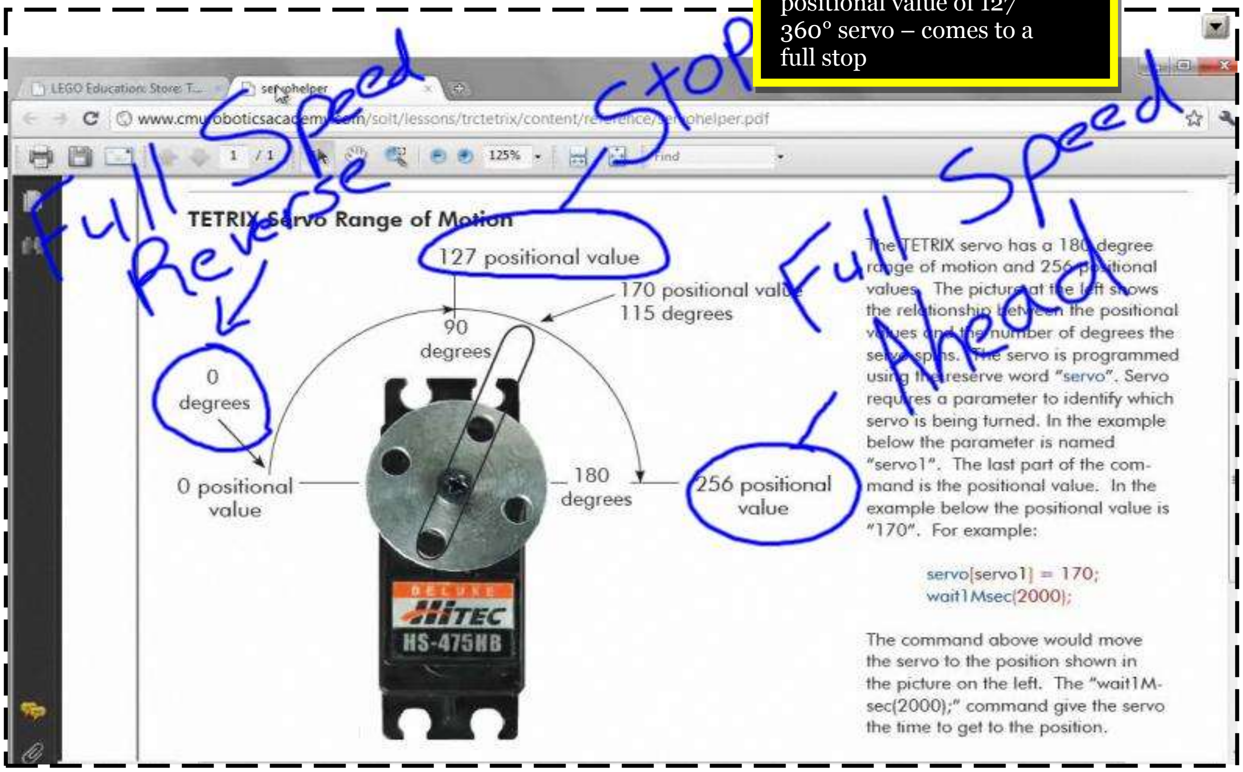
Attendance: Justin Cassamassino, Matthew Gulotta, Erika Olsen
Michelle Pagano, Amanda Parziale, Louis Pearson, James Pugliese
Coach: Mrs. Mary Lee Parent Mentor: Mr. Joseph Pugliese

TASKS	REFLECTIONS
Learn how to program 360° continuous rotation servos for the manipulator arm of the Open/Close Shuttled Platform.	We want to change the manipulator arm's 180° rotation servos to 360° continuous rotation servos. Since this is our first time using 360° continuous rotation servos, we looked up the Carnegie Mellon webinars to learn how to properly program the 360° continuous rotation servos. From the Carnegie Mellon webinar, we found out that 360° continuous rotation servos … ➢ Are fairly strong ➢ Have a range of motion from 0° to 360° ➢ Do not stop at a specific position ➢ Can be set to **127°** to fully stop ➢ Can be set to **256°** to go full speed forward ➢ Can be set to **0°** to go full speed reverse In contrast, 180° rotation servos … ➢ Have a range of motion from 0° to 180° ➢ Are able to stop at a particular position ➢ Have a positional value from 0 to 256
Program the manipulator arm's two 360° continuous rotation servos.	We successfully programmed the two 360° continuous rotation servos to move the manipulator arm up and down. The 360° continuous rotation servos are programmed to move at their greatest strength in opposite directions because they are facing directly opposite from one another.
Run the robot on our practice BOWLED OVER game field to try out the whole Open/Close Shuttled Platform.	The Open/Close Shuttled Platform worked well in obtaining up to four racquetballs and lifting them into the crate on the game field; however, we must make some adjustments to it that include … 1. Shaving the axles of the back idler wheels so that the Open/Close Shuttled Platform doesn't get caught 2. Installing some sort of pulley system on the robot to enable the manipulator arm's two 360° continuous rotation servos to lift up the Open/Close Shuttled Platform loaded with racquetballs without too much strain and without becoming warm.
Work on making the adjustments to the Open/Close Shuttle Platform.	Today, we worked on Open/Close Shuttled Platform adjustment #1. Mr. Pugliese helped us shave down the axles of the back idler wheels. Next time, we will work on adjustment #2.

Recorded by:	Date:	Journal Coordinator:	Date:

RobotC Analysis – Comparisons between 180° rotation servos and 360° continuous rotation servos

At 90°, 127 positional value…
180° servo – is set to a positional value of 127
360° servo – comes to a full stop



RobotC Analysis – Use of 360° continuous rotation servos in tele-operated program

```
if (joy1Btn(1) == 1)
  {
  servo(c1) = 255;
  servo(c2) = 0;
  }
else
{
  servo(c1) = 127;
  servo(c2) = 127;
}
  if (joy1Btn(2) == 1)
{
  servo(c1) = 0;
  servo(c2) = 255;
}
else
{
  servo(c1) = 127;
  servo(c2) = 127;
}
```

Moves Open/Close Shuttled Platform ***up***

Stops continuous rotation servos from running

Moves Open/Close Shuttled Platform ***down***

Stops continuous rotation servos from running

Recorded by:	Date:	Journal Coordinator:	Date:

Tuesday, January 3, 2012: 5:30 - 8 p.m.

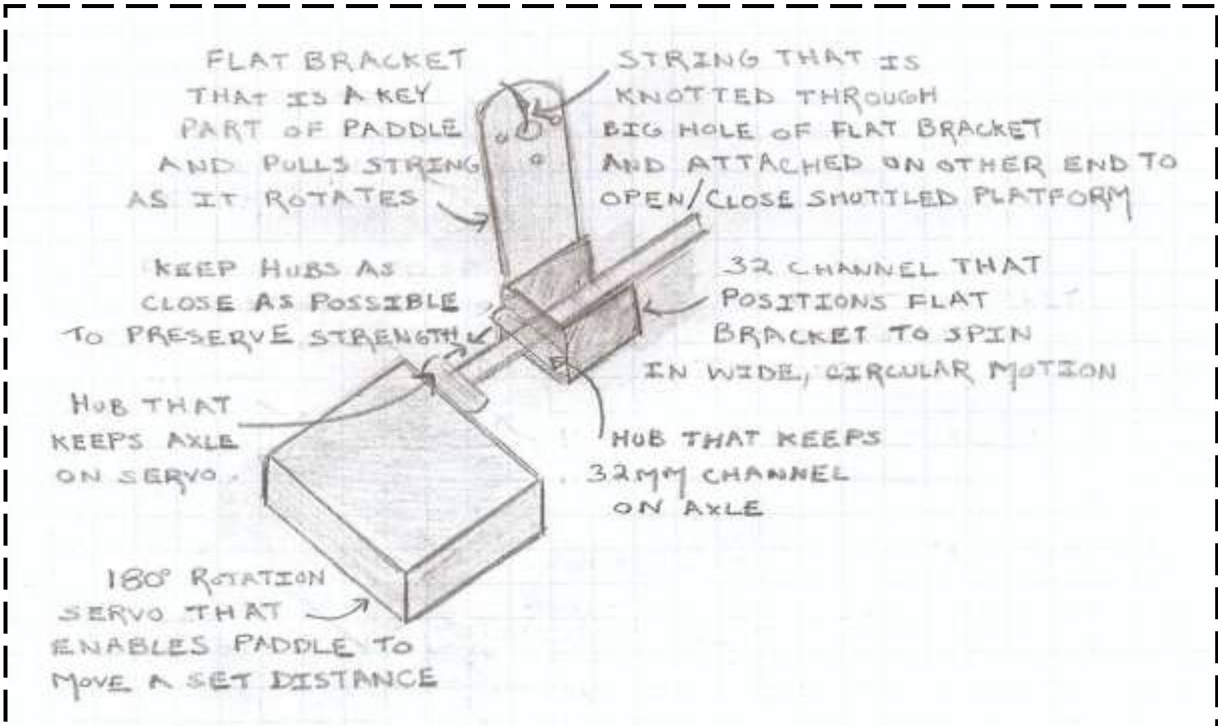
Session#20
Science lab at St. Clare's School
(Staten Island, New York)

Attendance: Justin Cassamassino, Matthew Gulotta, Michelle Pagano, Amanda Parziale, Louis Pearson, James Pugliese
Coach: Mrs. Mary Lee Parent Mentor: Mr. Joseph Pugliese

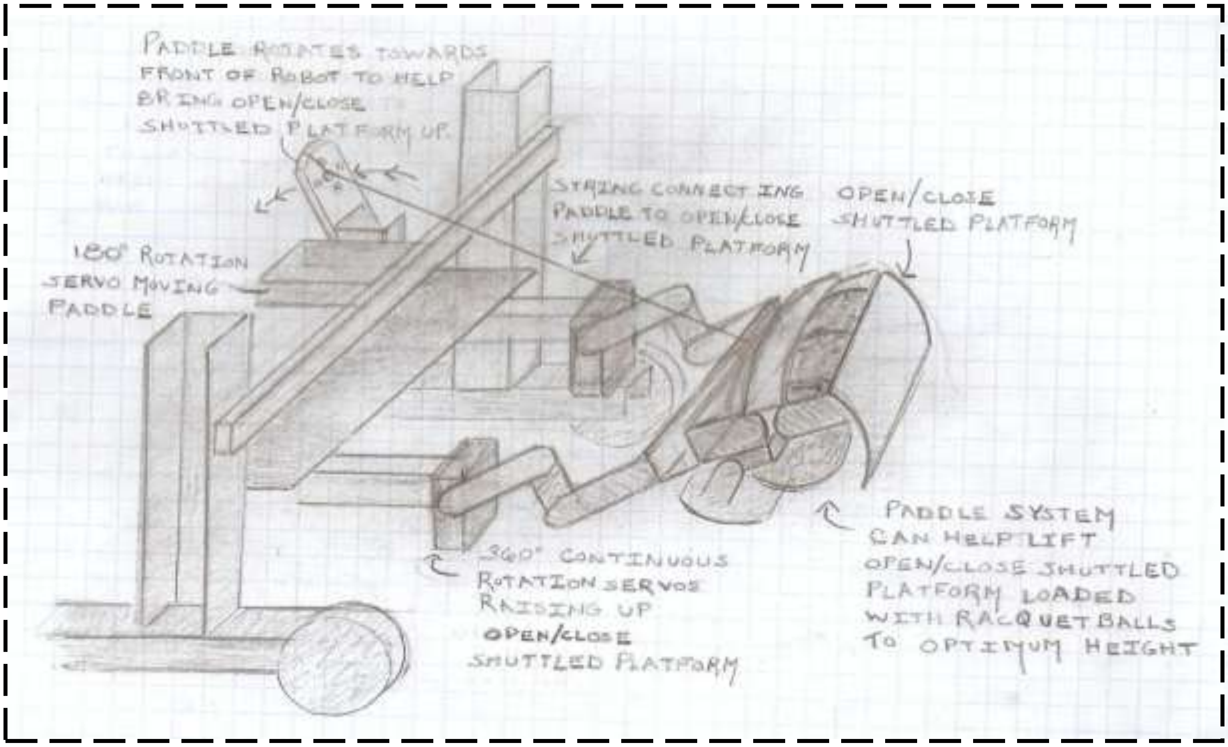
TASKS	REFLECTIONS
Work on Open/Close Shuttled Platform adjustment 2, which involves installing a pulley or paddle system on our robot to help loaded Open/Close Shuttle Platform lift up without burning out the 360° continuous rotation servos.	We thought of ideas for building either a pulley system or a paddle system onto our robot in order to help the manipulator arm's 360° continuous rotation servos lift the Open/Close Shuttled Platform with ease. Both work systems in similar ways (paddle system: flat bracket; pulley system: 76 mm wheel), and we plan for whichever one we are building to … ➢ Be built at the back of our robot ➢ Have flat bracket/76 mm wheel spun by one 180° rotation servo on horizontal 288 mm bar second towards the top on the back of the robot ➢ Run string from flat bracket/ 76 mm wheel being spun by 180° rotation servo to Open/Close Shuttled Platform ➢ Help bring up the Open/Close Shuttled Platform as 180° rotation servo spins the flat bracket/76 mm wheel forward ➢ Release strong hold on the Open/Close Shuttled Platform as 180° rotation servo spins the flat bracket/76 mm wheel backward
Start building the pulley system onto our robot.	We decided to build the pulley system first, because it has a good track for the string to spin on. To situate the pulley (with its 180 ° rotation servo) in the best position, we mechanically tested the pulley in a few different ways before we concluded that attaching the pulley Lengthwise/Flat/Horizontal was the best way. ✓Setting pulley up Lengthwise/Flat/Horizontal … - Lines up straight with the Open/Close Shuttled Platform so that the string can spin directly on the track of the 76 mm wheel - Keeps the string spinning on track and helps pull Open/Close Shuttle platform up
Drill a hole in the pulley's 76 mm wheel.	Mr. Pugliese helped us drill a small hole in the curved track of the pulley's 76 mm wheel so that we could knot the end of it. To knot the end of the string, we sent the string into the small hole, and wrapped/knotted around the big side hole of the 76 mm wheel.

Recorded by:	Date:	Journal Coordinator:	Date:

- Robot Diagram – Paddle

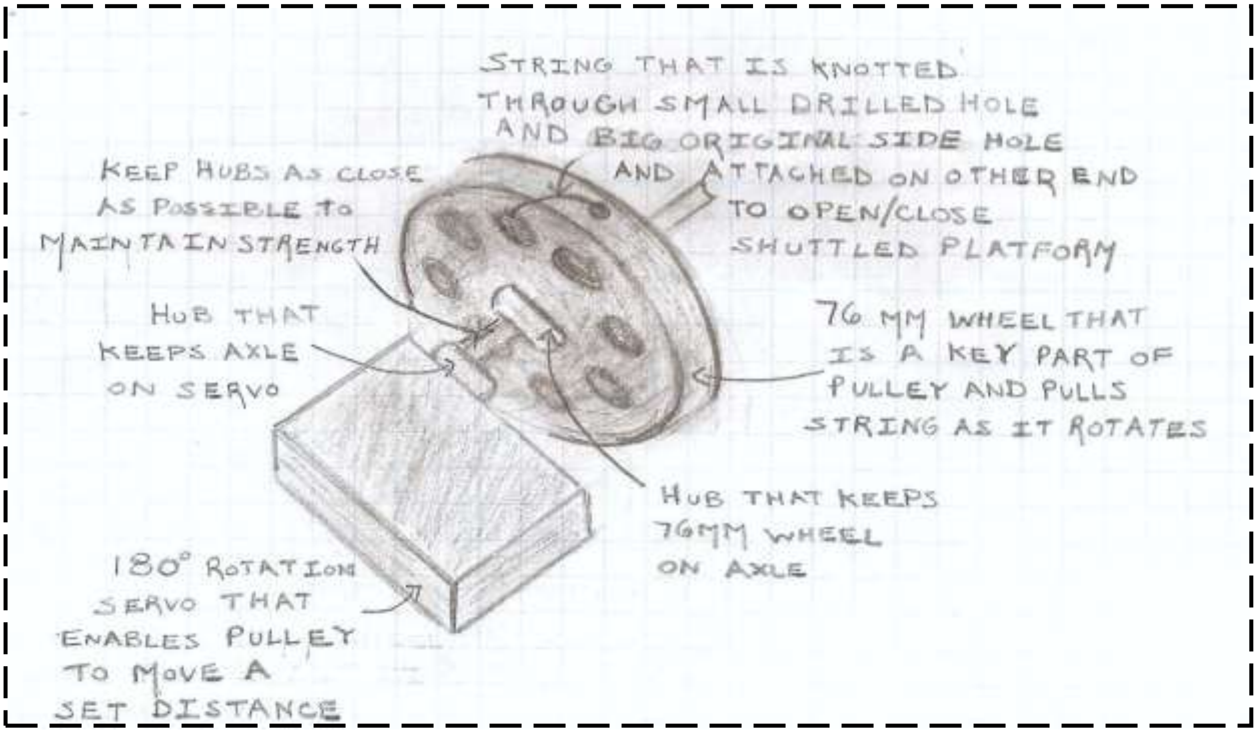


- Robot Diagram – Paddle system working on robot

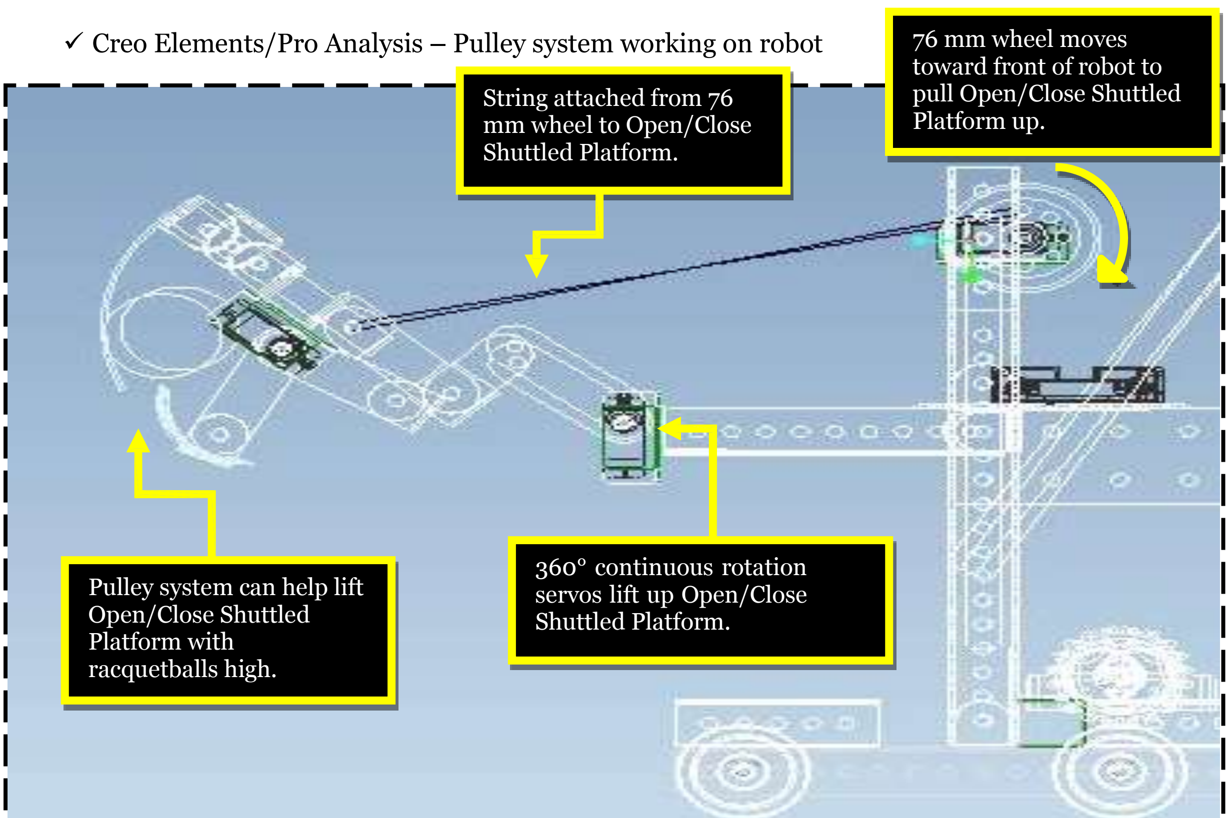


Recorded by:	Date:	Journal Coordinator:	Date:

✓ Robot Diagram – Pulley



✓ Creo Elements/Pro Analysis – Pulley system working on robot



Recorded by:	Date:	Journal Coordinator:	Date:

Thursday, January 5, 2012: 5 - 8 p.m.

Session# 21
Science lab at St. Clare's School
(Staten Island, New York)

Attendance: Justin Cassamassino, Matthew Gulotta, Erika Olsen
Michelle Pagano, Amanda Parziale, Louis Pearson, James Pugliese
Coach: Mrs. Mary Lee   Parent Mentor: Mr. Joseph Pugliese

TASKS	REFLECTIONS
Program the pulley system's 180° rotation servo.	We successfully programmed the pulley's 180° rotation servo to spin the 76 mm wheel towards the front of the robot until the Open/Close Shuttled Platform with three racquetballs reaches a height of 303.873 mm (up above crate). The pulley's 180° rotation servo works in coordination with the manipulator arm's two 360° continuous rotation servos, so they all work with buttons 1 and 2 on joystick controller 2.
Eliminate the slack of the string.	After programming and testing out the Open/Close Shuttle Platform, we discovered some unwanted slack between the idler wheel and Open/Close Shuttled Platform. To get rid of this slack, we used one L-bracket that … ➢ Is mounted in ┌ position on the first horizontal 288 mm bar across the top of the back of the robot ➢ Acts as a higher route for the string to travel into ➢ Directs the string to the 76 mm wheel.

RobotC Analysis – Part of tele-operated program with pulley's 180° rotation servo

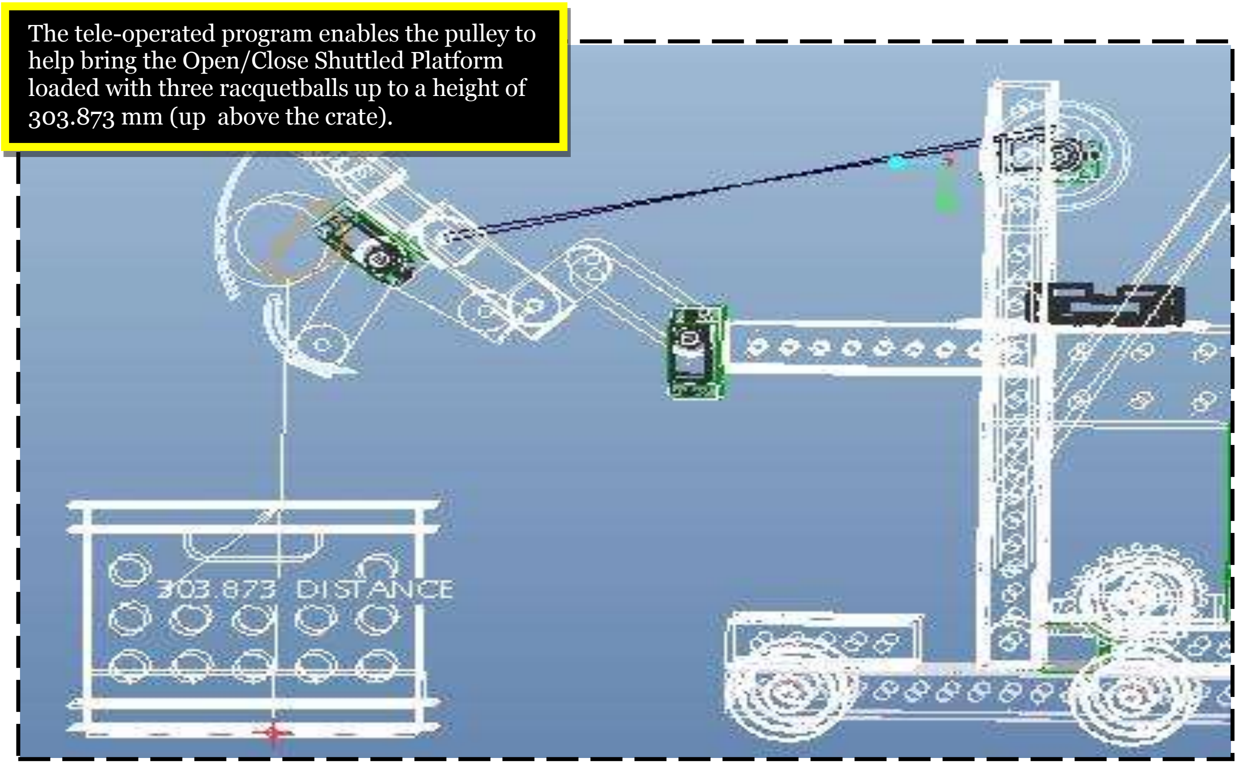
```
if (joy1Btn(1) == 1)
 {
 servo(c1) = 255;
 servo(c2) = 0;
 servo(s5) = 255;
 wait1Msec(500);

 }
else
{
 servo(c1)  =  127;
 servo(c2)  = 127;
 servo(s5) = 0;
}
 if (joy1Btn(2) == 1)
{
 servo(c1) = 0;
 servo(c2) = 255;
 servo(s5) = 0;
}
else
{
 servo(c1)  =  127;
 servo(c2)  = 127;
 servo(s5) = 0;
}
```

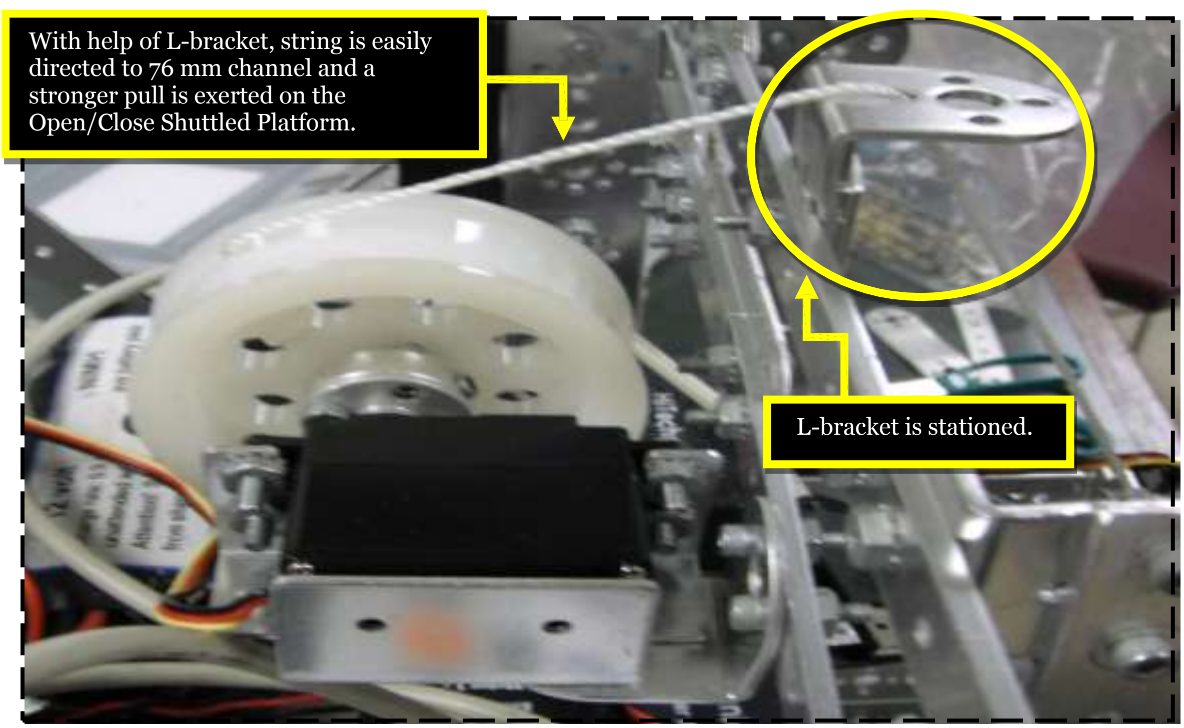
Pulley's 180° rotation servo [s5] works in conjunction with manipulator arm's two 360° continuous rotation servos [c1], [c2].

Recorded by:	Date:	Journal Coordinator:	Date:

Creo Elements/Pro Analysis – Height that pulley helps lift Open/Close Shuttled Platform up to



Robot Photo – L-bracket integrated into pulley system



Recorded by:	Date:	Journal Coordinator:	Date:

Tuesday, January 10, 2012: 5 - 8 p.m.

Session# 22
Science lab at St. Clare's School
(Staten Island, New York)

Attendance: Matthew Gulotta, Erika Olsen, Michelle Pagano, Amanda Parziale, Louis Pearson, James Pugliese
Coach: Mrs. Mary Lee Parent Mentor: Mr. Joseph Pugliese

TASKS	REFLECTIONS
Secure the two horizontal 288 mm bars towards the top of the back of the robot holding up the pulley system.	We connected the two horizontal 288 mm bars holding up the pulley system by means of two diagonal L-brackets bent straight. These two diagonally connected, straight L-brackets help keep the two horizontal 288 mm bars more robust.
Straighten out the strands of wire going into the servo controller.	The wires being traced into the servo controllers' battery terminals were unraveled and falling out of the servo controller. To prevent a shortage, we straightened the strands of wire and inserted them back into their appropriate positive and negative battery terminals of the servo controller.
Replace Open/Close Shuttle dPlatform's right 180° rotation servo that burnt out and "melted."	The Open/Close Shuttled Platform's right 180° rotation servo just burnt out, and melted too! We tested another 180° rotation servo to ensure that the wire extensions connecting from the 180° rotation servo into the servo controller still work. Then, after we found out that wire extensions still work, we installed the new 180° rotation servo.

Recorded by:	Date:	Journal Coordinator:	Date:

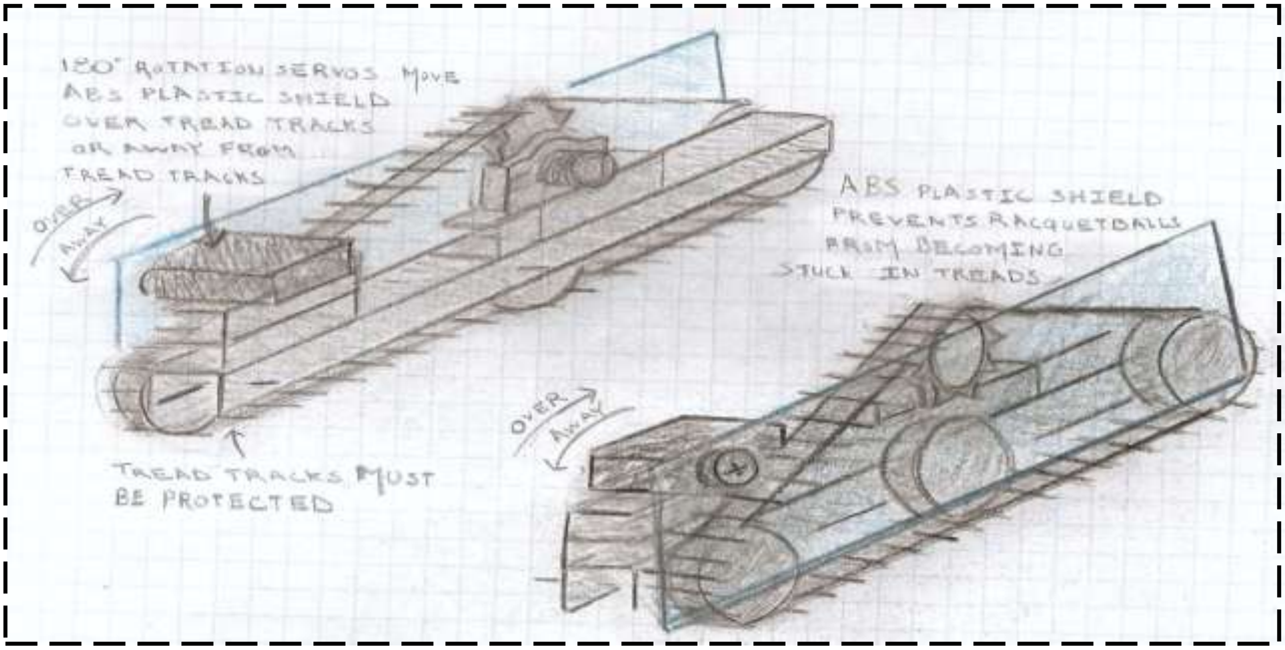
Thursday, January 12, 2012: 5 - 8 p.m.

Session# 23
Science lab at St. Clare's School
(Staten Island, New York)

Attendance: Justin Cassamassino, Matthew Gulotta, Michelle Pagano, Amanda Parziale, Louis Pearson, James Pugliese
Coach: Mrs. Mary Lee Parent Mentor: Mr. Joseph Pugliese

TASKS	REFLECTIONS
Test out our robot on our practice BOWLED OVER game field in order to see if we have to make adjustments before the Cookie Bowl Scrimmage on Saturday, January 14.	Our robot ran pretty well while we were practicing matches; however, we have one concern that came apparent to us ... ➢ Racquetballs get caught within the tread tracks running lengthwise along the sides of the robot.
Determine how to fix the tread systems on the sides of our robot so that racquetballs do not become stuck within the treads.	In order to prevent racquetballs from getting stuck in the treads, we are thinking of trying to ... ➢ Install a 180° rotation servo with ABS plastic shield at the apex of a lengthwise 96 mm channel at the front of the robot base to cover the treads before racquetballs can come into it.

Robot Diagram – Idea for preventing racquetballs from getting into treads



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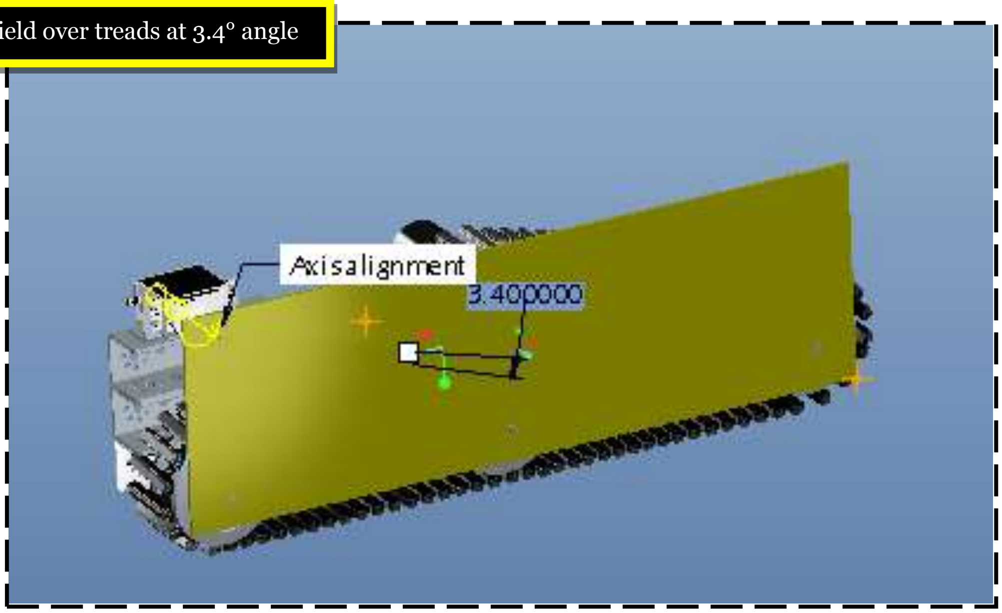
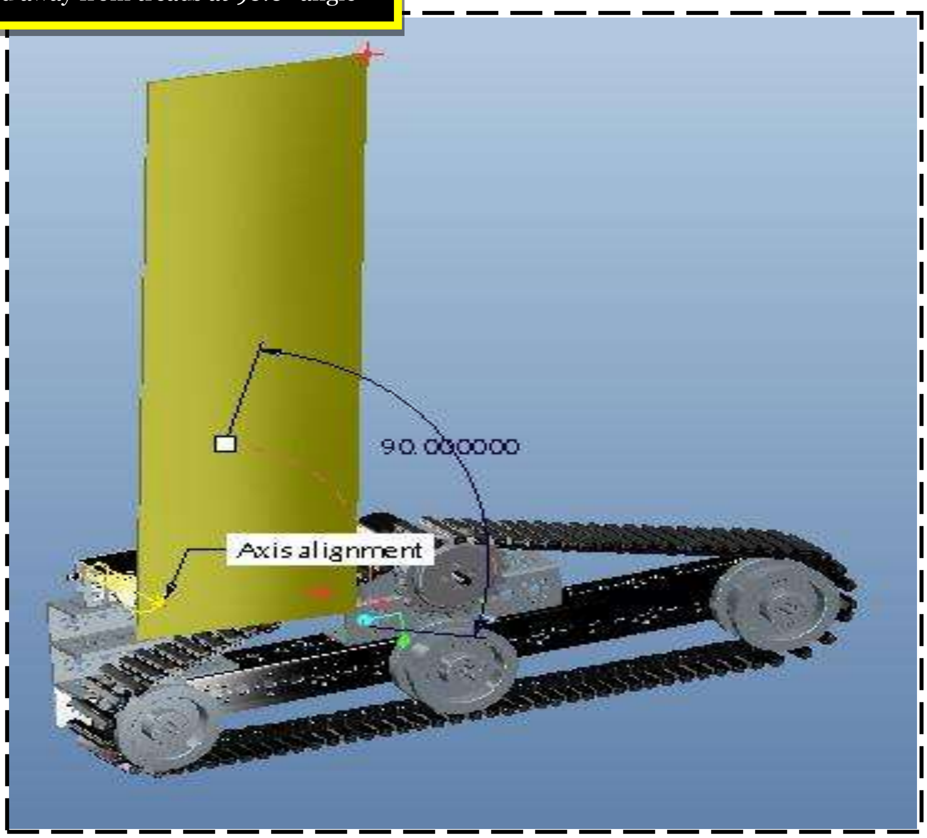
Creo Elements/Pro Analysis – Idea for preventing racquetballs from getting into treads

Tread shield over treads at 3.4° angle



Tread shield away from treads at 90.0° angle



Saturday, January 14, 2012: 10 a.m. - 3:30 p.m.

Cookie Bowl Scrimmage
Girl Scout Council
(Pleasantville, New York)

Attendance: Justin Cassamassino, Matthew Gulotta, Erika Olsen, Michelle Pagano, Amanda Parziale, Louis Pearson, James Pugliese
Coach: Mrs. Mary Lee Parent Mentor: Mr. Joseph Pugliese

TASKS	REFLECTIONS
During the workshop portion of today's scrimmage, implement one of our ideas to prevent racquetballs from coming in between the tread tracks.	To prevent the racquetballs from coming into the tread tracks, our team cut parts of ABS plastic and attached them between the tread tracks. We made sure to accurately align the ABS plastic with the tread tracks to ensure that racquetballs will not be able to hinder the mobility of our robot.
Secure '2864' numerals onto the two same sides that the tread tracks are on.	Our team attached the '2864' numerals onto the sides of our robot. Also, we backed the '2864' numerals with metal plates for extra support. Now, our robot will not be confused with other robots on today's BOWLED OVER game field.
Participate and have fun in today's BOWLED OVER robot matches.	In today's BOWLED OVER robot matches, our robot ... ➢ Had trouble at first connecting to the Samantha FCS/Wi-Fi system; however, everything worked fine after the Samantha configuration flashdrive was inserted into our Samantha module. ➢ Executed its autonomous programs well when starting out on either the blue home zone platform or the red home zone platform. ➢ Efficiently knocked down crates with tubes of racquetballs on top.

Photo – ABS plastic between tread tracks to prevent racquetballs

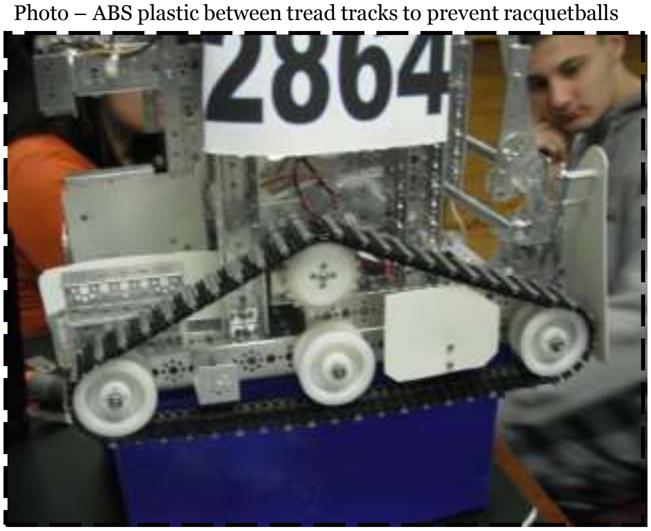
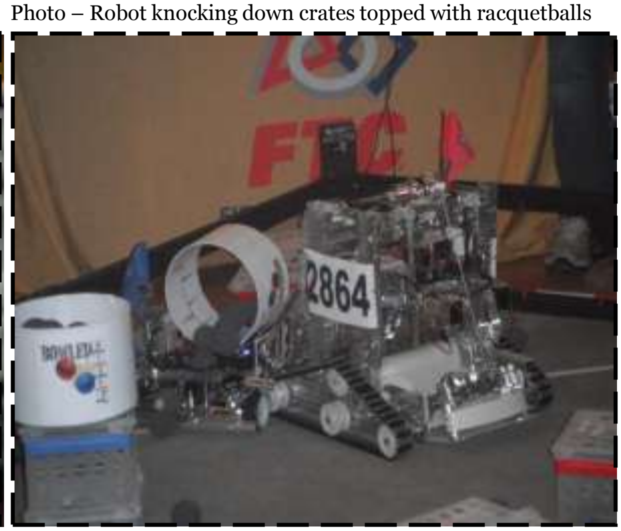


Photo – Robot knocking down crates topped with racquetballs



Recorded by:	Date:	Journal Coordinator:	Date:

Thursday, January 19, 2012: 5 - 8 p.m.

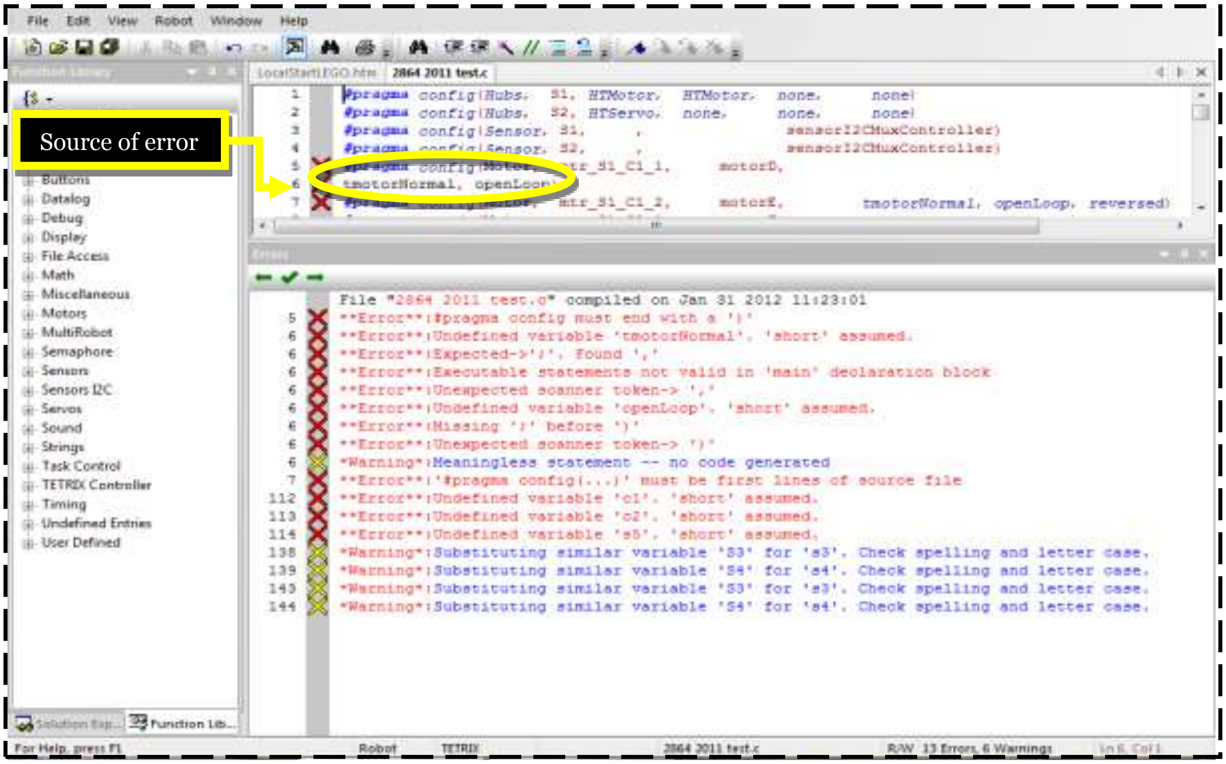
Session # 24
Science lab at St. Clare's School
(Staten Island, New York)

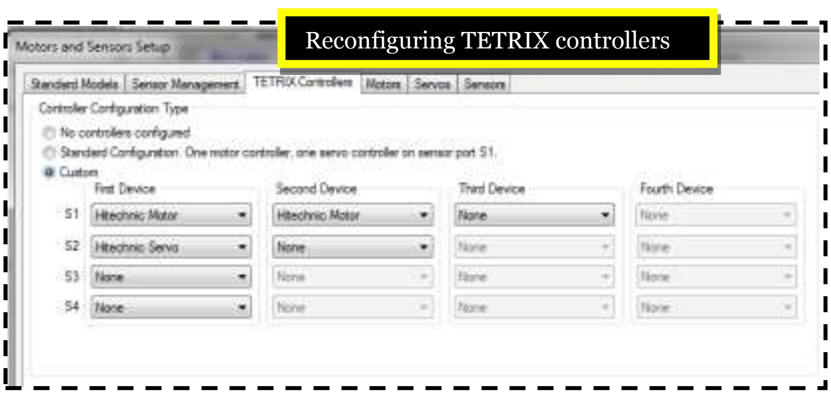
Attendance: Matthew Gulotta, Erika Olsen, Michelle Pagano, Amanda Parziale, Louis Pearson, James Pugliese
Coach: Mrs. Mary Lee Parent Mentor: Mr. Joseph Pugliese

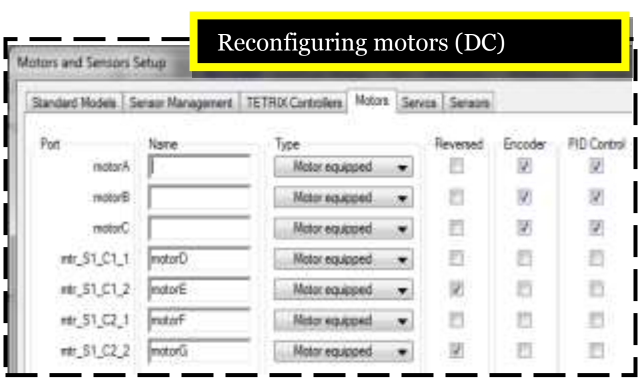
TASKS	REFLECTIONS
Fix the errors in our RobotC tele-operated program that keep popping up whenever we have to run the robot on our BOWLED OVER practice field.	The main problem with our RobotC tele-operated program was that 'tmotorNormal' was not being recognized In order to fix the various errors in our RobotC tele-operated program relating to 'tmotorNormal', we went through a series of steps which included ... ➢ Opening the Motors and Sensors Setup ➢ Reconfiguring TETRIX controllers ➢ Reconfiguring motors (DC) ➢ Reconfiguring servos
Have our robot practice running its RobotC autonomous programs on the BOWLED OVER practice field.	Our robot was able to run the following RobotC autonomous programs that we made ... 1. Autoball ➢ For when robot starts on right side of blue home platform ➢ Enables robot to push blue bowling ball into front parking zone 2. Autoball2 ➢ For when robot starts on left side of red home platform ➢ Enables robot to push red bowling ball into front parking zone 3. Autonomous 1 ➢ For when robot starts out on either the left side of blue home zone platform or right side of the red home zone platform ➢ Enables robot to drive straight into back parking zone

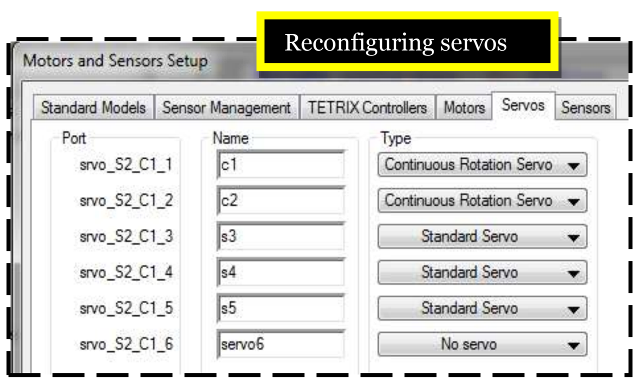
Recorded by:	Date:	Journal Coordinator:	Date:

RobotC Analysis – Solving 'tmotorNormal' error



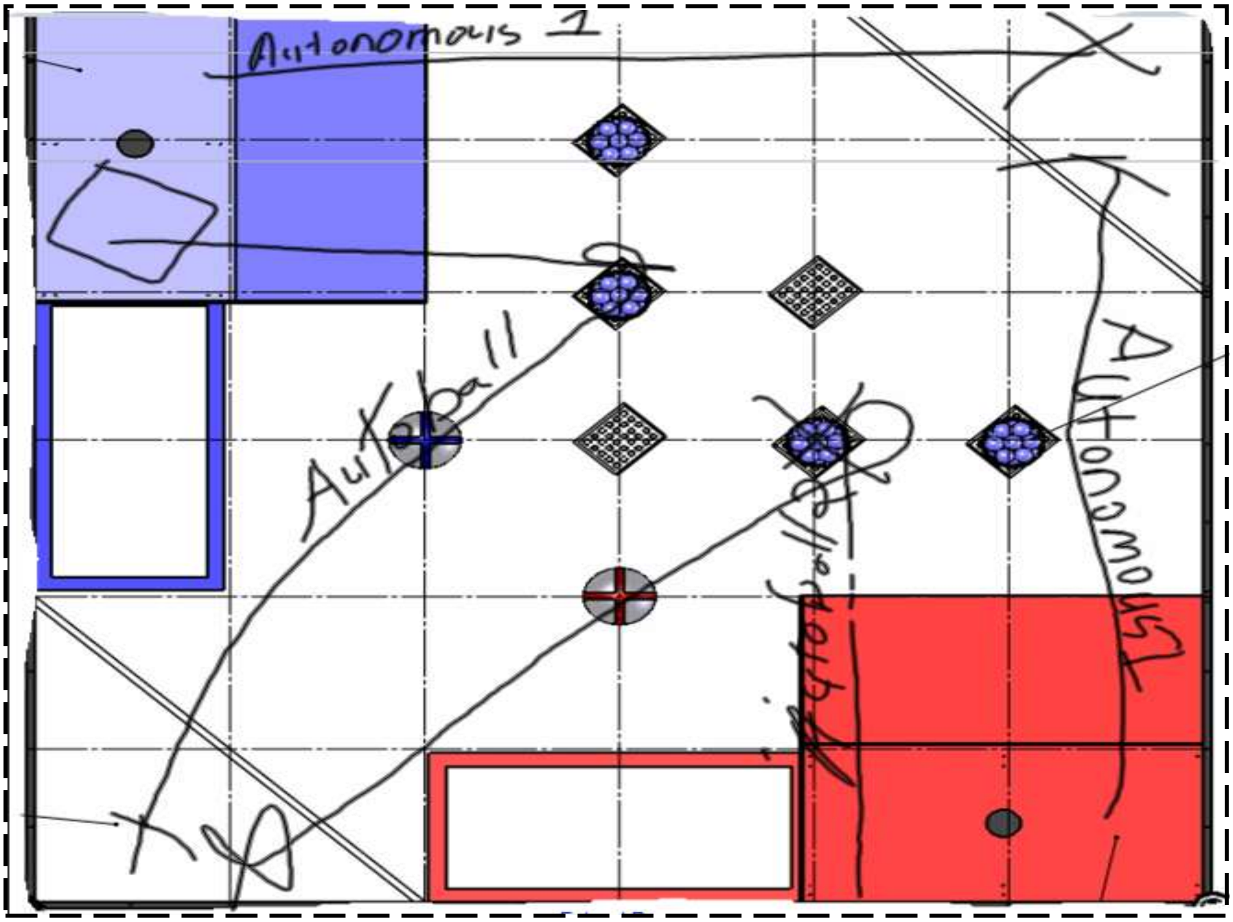






Recorded by:	Date:	Journal Coordinator:	Date:

RobotC Analysis – Diagram of what our robot is capable of doing in the autonomous period



Recorded by:	Date:	Journal Coordinator:	Date:

Sunday, January 29, 2012: 7:30 a.m. - 5:30 p.m.

Hudson Valley FTC Championship
Pace University
(Pleasantville, New York)

Attendance: Justin Cassamassino Matthew Gulotta, Erika Olsen, Michelle Pagano, Amanda Parziale, Louis Pearson, James Pugliese
Coach: Mrs. Mary Lee Parent Mentor: Mr. Joseph Pugliese

TASKS	REFLECTIONS
Bring our robot to mechanical and software & field inspections to ensure that it meets all the requirements.	➢ Mechanical - Our robot passed mechanical inspection, but had difficulty fitting into the 18" x 18" x 18" box at first. ➢ Software & Field – Our robot passed software and field inspection, and we were able to ensure that all of our attachments worked via the Samantha Field Control System
Take part in the judged interview.	Our team enjoyed talking with the judges. The judges got a kick out of our robot, Creo Elements/Pro model, engineering journal, and outreach initiatives.
Perform in the BOWLED OVER robot matches.	Our robot had difficulty in the qualification robot matches. Our robot's major problems included ... 1. Losing connection with the driver joystick controller 2. Driving too slowly and getting stuck on racquetballs To fix the first problem, we programmed the robot to drive forward if button 7 is pressed on either of our two controllers and dr ive backward if button 8 is pressed on either of our two controllers.
Take part in the awards ceremony.	The awards ceremony was awesome. Our team won the THINK Award and earned 2nd place for the INSPRE Award. We did not expect to do this well!

Photo – Our team with the THINK Award

Recorded by:	Date:	Journal Coordinator:	Date:

Tuesday, February 7, 2012: 5 - 8 p.m.

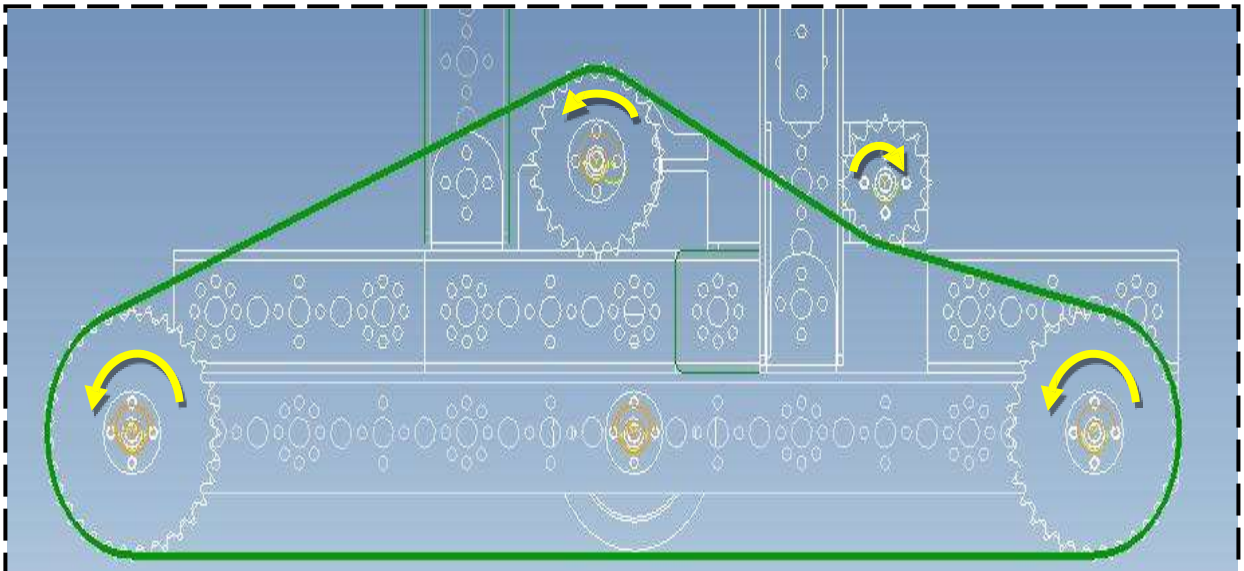
Session #25
St. Clare's School
(Staten Island, New York)

Attendance: Matthew Gulotta, Erika Olsen, Michelle Pagano, Amanda Parziale, James Pugliese
Coach: Mrs. Mary Lee
Parent Mentor: Mr. Joseph Pugliese

TASKS	REFLECTIONS
Determine how to fix the second difficulty, which was the treads limiting our robot's mobility, at the Hudson Valley FTC Championship.	We developed an idea on how to improve our robot's mobility on the BOWLED OVER game field. Our idea involves replacing our robot's treads with steel roller chains, sprockets, and wheels. We researched steel roller chain systems and learned that they ... ➢ Transmit the mechanical energy from the motor to the load ➢ Include components such as rollers, bushings, pins, and plates ➢ Are rotated by sprockets, which have many engaging teeth ➢ Can be identified by pitch (distance between rollers of each chain link)
Start creating the layout of axles, sprockets, and wheels for the roller chain drive system that we are building.	Our objectives are to construct a roller chain drive system that ... ➢ Produces as much torque as possible so that the robot can move up and down the ramp with more strength ➢ Enables the robot to have a clean ride on the challenge field Based on our objectives, here is how we created axle/sprocket/wheel layout on each side of our robot... ➢ Two "load" axles at opposite ends along the length of the robot ➢ A 101 mm wheel on each load axles (101 mm wheels cover more distance per rotation than do 76 mm wheels) ➢ 24-tooth sprocket (smaller) directly on motor; 32-tooth sprocket (bigger) on two load axles ➢ 16-tooth sprocket located on axle level with motor to put tension on the chain and eliminate slack between the motor and back load axle

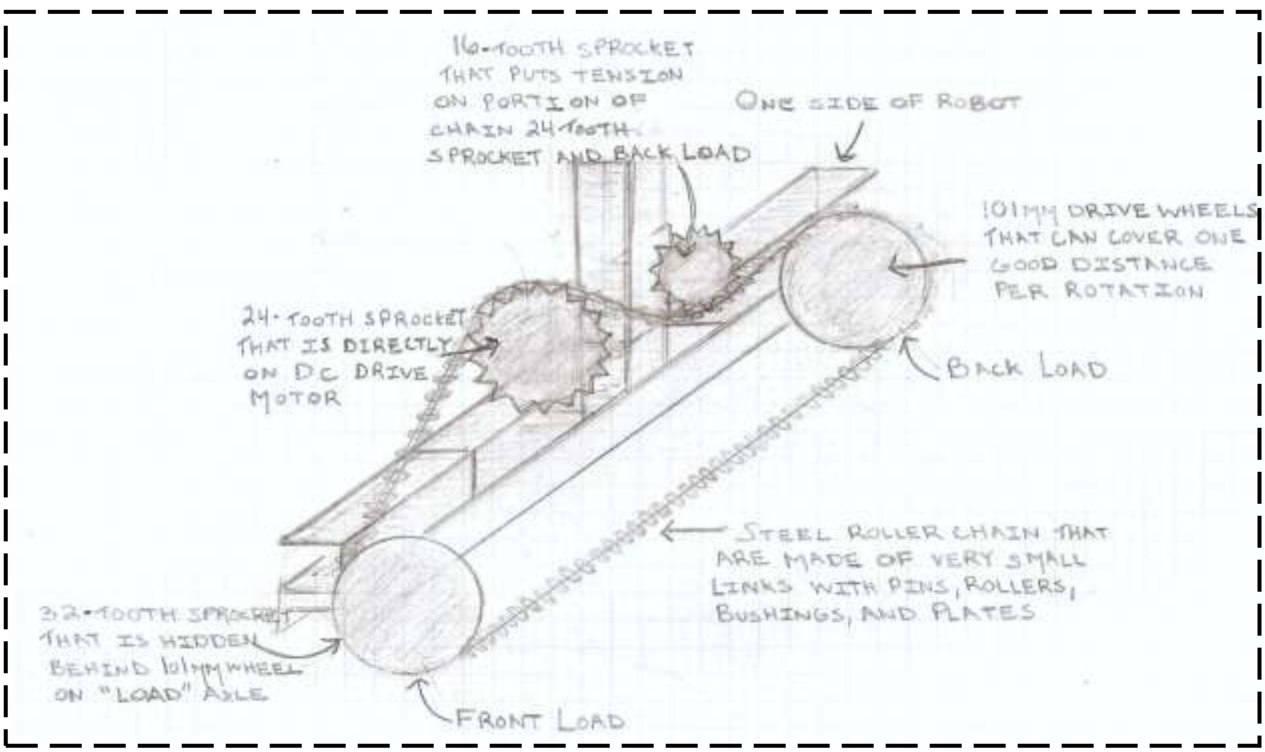
Recorded by:	Date:	Journal Coordinator:	Date:

Creo Elements/Pro Analysis – Belt and sprocket movement in the steel roller chain drive system



Since the 24-tooth (smaller) drive sprocket is coupled to 32-tooth (bigger) load sprockets, the roller chain system has reduced speed and greater torque. Unlike gears that rotate in opposite directions when meshed, the chain will allow for the drive and load sprockets inside to all rotate in the same direction. However, the 16-tooth rotates in the opposite direction because it is outside the chain.

Robot Diagram – Axle/sprocket/wheel layout for each side of the robot's drive system



Recorded by:	Date:	Journal Coordinator:	Date:

Thursday, February 9, 2012: 5 - 8 p.m.

Session #26
St. Clare's School
(Staten Island, New York)

Attendance: Justin Cassamassino, Matthew Gulotta, Erika Olsen, Michelle Pagano, Amanda Parziale, James Pugliese
Coach: Mrs. Mary Lee Parent Mentor: Mr. Joseph Pugliese

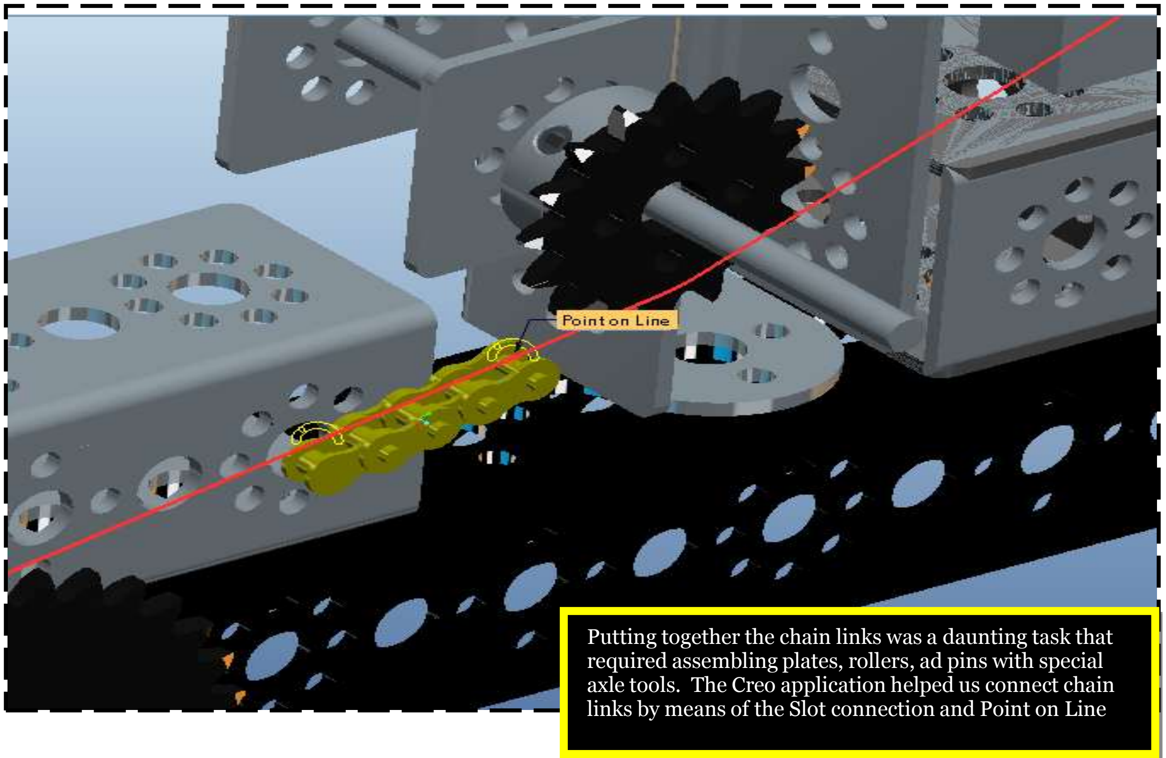
TASKS	REFLECTIONS
Now that the layout of axles, sprockets, and wheels is set on our robot, put together the TETRIX steel chain links into one long steel roller chain for each side of the robot.	Connecting the TETRIX steel chain links together was a long process that required much precision. However, the work was well worth it in the end when we completed building the two steel roller chains and secured them in the proper format around the sprockets.
Test out the roller chain system by driving the robot on our BOWLED OVER practice field.	We ran both the RobotC autonomous and tele-operated programs for our robot on the BOWLED OVER field. Our observations were that the steel roller chain drive system: ➢ Improved our robot's ability to avoid getting stuck on racquetballs and to drive smoothly overall ➢ Caused our robot to move slower, yet stronger, than the tread system did Our only revision was to: ➢ Increase the duration of time that the robot runs for in some parts of the RobotC autonomous programs .

Work Session Video – Robot running on BOWLED OVER practice field with steel roller chain system

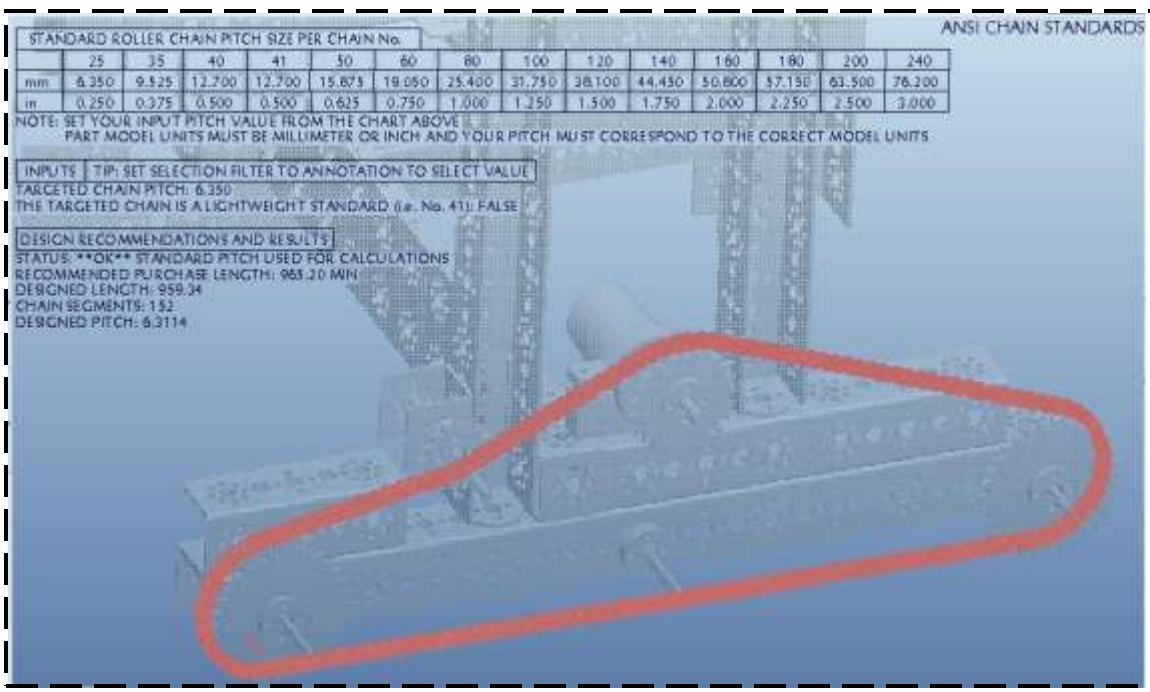
FTC#2864 Robot- Steel Roller Chain.AVI

Recorded by:	Date:	Journal Coordinator:	Date:

Creo Elements/Pro Analysis – Connecting Chain Links to form the steel roller chain system



Creo Elements/Pro Analysis – Specifications for steel roller chain system



	25	35	40	41	50	60	80	100	120	140	160	180	200	240
mm	6.350	9.525	12.700	12.700	15.875	19.050	25.400	31.750	38.100	44.450	50.800	57.150	63.500	76.200
in	0.250	0.375	0.500	0.500	0.625	0.750	1.000	1.250	1.500	1.750	2.000	2.250	2.500	3.000

Recorded by:	Date:	Journal Coordinator:	Date:

RobotC Analysis – Adjusting autonomous programming for the steel roller chain system

Original program for tread system, which requires **less** time to complete a point turn

```
    {
      motor[motorF] = 50;
     motor[motorG] = 50;
     wait1Msec(1500);

   motor(motorD) = 75;
   motor(motorE) = 75;
   wait1Msec(3000);

   motor(motorD) = -75;
   motor(motorE) = -75;
   wait1Msec(800);

   motor(motorD) = -75;
   motor(motorE) = 75;
   wait1Msec(1400);

   motor[motorD] = 65;
   motor[motorE] = 80;
   wait1Msec(5000);

     }
   }
```

Modified program for roller chain system, which requires **more** time to compete a point turn

```
    {
     motor[motorD] = 0;
     motor[motorE] = 0;
     wait1Msec(750);

   motor[motorD] = 75;
   motor[motorE] = 75;
   wait1Msec(3000);

   motor[motorD] = -75;
   motor[motorE] = -75;
   wait1Msec(800);

   motor[motorD] = 75;
   motor[motorE] = -75;
   wait1Msec(2000);

   motor[motorD] = 65;
   motor[motorE] = 80;
   wait1Msec(5000);

     }
   }
```

Recorded by:	Date:	Journal Coordinator:	Date:

Sunday, February 12, 2012: 8 a.m. - 6:30 p.m.

New Jersey FTC Championship, New Jersey Institute of Technology (Newark, New Jersey)

Attendance: Justin Casamassino, Matthew Gulotta, Erika Olsen, Michelle Pagano, Amanda Parziale, James Pugliese

Coach: Mrs. Mary Lee

Parent Mentor: Mr. Joseph Pugliese

TASKS	REFLECTIONS
Go through mechanical and software inspections with our robot and its bill of materials.	Our team flew through mechanical and software inspections with ease. In the field component of the software inspection, we made sure that all the DC drive motors and servo motors work properly and have no connection interference.
Participate in the judges interview.	We brought along with us our robot and virtual Creo Elements/Pro robot model (and mascot – Blimp) and met with the judges. Even though we did not have our engineering journal, which was being looked at by a different panel of judges at the time, the judges interview ran pretty smoothly.
Take part in a NJ FTC PTC Student Design Competition.	In the NJ FTC PTC Student Design Competition, our team was given 20 minutes to create a virtual robot via Creo Elements/Pro that could clean up Giants Football Stadium. Our own team's robot design featured vacuums and a central storage system to suck up and store garbage.
Get ready for and compete in the BOWLED OVER robot matches.	Our team was in the Parkway Division of robot matches, and our robot's performance placed 17th overall. Our robot had some trouble in robot matches, which included … ➢ Stuttering while in motion ➢ Trouble travel up onto and down from the home zone platform Thanks to the MFS Hawks FTC Team, our robot's stuttering problem was fixed by means of placing each button task in its own separate function in RobotC.
Take part in the Closing & Awards Ceremony.	All FTC teams that were here today performed well and accomplished a lot. Our own team received an honorable mention in the NJ FTC PTC Student Design Competition and the THINK Award.

Recorded by:	Date:	Journal Coordinator:	Date:

Tuesday, February 21, 2012: 5 - 8 p.m.

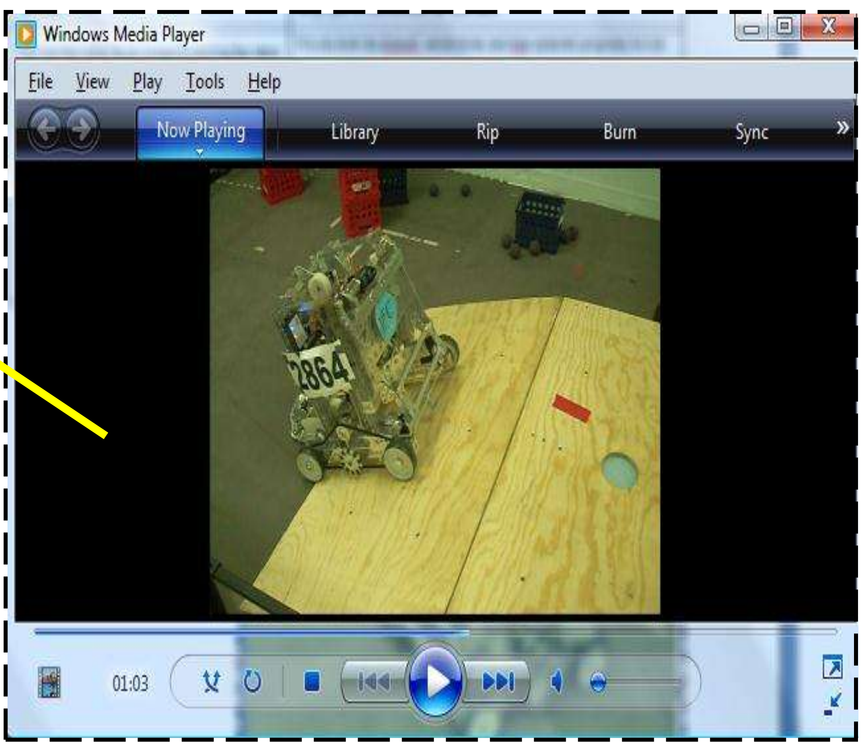
Session #27
St. Clare's School
(Staten Island, New York)

Attendance: Justin Casamassino, Matthew Gulotta, Erika Olsen, Michelle Pagano, Amanda Parziale, James Pugliese
Coach: Mrs. Mary Lee
Parent Mentor: Mr. Joseph Pugliese

TASKS	REFLECTIONS
Determine how to enable our robot to efficiently travel up onto and down from the home zone platform.	At the New Jersey FTC Championship, our robot had some trouble traveling up onto and off from the home zone platform. This may be because the steel roller chain system does not have enough support alone to move upon the wooden angle joining the home zone platform and ramp. Solution: ➢ We added one 76 mm omni wheel (set on a freely rotating axle) to each side of the robot's drive system. The omni wheels will move on the wooden angle before the steel roller chains even touches it; however, the omni wheels will never touch the ground and interfere with the normal works of the steel roller chains.
On the BOWELED OVER practice field, test drive how the robot's 76 mm omni wheel additions will perform when the robot is traveling up and down the home zone ramp/platform.	While repeatedly test driving, our robot was able to travel up and down the home zone ramp/platform with ease. This is thanks to the 76 mm omni wheels that effectively moved upon the home zone's wooden angle by means of their freely rotating axles.

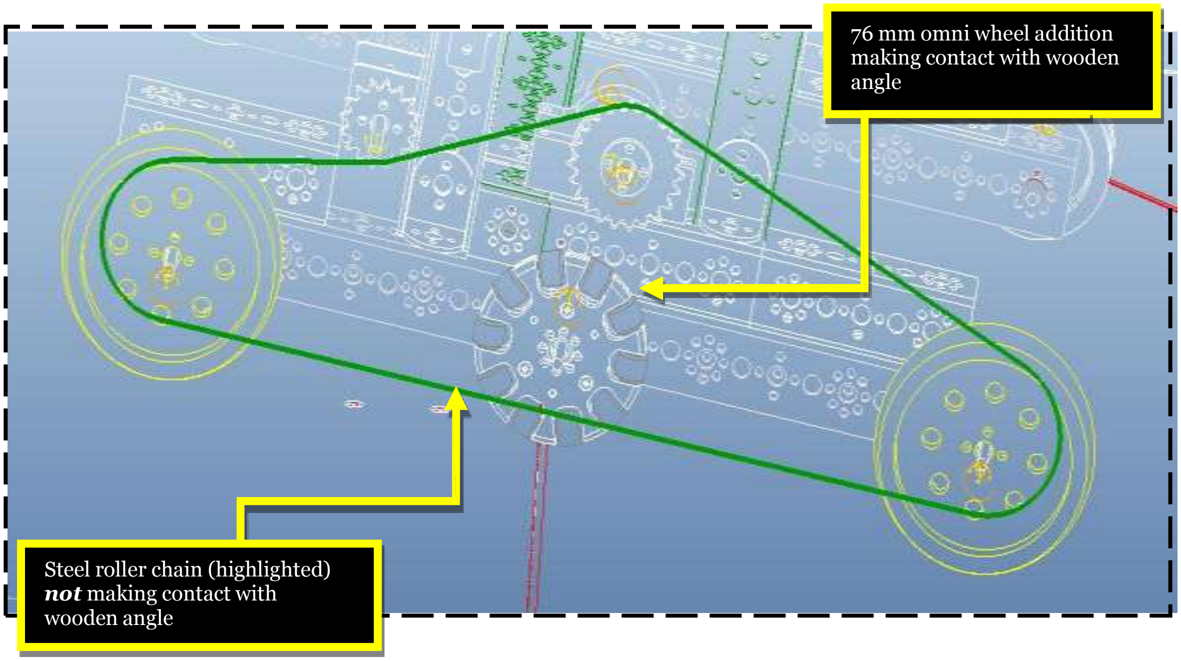
Work Session Video – Robot traveling up and down home zone platform ramp with the 76 mm omni wheel addition

FTC#2864 Robot- Omni Wheel Addition.AVI

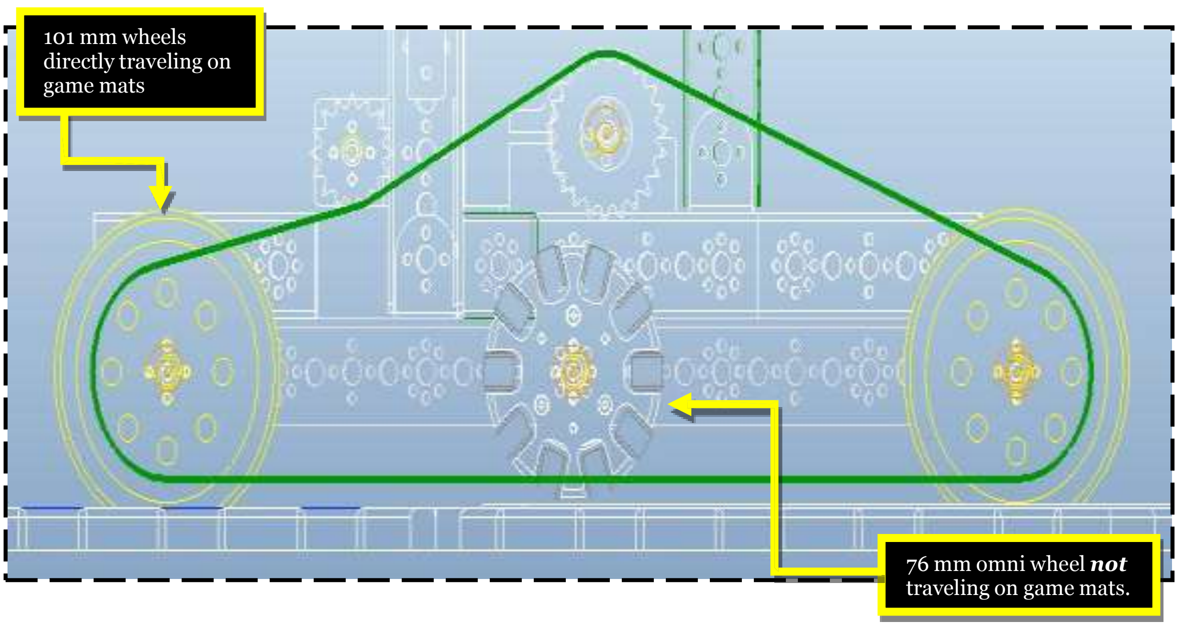


Recorded by:	Date:	Journal Coordinator:	Date:

Creo Elements/Pro Analysis – Robot traveling upon wooden angle of home zone platform



Creo Elements/Pro Analysis – Robot traveling on game mats (flat, ground surface) of the BOWLED OVER game field



Recorded by:	Date:	Journal Coordinator:	Date:

Thursday, March 1, 2012: 5 - 8 p.m.

Session #28
St. Clare's School
(Staten Island, New York)

Attendance: Justin Casamassino, Matthew Gulotta, Erika Olsen, Michelle Pagano, Amanda Parziale, James Pugliese

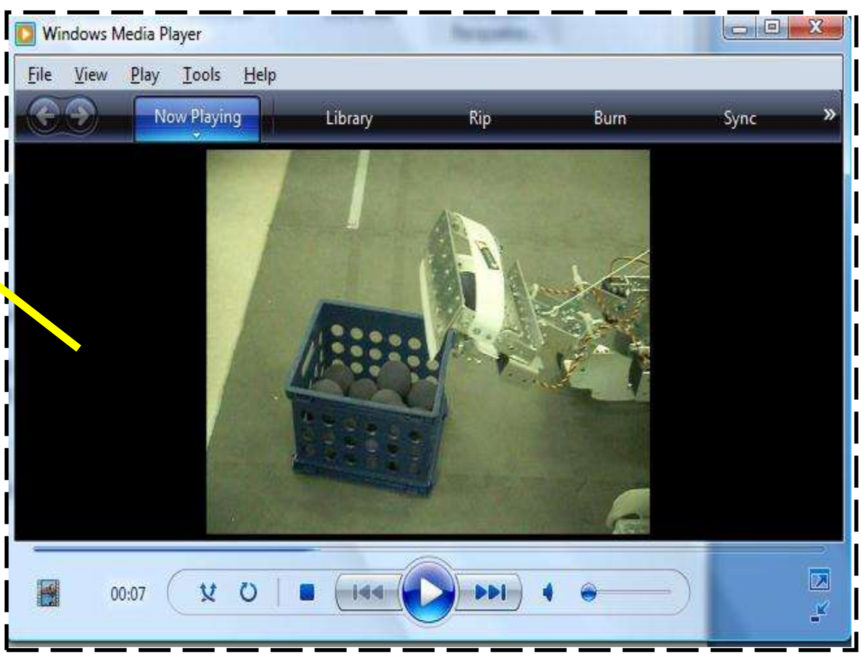
Coach: Mrs. Mary Lee Parent Mentor: Mr. Joseph Pugliese

TASKS	REFLECTIONS
Brainstorm ways to enable our robot's racquetball manipulator to work more effectively.	Our team wants to improve two aspects of the robot's racquetball manipulator, which include its ability to: 1. Lift the racquetballs way higher than the height of the crate 2. Keep the string moving on the track of the pulley system To improve the two aspects of the robot's racquetball manipulator, our team: 1. Added a second 180° servo to control the pulley's motorized 76 mm wheel 2. Attached an 76 mm wheel (on a freely rotating axle) to the point on the manipulator arm that is between the Open/Close Shuttled Platform and pulley's motorized 76 mm wheel.
On our BOWLED OVER practice field, test drive how well our adjustments to the racquetball manipulator work.	Operation: Racquetball Manipulator = Success By test driving the robot after making adjustments to the racquetball manipulator, we found that the racquetball manipulator is able to: ➢ Keep the string from falling from the track of the pulley system ➢ Lift up to three racquetballs over the crate ➢ Deposit up to three racquetballs into the crate

Work Session Video – Racquetball manipulator working with modified pulley system

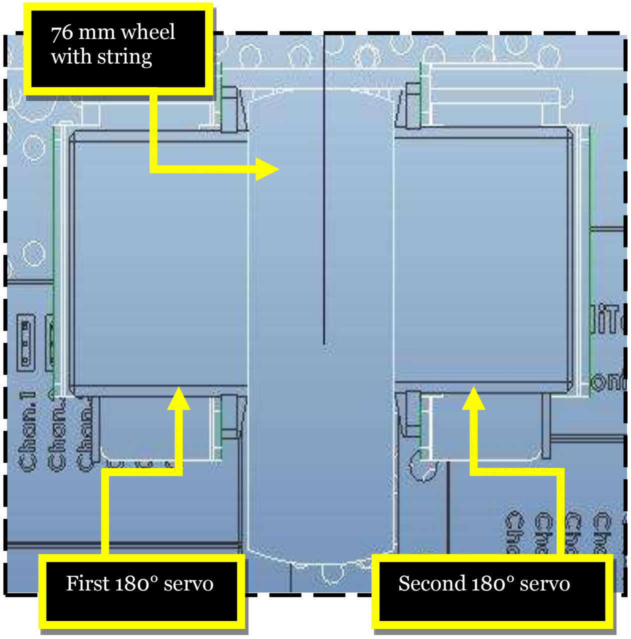
AVI

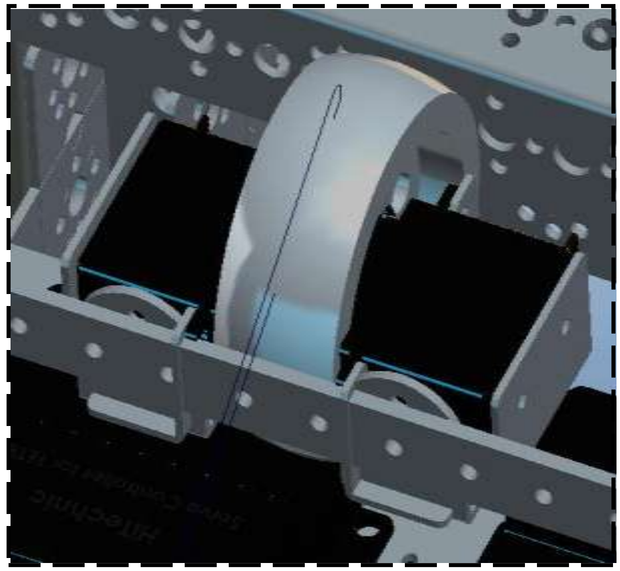
FTC#2864 - Racquetball Manipulator.AVI



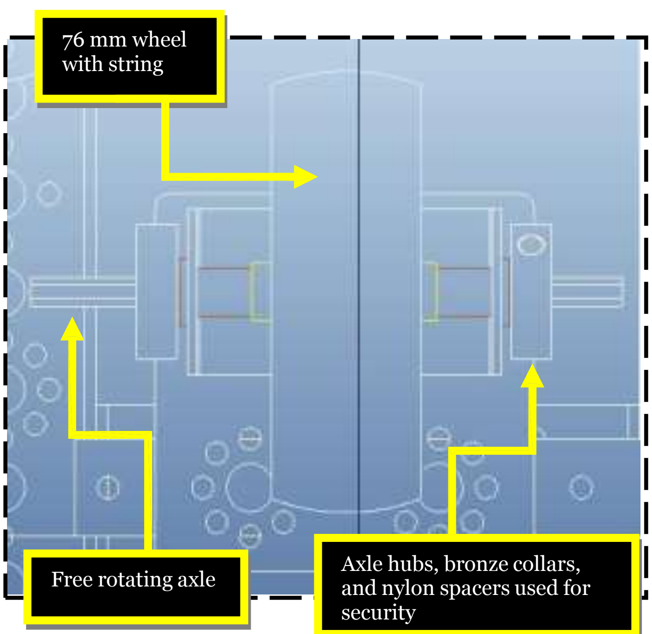
Recorded by:	Date:	Journal Coordinator:	Date:

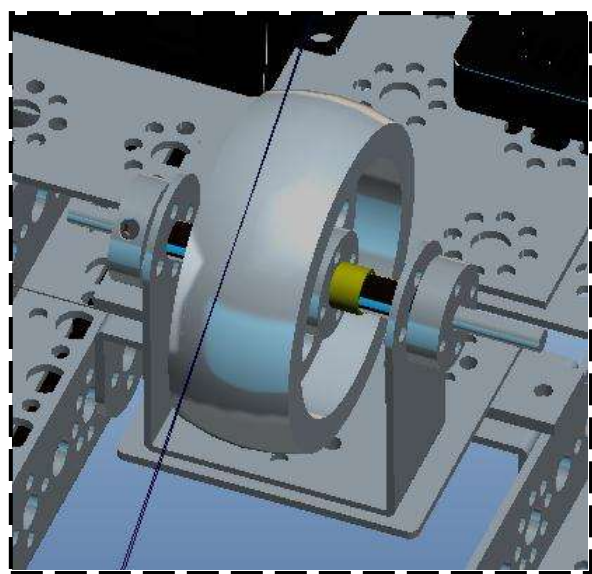
Creo Elements/Pro Analysis – Pulley with a second 180° servo motor





Creo Elements/Pro Analysis – Freely rotating 76 mm wheel between Open/Close Shuttled Platform and pulley's motorized 76 mm wheel





Saturday, March 3, 2012: 8:30 - 4:30 p.m.

NYC FTC Scrimmage
NYU-Poly
(Brooklyn, New York)

Attendance: Justin Cassamassino, Erika Olsen, Michelle Pagano, Amanda Parziale
Coach: Mrs. Mary Lee

TASKS	REFLECTIONS
Help set up the BOWLED OVER game fields.	We worked with the scrimmage officiators and members of different FTC teams in assembling the BOWLED OVER game fields. This helped our team get to know everyone in the FTC world a little better as well as greater understand the parameters of the BOWLED OVER challenge.
Participate in the BOWLED OVER robot matches.	Our team's robot stuttered as it ran in the first few robot matches. To determine the problem, we tested our robot's connection using both the Samantha Field Control System and our Bluetooth module. The problem: our robot's NXT brain was holding too many programs in its software memory. We removed nonessential trial and error autonomous and tele-operated programs from the NXT brain's memory, and the robot ran well in the proceeding robot matches.

Work Session Video – Running our team robot during a BOWLED OVER robot match

NYC FTC Scrimmage - Robot Match.AVI

Recorded by:	Date:	Journal Coordinator:	Date:

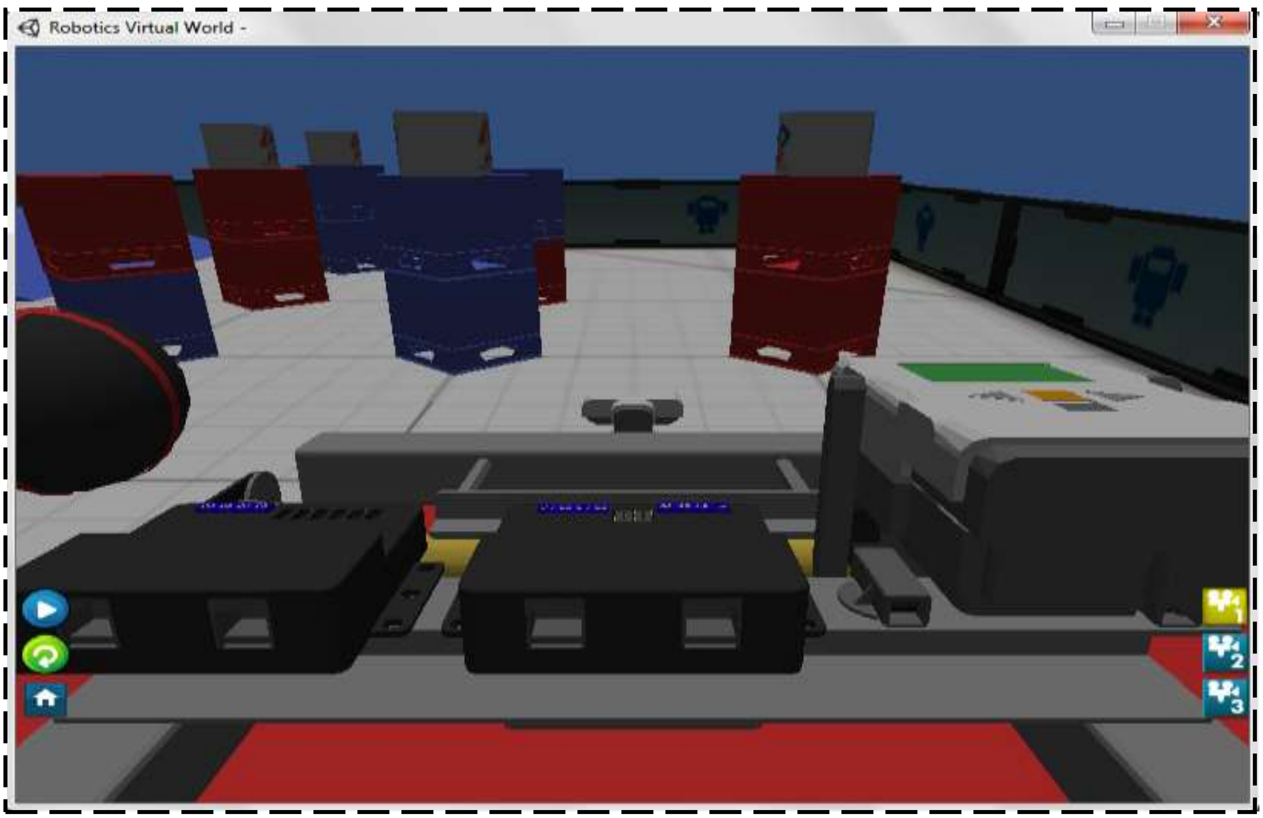
Thursday, March 8, 2012: 5 - 8 p.m.

Session #29
St. Clare's School
(Staten Island, New York)

Attendance: Justin Cassamassino, Matthew Gulotta, Erika Olsen, Michelle Pagano, Amanda Parziale, James Pugliese
Coach: Mrs. Mary Lee Parent Mentor: Mr. Joseph Pugliese

TASKS	REFLECTIONS
Practice test driving our robot for the New York City FTC Championship.	Since we our done with making major revisions to our robot, we practiced running it via RobotC on our BOWLED OVER practice field. Here are the RobotC programs we test drove: ➢ Autonomous1 ➢ Autoball1 ➢ Autoball2 ➢ Teleop 2864- 2011-12

Robot Virtual Worlds Analysis – Observing robot run RobotC programs on the computer



Recorded by:	Date:	Journal Coordinator:	Date:

Friday, March 16, 2012: 4 - 5:45 p.m.

NYC FTC Championship – Day 1: Inspection
Javits Center
(Manhattan, New York)

Attendance: Justin Cassamassino Michelle Pagano,
Coach: Mrs. Mary Lee

TASKS	REFLECTIONS
Take our robot through the Mechanical, Software & Field Inspections.	In the Mechanical Inspection, our robot: ➢ Easily fit within the 18" x 18" x 18" box ➢ Was checked to have all the required assembling components in the proper locations (e.g. Samantha module mounted high up on vertical channel) In the Software& Field Inspections, our robot: ➢ Was checked to have well working technical components (e.g. NXT brain with correct programming layout ➢ Went through a successful test drive to ensure its drive motors and attachments worked.
Set up our team's pit table.	At our pit table, we assembled the tripod poster display for our Bounty Hunters and PTC banners. Also, we placed our robot in a secure location for the next day's competition.

Saturday, March 17, 2012: 8 a.m. - 5:30 p.m.

NYC FTC Championship – Day 2: Competition
Javits Center
(Manhattan, New York)

Attendance: Justin Cassamassino, Matthew Gulotta, Erika Olsen, Michelle Pagano, Amanda Parziale, James Pugliese
Coach: Mrs. Mary Lee Parent Mentor: Mr. Joseph Pugliese

TASKS	REFLECTIONS
Take our team's robot, engineering journal, virtual robot model (PTC), and blimp into the judging interview.	The judges were amicable and showed great interest in our team. They saw that how well we worked together as a team reflected our abilities to create an effective robot to tackle the BOWLED OVER challenge and engage our local community in FIRST initiatives. Also, the judges took our engineering journal for further viewing. Overall, the judging interview went well; however, we wished we had more time to speak to them.
Participate in the BOWLED OVER qualification matches.	In the first couple matches, nerves got the best of us and we struggled in controlling our robot. However, we soon pulled it together and were able to pull our robot up onto the home zone platform in later matches. Our robot ranked 24th out of 48 teams in our division (Metropolis). Unfortunately, we did not qualify for the alliance rounds.
Take part in the closing & awards ceremony.	Each FTC team, regardless of being novice or veteran, performed well in today's competition. Our own FTC team won the THINK Award! We even met Dean Kamen, who signed our team shirts, and Ken Johnson!

Recorded by:	Date:	Journal Coordinator:	Date:

Photo – Our robot knocking down crate stacks

Photo – Stellar performance by our alliance partner's robot and our robot

Photo – Our team with Dean Kamen

Photo – Our team with Len Rerek and Ken Johnson after winning the THINK Award

Recorded by:	Date:	Journal Coordinator:	Date:

BILL OF MATERIALS

ATTENTION: Do not reply to this message - we will not receive it.
Click here to submit an inquiry.

Dear Mary ,

Thank you for placing your order on the FIRST Tech Challenge (FTC) Web site.

ORDER SUMMARY

Order ID 38-36861 (Team Number: 2864)

Order Total
Merchandise Total: $119.00
Discounts: $69.00
Sub-Total: $50.00

Local Tax: $0.00
State/Province Tax: $5.17
Country Tax: $0.00
Shipping: $8.33
Handling: $0.00

Order Total: $63.50

Gift Certificate: $0.00
Grand Total: $63.50

Recorded by:	Date:	Journal Coordinator:	Date:

Products

Qty	Product Code	Description	Unit Price
1	W991544-V	2011 FTC Software Renewal Kit	$69.00
1	W991871-V	2011 Samantha Wi-Fi Communication Module	$50.00

We sincerely appreciate your business!
The FIRST Tech Challenge (FTC) Order Team
800.362.4308

QUESTIONS OR COMMENTS?
We are eager to help! Click here to submit your inquiry.

Recorded by:	Date:	Journal Coordinator:	Date:

FTC Team # 2864 – The Bounty Hunters
BOWLED OVER Robot: TETRIX Bill of Materials

STRUCTURAL COMPONENTS

PART NAME	PRODUCT ID	QUANTITY
416 mm Channel	W739069	5
288 mm Channel	W739068	5
160 mm Channel	W739067	4
96 mm Channel	W739066	11
32 mm Channel	W739065	11
Flat Building Plate	W739073	9
Flat Bar	W739070	9

BRACKETS

PART NAME	PRODUCT ID	QUANTITY
L Bracket	W739062	29
Flat Bracket	W739061	11
Single-Servo Motor Bracket	W739060	6
Servo Joint Pivot Bracket	W739063	1
Motor Mount	W739089	4
Battery Clip	W738009	1
Switch Mounting Bracket	W739176	1
LEGO Hard Point Connector	W739120	2

FASTENERS

PART NAME	PRODUCT ID	QUANTITY
Socket Head Cap Screw (1-1/2”)	W739195	12
Button Head Cap Screw	W739111	15
Socket Head Cap Screw (1/2”)	W739097	50
Socket Head Cap Screw (5/16”)	W739098	35
Kep Nut	W739094	112

CLAMPS, HUBS, & SPACERS

PART NAME	PRODUCT ID	QUANTITY
Motor Shaft Hub	W739079	4
Axle Hub	W739172	12
Axle Spacer (3/8”)	W739101	2
Axle Spacer (1/8”)	W739100	8

SPROCKETS & CHAINS

PART NAME	PRODUCT ID	QUANTITY
32-Tooth Sprocket	W739171	4
24-Tooth Sprocket	W739169	2
16-Tooth Sprocket	W739165	2
Chain with Link	W739173	304 (links)

WHEELS & AXLES

PART NAME	PRODUCT ID	QUANTITY
100 mm Axle	W739088	11
Axle Set Collar	W739092	16
Bronze Bushing	W739091	18
4” Wheel	W739055	4
3” Wheel	W739025	2
3” Omni Wheel	W731132	2

MOTORS & CONNECTORS

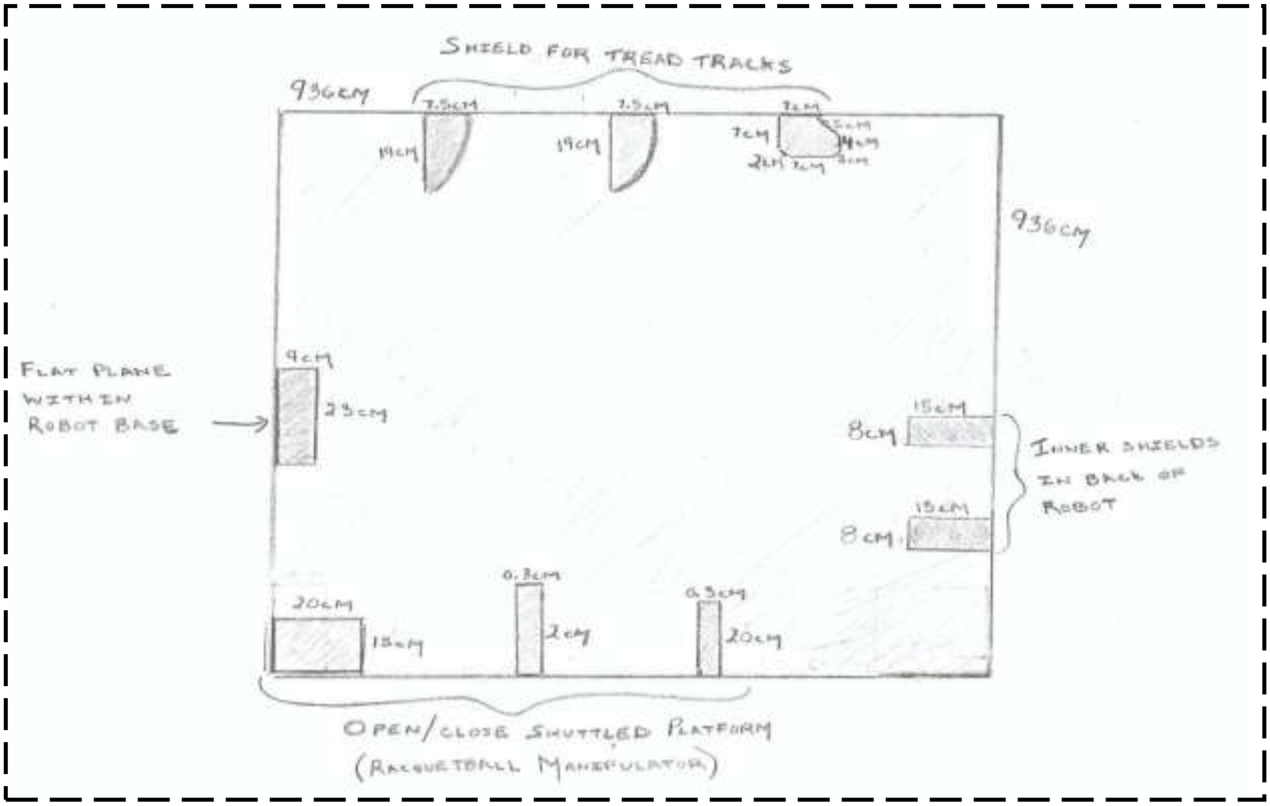
PART NAME	PRODUCT ID	QUANTITY
DC Drive Motor	W739083	4
Servo	W739197	4
Continuous Rotation Servo	W739177	2
DC Motor Controller	W991444	1
Servo Controller	W991445	2
12V Rechargeable NiMh Battery Pack	W739057	1
On/Off Switch	W739129	1
Motor Power Cable	W731903	4
Servo Extension	W739081	2

OTHER:

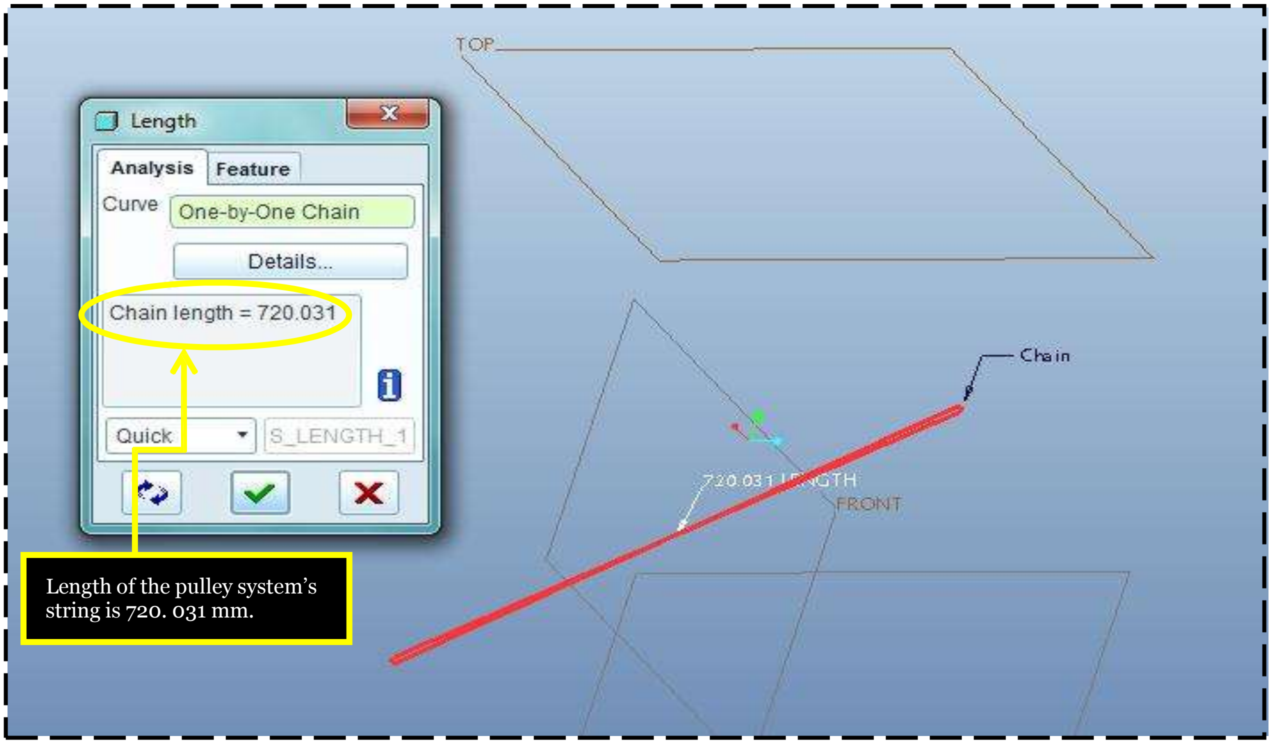
NXT Intelligent Brick - LEGO Education (Product ID: W979841) / Quantity: 1
The Samantha Wi-fi Communications Module – US FIRST / Quantity: 1

Recorded by:	Date:	Journal Coordinator:	Date:

Cut Diagram – Measurements for ABS plastic parts used on BOWLED OVER robot



Creo Elements/Pro Analysis – Length of string used for BOWLED OVER robot's pulley system



Recorded by:	Date:	Journal Coordinator:	Date:

COMMUNITY OUTREACH

Helping Special Needs Children Play Baseball on a Game Field Designed by the St. Clare's Robotics Team

The Great Kills Little League (Staten Island, New York)
Sunday mornings in the spring, summer, and fall

As part of the 2004-05 *No Limits* FLL challenge, the St. Clare's FLL Team used its science and engineering skills to help build "The Field of Dreams" (the challenger field) and form the Challenger Division for children with disabilities at the local Great Kills Little League (GKLL). The challenger field was created with special Astroturf that wheelchairs can travel over, beeping bases that guide the visually impaired, shorter distances between bases, and a wider dugout to fit wheelchairs. From the completion of the challenger field to the present, the St. Clare's Robotics Team (FLL and FTC) has played ball with the kids in the Challenger Division. Now, the beginning Challenger kids play on the challenger field and the advanced Challenger kids have the opportunity to play on the adjacent regular baseball field with new equipment including soft baseballs and metal helmets. The St. Clare's Robotics Team has even help hosted Halloween and Christmas parties, as well as an end of the year award ceremony for the Challenger Division. Special thank you goes to Frank Cambria and Doc & Susan Adone from the GKLL for working with the St. Clare's Robotics Team in order to make "The Field of Dreams" a reality.

Photo –The challenger field in the construction phase

Photo – Getting a feel for the baseball with the Challenger kids

Recorded by:	Date:	Journal Coordinator:	Date:

The Challenger Division program first coming to be

Archived Article – The Pitsco NETWORK

The Pitsco NETWORK

FIRST students make a difference

Neighborhood robotics team sees its dream field for special children become a reality

Editor's Note: *FIRST LEGO League is more than just students building robots. It's an opportunity for young adults to make a positive difference while working together. Following is an edited version of an article written by Reporter Bernie Augustine that appeared in the June 17, 2005, edition of the* Staten Island Advance. *It is reprinted with permission.*

With the help of the St. Clare's School LEGO Robotics team and its instructor, Mary Lee, Great Kills Little League of Staten Island, N.Y., is making dreams come true.

The new Challenger Division field offers a uniquely tailored baseball experience for children with conditions that range from autism to Down syndrome to blindness.

But while most of us may view those conditions as setbacks, you wouldn't be able to tell that by watching these special needs children play.

They field the ball – albeit with a little help – just as well as any other 7-to-10-year-old. And they can hit too, doubles in the gap and singles up the middle.

"Parents have actually cried when their kids hit the ball," said Sue Adone, director of the Challenger Division. "They're crying over something that people think is just a normal thing."

The Challenger Division, which was the brainchild of GKLL President Frank Cambria and Adone, got a little help this year from Lee and her students.

The LEGO Robotics team, which consists of 20 seventh and eighth-graders, is presented with a theme every year, and they use LEGO kits and materials to produce a concept for a project that fits the theme. According to Lee, this year's theme was "No Limits" and from that, the kids came up with the idea to adapt a baseball field for children with special needs.

Their concept included talking bases, a level playing field (referring to the actual topography of the field, not the competition) and wheelchair-accessible benches to aid in the enjoyment of the game. Then they pitched the idea to Cambria.

At top-left and center, FIRST students make their pitch to the Little League board of directors. It didn't take long for their dream to become a reality for special needs children, top right and above. (Photos courtesy of Mary Lee and the Staten Island Advance.)

He instantly loved the idea, but not the price. A whopping $50,000. Well over the league's budget for the year.

"They showed us the Miracle Leagues film, and I was amazed with what they could do," Cambria said of the school's video presentation of adapted baseball fields for disabled children located across the country. "It's so inspiring to see what these (St. Clare's) kids can do.

"I went to the board meeting and basically said, 'Look, we don't have the money for this, but I would love to do this.' They saw the video and approved it."

The league is open to all Staten Island children and is free of cost. Players receive nice jerseys (Yankees or Mets, of course) and gather for about an hour on Sunday mornings to learn the game that their brothers and sisters play.

"The whole idea is to have them get something out of it and enjoy it and not get discouraged," Adone said. "An important part of this is that their brothers and sisters are playing in the Little League. So now, their siblings come over and get to see them be the big shot."

Each player gets three swings at a pitch before turning to the tee, and everyone gets a chance to bat.

"When they get to the bases and jump up and give you that high-five, the feeling is just incredible," said Fran Balzofiore, who works with Adone at the field. "I could cry right now talking about it."

At the completion of this Sunday's session, and as the field started to empty out, one father stopped and turned to Adone.

"Are we still on for this Sunday? It's Father's Day," he shouted back toward the dugout.

"Yeah, sure. We'll be here," Adone said.

"That's great," the father remarked. "What better way to spend Father's Day than with your kids?"

Note: According to Adone, the league is happy to accept any sort of donation. Checks may be made payable to Great Kills Little League and sent to P.O. Box 367, Staten Island, NY 10308.

Recorded by:	Date:	Journal Coordinator:	Date:

Running the beginning league on the challenger field and the advanced league on the regular baseball field

Recent Article – Staten Island Advance (page 1 of2)

Challenger program at Great Kills LL expanding

Published: Thursday, October 20, 2011, 1:25 PM
Updated: Friday, October 21, 2011, 9:50 AM

By BOB WIETECHA JR.

GREAT KILLS - Who says you can't mix business with pleasure?

It was all business at the Great Kills Little League (GKLL) on Sunday when the Challenger division baseball games were underway, but there was a lot of pleasure too!

Besides the annual Halloween party that followed the morning games, another reason the special needs children and their parents were smiling was that they now have two options - a beginner league and advanced.

The beginners are younger children who play on an artificial-turf field with plastic bats and balls and beeping bases, while the older ones (10-14) have now "graduated" to the advanced division, and play on a bigger field with real equipment - aluminum bats, helmets, gloves and soft baseballs.

"We are so happy to offer two levels of play now for the children," said Susan Adone, who co-directs the league with her husband Don "Doc" Adone. "The children who moved to the bigger field are doing amazingly well. It is so rewarding to see the progression."

And GKLL president Frank Cambria hopes it will continue. "We are hoping to get enough of them to play at this level so we can send the team to a Little League-sanctioned Challenger event. When our 11-12-year-old Little League baseball team was in the regionals in Bristol (Conn.) this summer, we saw how well the Challenger teams were treated and would like to expose our children to that as well."

With Doc Adone, its effervescent field manager, out of commission with some health issues, St. Clare's science teacher Mary Lee and her St. Clare's FIRST Lego League and FIRST Tech Challenge robotics teams, long-time volunteer Clem Imperato, and some of the Challenger division parents had to kick it up a notch to help run the action, especially with the advanced program ready to hatch.

Staten Island Advance/Derek Alvez The Challenger program members, with all the volunteers, pose for a team photo, above, before heading to the clubhouse for the group's annual Halloween party.

Recorded by:	Date:	Journal Coordinator:	Date:

Recent Article – Staten Island Advance (page 2 of2)

"One mother had tears in her eyes when I told her that her son was ready for the advanced team," said Ms. Lee. "I could not help but notice how proud and happy she was watching him. I see the excitement in all the parents as well as the kids on both fields. They share in their children's joy maybe even more than other parents, and never take the happy moments and successes for granted."

Michelle Pagano, a senior at St. Joseph-by-the-Sea High School who has been a member of the St. Clare's robotics team for five years and never misses a Challenger game, added, "We are just happy to be part of it. We started helping the Challengers when it first started, and even helped with field design on the smaller field. We also help with all the parties."

And Sunday was no different when the two divisions of Challenger players, and their families and St. Clare helpers filtered into the clubhouse for the Halloween party.

It was food and fun, but even more impressive was the video slideshow playing on a continual loop showing the Challenger players in action. They were the happiest game faces you would ever want to see!

Photo courtesy/Mary Lee Challenger program participant Nick Caldarera takes a big swing during the weekly game

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The Islandwide Challenger program at Great Kills Little League is free and open to any special needs child. Games are played on Sundays.

The beginners meet from 10-11 a.m., and the advanced team plays from 9:30-11 a.m. The two fields are side by side and there are entry gates on Nahant Avenue (off Greaves Avenue) near the Great Kills Swim Club.

Advanced players are encouraged to bring their own gloves, if they have them. The league will run for two more Sundays and then will resume in spring. Call Susan Adone at 718-288-0457 if interested in either division.

Recorded by:	Date:	Journal Coordinator:	Date:

Maintaining Jack's Pond, a local pond adopted by the St. Clare's Robotics Team

Jack's Pond, in Great Kills
Seasonally, mainly spring, summer and fall

As part of the 2005-06 *Ocean Odyssey* FLL challenge, the St. Clare's FLL Team performed research on Jack's Pond, a local Blue Belt , which is a body of water and its surrounding area. The Department of Environmental Protection assigned Jack's Pond to serve as a natural filtration system collecting runoff and rainwater. This was not good because the plants and vegation in Jack's Pond took in the pollution, and the whole area became a deslolate place where people just threw away trash. The St. Clare's FLL Team presented its findings to the DEP and adopted Jack's Pond as part of the Adopt -A-Bluebelt program. Ever since, St. Clare's FLL, FTC, and Environmental teams , have done seasonal cleanings and dissolved oxygen tests in the water. As a matter of fact, the St. Clare's Robotics Team was just recently able to get a solar aerator pump in Jack's Pond after performing further research and seeing a greater need for aeration in the pond.

Photo – St. Clare's FLL Team from Ocean Odyssey Season

Photo - Members of the St. Clare's FTC and FLL Teams cleaning up Jack's Pond

Recorded by:	Date:	Journal Coordinator:	Date:

Diagram – Solar Aerator System Workings

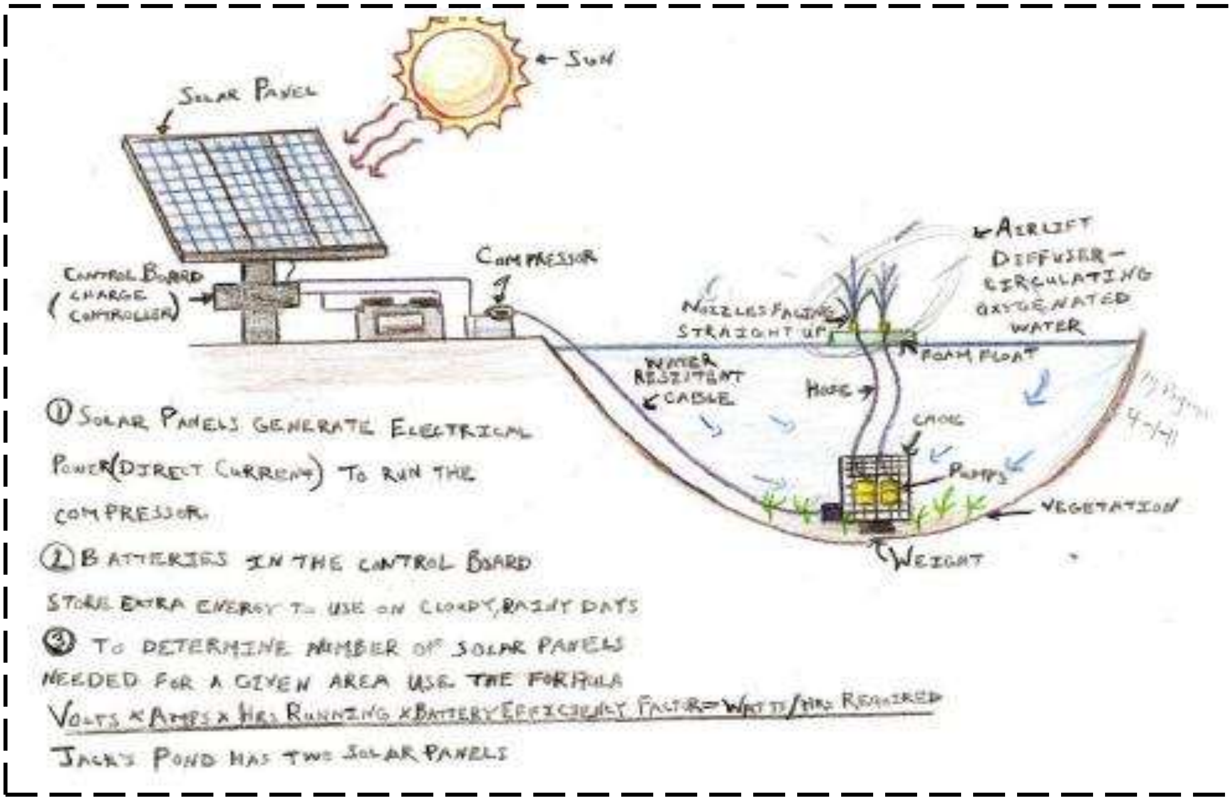


Photo – Two solar panels at Jack's Pond

Photo – Two airlift diffusers at Jack's Pond

Recorded by:	Date:	Journal Coordinator:	Date:

Holding the "Mini Mean Machines," RCX & NXT training, and "Battle Bots" programs

Science Lab at St. Clare's School
Weekdays during the end of the school year and summer

At the end of the last school year and this past summer, the St. Clare's Robotics Team helped Mrs. Lee run a series of robotics programs for Staten Island youngsters interested in engineering. In the "Mini Mean Machines" end of school year/summer program, the St. Clare's Robotics Team taught students entering first through fourth grades about the different types of simple machines, such as the sprocket and chain forming a pulley in a bike, and how to apply those simple machines in the LEGO models that it helped them build. In the RCX & NXT summer training program, the St. Clare's Robotics Team guided older children through Carnegie Mellon and its own tutorials explaining how to program motors and calibrate sensors. In the "Battle Bots" summer program, the St. Clare's Robotics Team created various challenges involving obstacles for the RCX & NXT trained children to build and program robots to go through. Both the RCX & NXT and "Battle Bots" summer programs involved special showcase components held at night as well as inventory sessions.

Recorded by:	Date:	Journal Coordinator:	Date:

Photo – Helping students build their own simple machine creations

Photo – Six major simple machines looked at

Recorded by:	Date:	Journal Coordinator:	Date:

Photo – Campers fixing an attachment and testing out a program for their RCX robot

RCX Analysis – Demo program that St. Clare's Robotics Team demonstrated how to create and execute

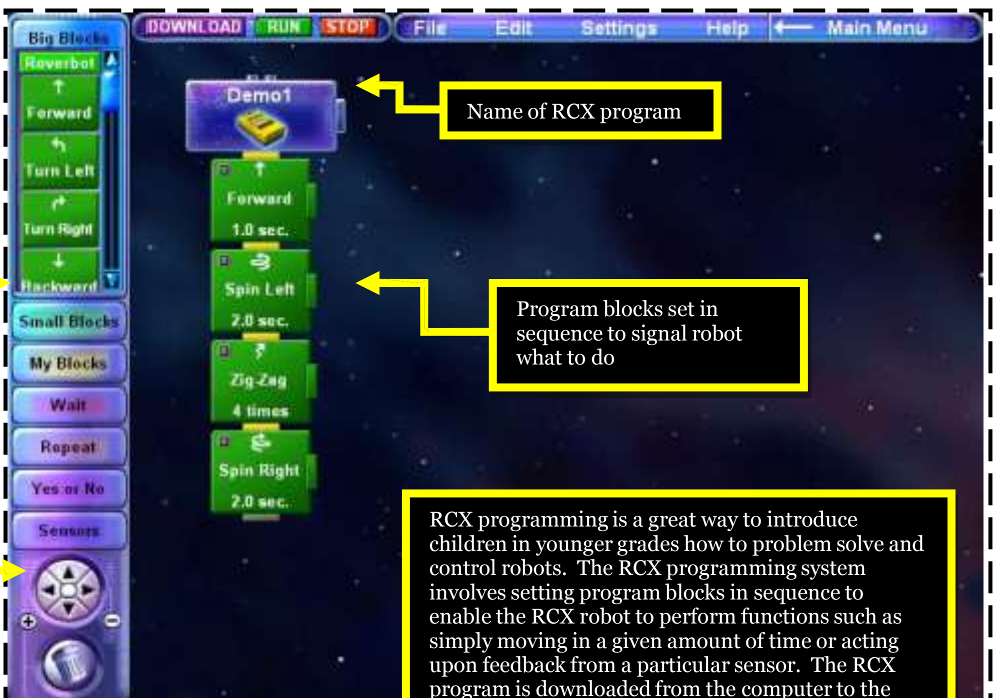


Photo – Campers with the NXT robot that they built and programmed

NXT-G Analysis – Acceleration robot program that the St. Clare's Robotics Team demonstrated how to make and execute

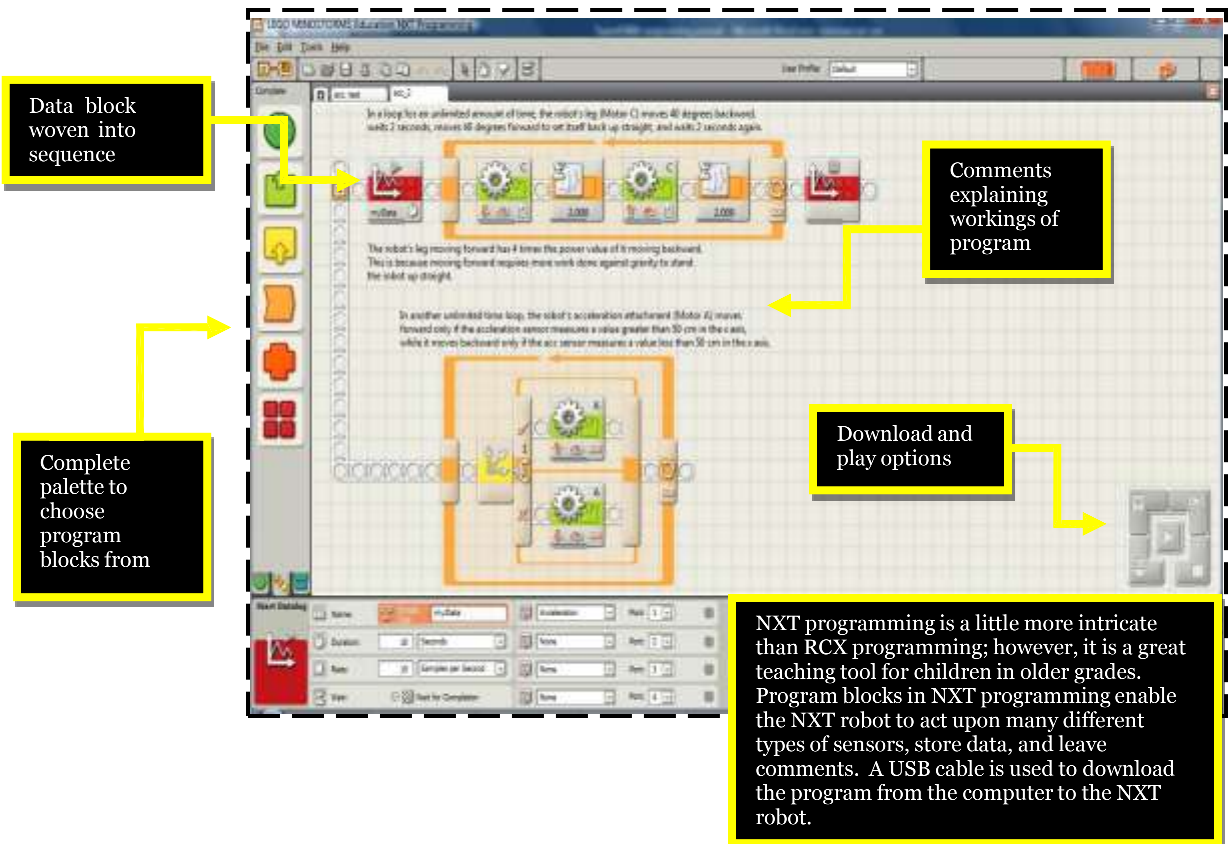
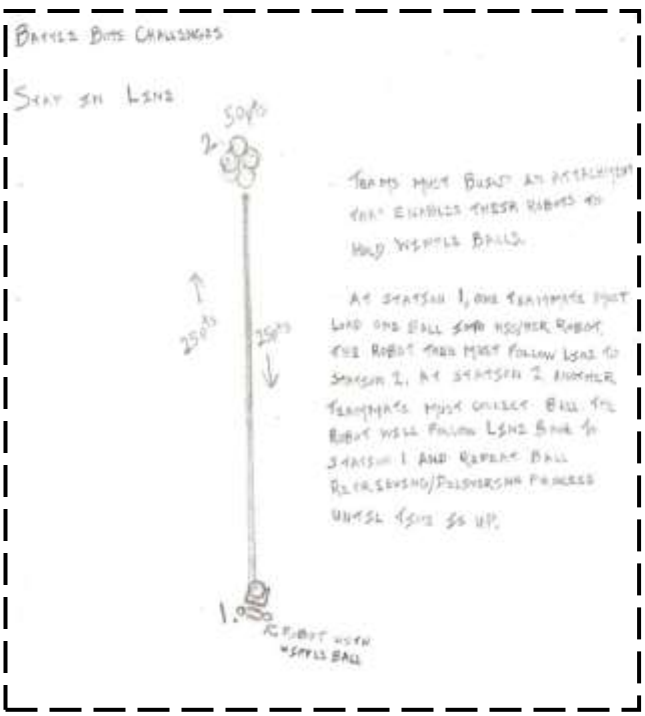
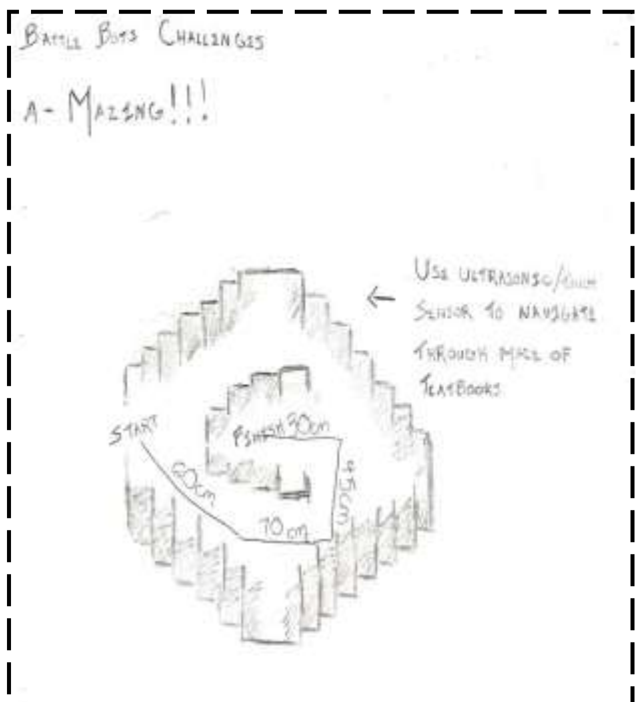


Photo – Campers lining up to run their robot in a “Battle Bots” challenge

Diagrams – Some of “Battle Bots” challenges that the St. Clare’s Robotics Team developed





Recorded by:	Date:	Journal Coordinator:	Date:

Mentoring St. Clare's FLL Teams, made up of children from sixth through eighth grade

Science Lab at St. Clare's School
All year round

Mrs. Lee, with the help of a small group of LEGO minds, created the St. Clare's FLL Team nine years ago. The theme nine years ago was *Mission Mars,* and the earliest St. Clare's FLL members built and programmed RCX robots to complete tasks on the Mars board. During the following years, St. Clare's FLL members became more involved in extensive research relating to the themed challenge and started working with more advanced NXT robots. The FTC members that graduated from the St. Clare's FLL Team continuously help the FLL members at their robotics sessions and at special events, such as St. Clare's science fair, robotics public forum, and scrimmages.

This season's FLL challenge is named *Food Factor,* which has both robot and research components that have to do with keeping different foods safe from contamination. At the Staten Island FLL Qualifier on February 4, 2012, two of the four St. Clare's FLL sub teams won an innovation award (for amazing research project) and a mechanical award (for amazing robot design and functions). The St. Clare's FLL Team will advance on to the New York City FLL Championship on March 18, 2012.

Recorded by:	Date:	Journal Coordinator:	Date:

Photos – St Clare's FLL Team #4882: The Fridge Fighters

FLL Global Innovation URL: http://fllinnovationaward.firstlegoleague.org/fridge-lince

Staten Island FLL Mechanical Award

The Fridge Fighters discovered the Fridge-A-Lince system to keep food from spoiling in the refrigerator. The Fridge-A-Lince system features an alarm that can be synced to an app to warn that the refrigerator temperature is improper. Also, a backup battery is included in the Fridge-A-Lince system for when the refrigerator dies out.

Photos – St Clare's FLL Team #4883: The Hydro Heroes

FLL Global Innovation URL: http://fllinnovationaward.firstlegoleague.org/go-hydro

The Hydro Heros discovered a unique Do It Yourself hydroponics system. This Do It Yourself hydroponics system features 8 oz. and 12 oz. plastic cups that contain tee shirt strips in lieu of soil to absorb water and growing mediums and nutrients. The Hydro Heroes' focus food to grow was celery because it is good for the body.

Photos – St Clare's FLL Team #4885: The Lunch Bunch
FLL Global Innovation URL: http://fllinnovationaward.firstlegoleague.org/fire-and-ice-lunchbox

The Lunch Bunch discovered the Fire and Ice Lunchbox, which maintains the freshness of packed lunch until it is eaten. For example, the Fire and Ice Lunchbox has a refrigerator to keep food such as soup cold when stored and a heating unit to warm the soup up when it is ready to be eaten.

Photos – St Clare's FLL Team #4887: The Producers
FLL Global Innovation URL: http://fllinnovationaward.firstlegoleague.org/ninth-hole-cantaloupe-cleaner-and-color-decoder-bag-system

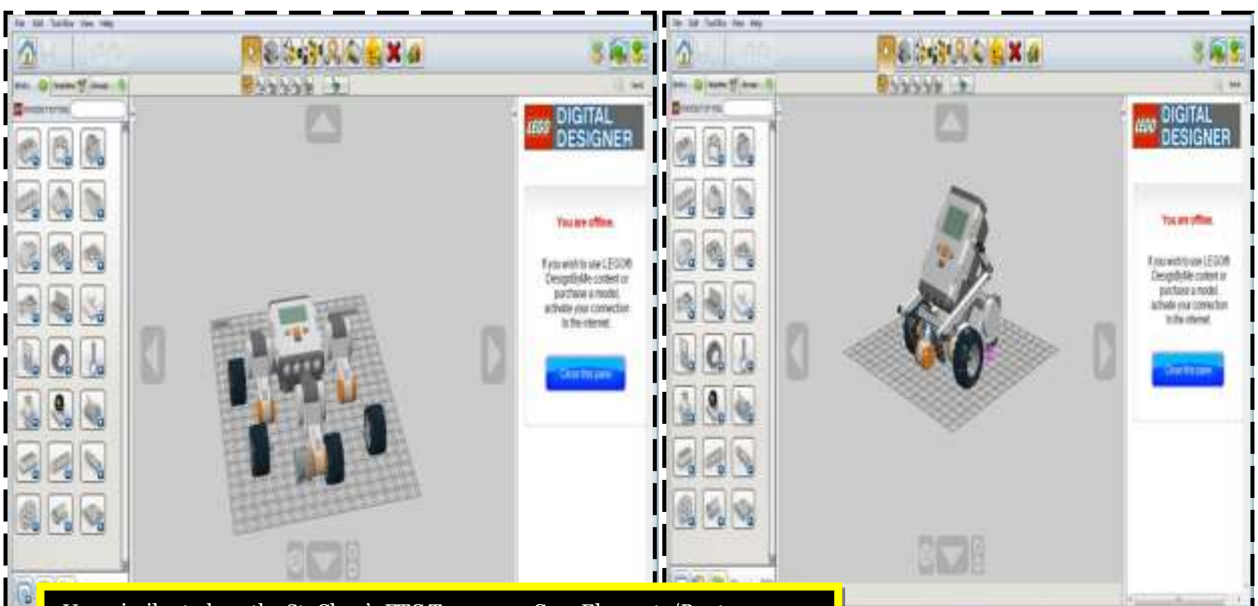
Staten Island FLL Innovation Award

The Producers discovered the Color Decoder and the Ninth Hole. The Color Decoder involves separating fruits, vegetables, and meats by placing each type in its own color-coded bag to prevent cross-contamination. The Ninth Hole involves a cantaloupe cleaner that sterilizes vegetables and fruits by means of an environmentally efficient vinegar solution.

Recorded by:	Date:	Journal Coordinator:	Date:

Photo – Helping the St. Clare's FLL Team perfect a robot program

LDraw Analysis – Formulating ideas for efficient robot designs



Very similar to how the St. Clare's FTC Team uses Creo Elements/Pro to determine the most advantageous ways to erect the various parts of its robot, the St. Clare's FLL Team uses LDraw to help design their Lego robots. The LDraw program features a wide spectrum of Lego components to assemble and ways to animate the Lego assembly.

Recorded by:	Date:	Journal Coordinator:	Date:

Mentoring St. Clare's Jr. FLL Team, made up of children from first through fourth grade

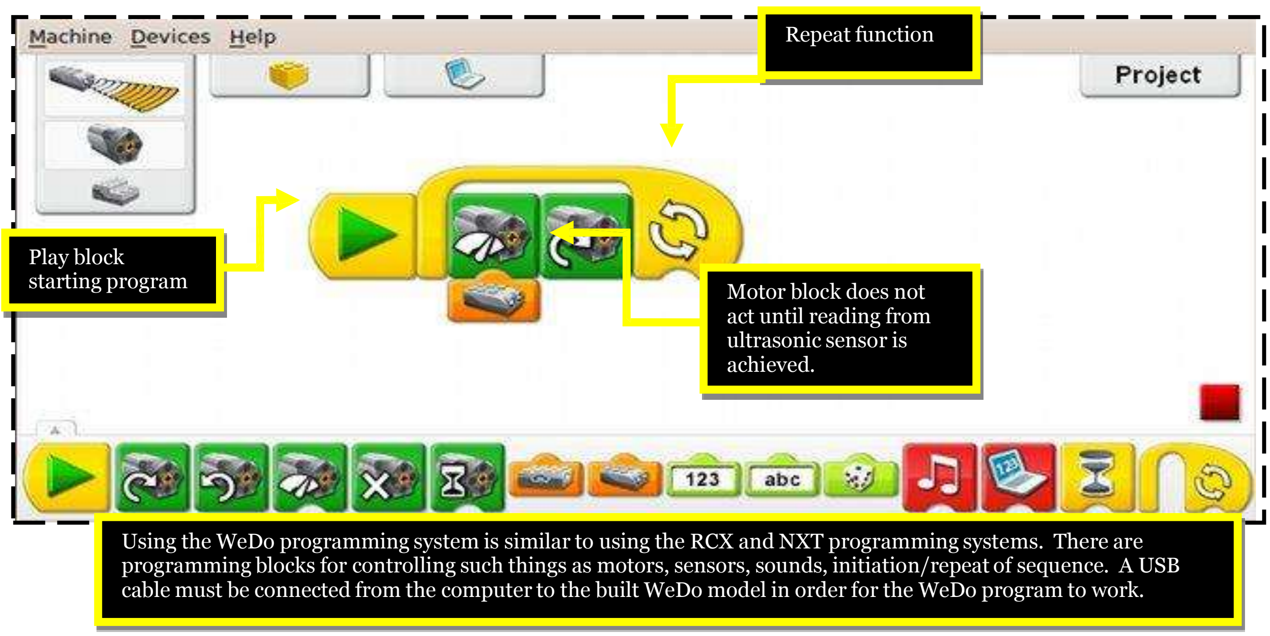
Science Lab at St. Clare's School
Weekly, mainly Mondays, from September to March

Mrs. Lee, with the help of her TETRIX and LEGO minds, initiated the St. Clare's Jr. FLL Team two seasons ago, which was *Smart Move*. Since then, the St. Clare's FTC and FLL Teams have continuously helped the Jr. FLL members at their robotics sessions and at special events, such as St. Clare's science fair and robotics public forum.

This season's Jr. FLL challenge is named *Snack Attack,* which involves creating a favorite snack, learning how to keep the snack fresh, and creating a model of the machine used to make the snack. The St. Clare's FTC and FLL Teams helped the fourth graders work on the main *Snack Attack* challenge by means of assisting them research the ingredients/machinery used, journey to Perkins Restaurant (to learn firsthand how food is kept safe) and Pathmark (to buy snack ingredients), and construct/program machine models by means of the LEGO Education WeDo kit/software. There are three St. Clare's Jr. FLL sub teams (made up of fourth graders), which each presented at the Jr. FLL Expo at NYU-Poly on Saturday, February 11, 2012, and won its own special award.

The St. Clare's FTC and FLL Teams also helped the first through third graders work on tracing the journey the foods from each food group go through before reaching the table by means of creating Lego versions of the machines used along the way.

WeDo Analysis – Sample program that the St. Clare's Jr. FLL Team developed and executed



Recorded by:	Date:	Journal Coordinator:	Date:

Photos – St. Clare's Jr. FLL Team #2135: The Doughboys (4th grade)

The Doughboys' focus snack was banana bread. They researched how the two main ingredients, grains and bananas, are processed and kept fresh. The Doughboys worked with WeDo components to simulate a bread machine that included a kneading blade that moves by means of gears and axles and a motor. The team was even filmed on making its own banana bread.

Photos – St. Clare's Jr. FLL Team #2136: The Pop Stars (4th grade)

The Pop Stars' focus snack was strawberry pop-tarts. They discovered how both key ingredients, grains and strawberries, are produced and stay fresh. The Pop Stars used the WeDo kit to create a toaster with a spring-loaded tray that moves by means of pistons and pulleys and a motor. The team was also videotaped on creating its own strawberry pop-tarts.

Photos – St. Clare's Jr. FLL Team #2137: The Twisted Sisters (4th grade)

The Twisted Sisters' focus snack was strawberry and banana smoothies. They found out how the main ingredients, strawberries, bananas, milk, and yogurt, are made and kept fresh. The Twisted Sisters worked with the We Do parts to create a blender that moves by means of wheels, axles, and a motor. The team was even filmed on making its own strawberry and banana smoothies.

Photos – St. Clare's Jr. FLL: First through third grade
The Apple Corps (1st grade), The Milk Duds (2nd grade), The Fishy Wishies (3rd grade), The Wonders (3rd rade)

The Apple Corps' focus food was apples; the Milk Duds' focus food was milk; the Fishy Wishies' focus food was tilapia; and the Wonders' focus food was bread. In order to better understand the journey its focus food took to get to the table, each team researched the steps its food undertook along the way and made sketches and models of the types of equipment and machinery used at each step.

Recorded by:	Date:	Journal Coordinator:	Date:

Helping prepare for and work at the St. Clare's FLL and Jr. FLL Robotics Forum

Cafeteria at St. Clare's School
Thursday, February 2, 2012: 6 – 9 p.m.

In order to prepare for the St. Clare's robotics forum, The St. Clare's FTC Team spent time assisting Mrs. Lee plan the layout of and practice with the St. Clare's FLL and Jr. FLL Teams. The robotics forum was a success, based on the fact that the FLL and Jr. FLL Teams were articulately able to share their innovative ideas for food production and safety with the over 200 intrigued guests who came! Special guests, including Eddie Canlon (chef-owner of the local Canlon's Restaurant) and Dr. AnnMarie Scopellito-Olsen (doctor who runs the local Life's Bounty Medical Care), were also awed by the innovative work of the St. Clare's FLL and Jr. FLL Teams.

Photo – Helping interview the Jr. FLL Teams about their snack-related research projects

Photo – Full crowd of community members and parents viewing the robotics research projects

Recorded by:	Date:	Journal Coordinator:	Date:

Officiating at the Staten Island FLL Qualifier and the New York City FLL Championship

S.I. FLL Qualifier:
Susan E. Wagner High School (Staten Island, New York)
Saturday, February 4, 2012

NYC FLL Championship:
Jacob K. Javits Convention Center (Manhattan, New York)
Sunday, March 18, 2012

For the past few years, the St. Clare's FTC team members have volunteered as referees, queuers, emcees, technical advisors at both the Staten Island (local) and New York City (regional) LEGO Robotics Tournaments. This year the FLL theme is FOOD FACTOR, and the St. Clare's FTC team members have participated in training sessions to learn the components of the FOOD FACTOR challenge, and officiated as referees at this season's Staten Island FLL Qualifier. Michelle Pagano helped train the team and was the head referee at the Staten Island FLL Qualifier. Also, the St. Clare's FTC team members have just finished registering for volunteering at the New York City FLL Championship and cannot wait to help out there too!

Photo –Reviewing the score sheet with an FLL team

Photo – After a hard and fun day's work!

Recorded by:	Date:	Journal Coordinator:	Date:

E-mail – Thank you from Tom Smolka, coordinator of the Staten Island FLL Qualifier

Thank You

From: Thomas Smolka <thomasjsmolka@gmail.com> Hide

Add to: To Do, Calendar

To: Pat Daly <pdaly09@gmail.com> Susan Hermon <shermon@poly.edu> Elizabeth Almonte <fllvolcoordinator@gmail.com> Ana Martinez <anayz@usfirst.org> Rerek <rerek@optonline.net>

Date: Sat, Feb 4, 2012 8:57 pm

Dear All of our AWESOME volunteers,

Today's FLL tournament in Staten Island could not have happened without each and every single on of you showing up and working your hardest to make this event possible. All the feedback that we received today was completely positive. Each and every one of these students, children, parents, mentors and coaches have benefitted from having YOU there. You are AWESOME.

Thanks so much for making this possible. Those kids had a great day today- The energy was amazing. Everything ran so smoothly and efficiently- you really impressed a lot of people and made a difference in the lives of almost 200 kids. Be proud!

I hope to see you all again soon, at Javits, next year or at other first events. If anyone needs a letter of recommendation or a letter to show community service, please feel free to contact me.

Enjoy the superbowl, LET'S GO BIG BLUE.

Regards,

~Tom Smolka

@TomSmolka

"The most elementary and valuable statement in science, the beginning of wisdom, is 'I do not know.'"

"The job of scientists is to test theories to destruction, which inevitably makes science adversarial at times. Dispute is good; consensus stultifies."

"Every person has their follies - and often they are the most interesting thing they have got."

http://xkcd.com/752/

E-mail – Confirming NYC FLL referee position with Elizabeth Almonte, FIRST volunteer coordinator

AOL Read - Internet Explorer provided by Dell

http://mail.aol.com/35700-111/aol-6/en-us/mail/DisplayMessage.aspx?ws_popup=true

Reply | Forward | Action | Delete

Re: FIRST Volunteer Role Confirmation - FLL Program, Sun, 3/18

From: CurlzRocKoNxx <CurlzRocKoNxx@aol.com> Hide

Add to: To Do, Calendar

To: ealmonte311 <ealmonte311@gmail.com>

Date: Sun, Mar 4, 2012 6:15 pm

Hi Elizabeth,

Yes, I am available to be a referee at the FLL Citywide at Javits on Sunday, March 18.

Thank you,
Michelle Pagano
FTC Team #2864
The Bounty Hunters
Staten Island Robotics at St. Clare's School

Michelle's confirmation for volunteering as a referee

In a message dated 3/4/2012 12:44:57 A.M. Eastern Standard Time, ealmonte311@gmail.com writes:

> Hello ,
>
> You are receiving this email because you had registered as being available for Sunday, March 18th for the FLL Citywide Event at Javitis.
>
> You have been assigned as REFEREE. Please re-confirm that you are available for the above mentioned date and for the volunter position.
>
> More details and agenda for the day of the event will be forthcoming.
> Referee:
>
> **Position Summary:** Observes team matches, identifies rule violations, assesses field for scoring of matches and participates in deliberations regarding contested calls. Position works under the direction of the Head Referee. Play a critical role in ensuring smooth flow of match play, and maintaining the pace of the event.
>
> **Activities and Responsibilities:**
>
> - Study / Train in advance of the event
> - Attend additional on-site training (day of)
> - Put team members at ease
> - Observe matches, "call" rule infractions, determine penalties Participate in deliberations regarding contested calls
> - Complete and submit a scoring sheet after each match to field runners Participate in discussions with Head Referee and other referees to determine official match scores
> - Monitor and promote sage practices on and around the playing field
>
> --
> Elizabeth Almonte
> email: ealmonte311@gmail.com

Details on Michelle's volunteer role: referee

Recorded by:	Date:	Journal Coordinator:	Date:

Helping officiate at the FLL Scrimmage at St. Clare's School

Science Lab and Cafeteria at St. Clare's School (Staten Island, New York)
Saturday, March 10, 2012: 8 – 11:45 a.m.

The St. Clare's FTC Team assisted Mrs. Lee in running the St. Clare's School FLL Scrimmage in which FLL teams from St. Clare's, P.S. 57, and Eltingville Lutheran took part. The St. Clare's FTC Team members played the roles of referees and scorekeepers as well as helped with the scrimmage setup and breakdown. Fun was had by all, and all teams had innovative robots and nice scores!

Photos – Refereeing at the St. Clare's FLL Scrimmage

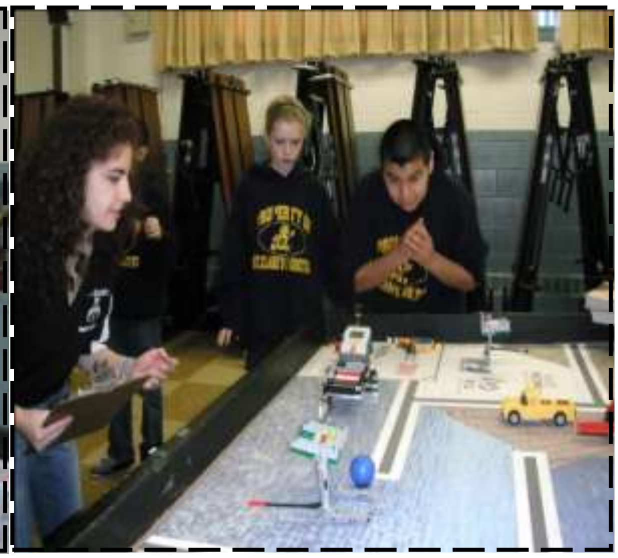


Photo – Group Shot

Recorded by:	Date:	Journal Coordinator:	Date:

Demonstrating the engineering journal to the Techno Girls FLL Team, "little sister" team of the TechnoChix FTC Team

Cookie Bowl Scrimmage
Girl Scout Council (Pleasantville, New York)
Saturday, January 14, 2012

The St. Clare's FTC Team is a fellow team of the TechnoChix FTC Team #18 and participated in the Cookie Bowl Scrimmage held at the TechnoChix's robotics site. At the Cookie Bowl Scrimmage, the St. Clare's FTC Team demonstrated its engineering journal to the eager Techno Girls FLL Team that came by. The St. Clare's FTC Team explained to the Techno Girls FLL Team how forming its engineering journal has taught its team members how to properly document successes and failures with the robot's development as well as other important moments. Being able to document ideas and critical thinking steps is an important skill for engineers and scientists.

Facebook Insert – Demonstrating the engineering journal to the Techno Girls FLL Team

Recorded by:	Date:	Journal Coordinator:	Date:

Presenting the usages of PTC applications at the 2011 FTC World Championship

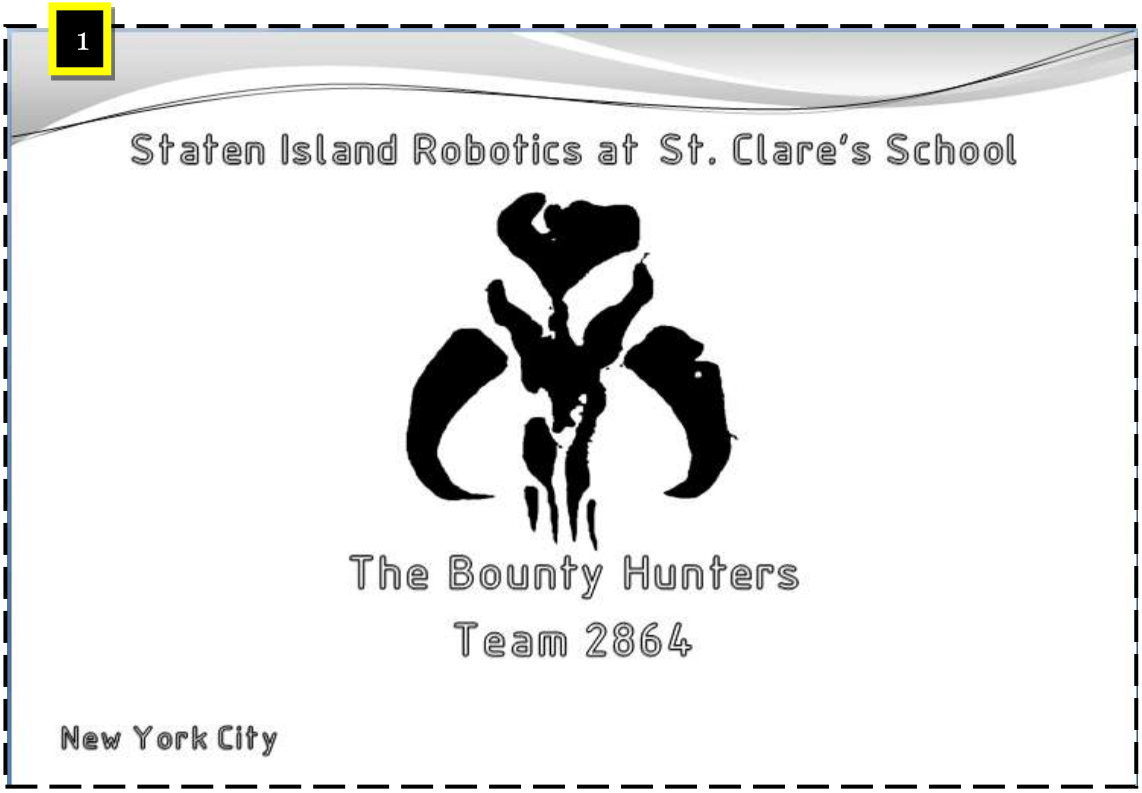
Edward Jones Dome (St. Louis, Missouri)
Thursday, April 28th, 2011

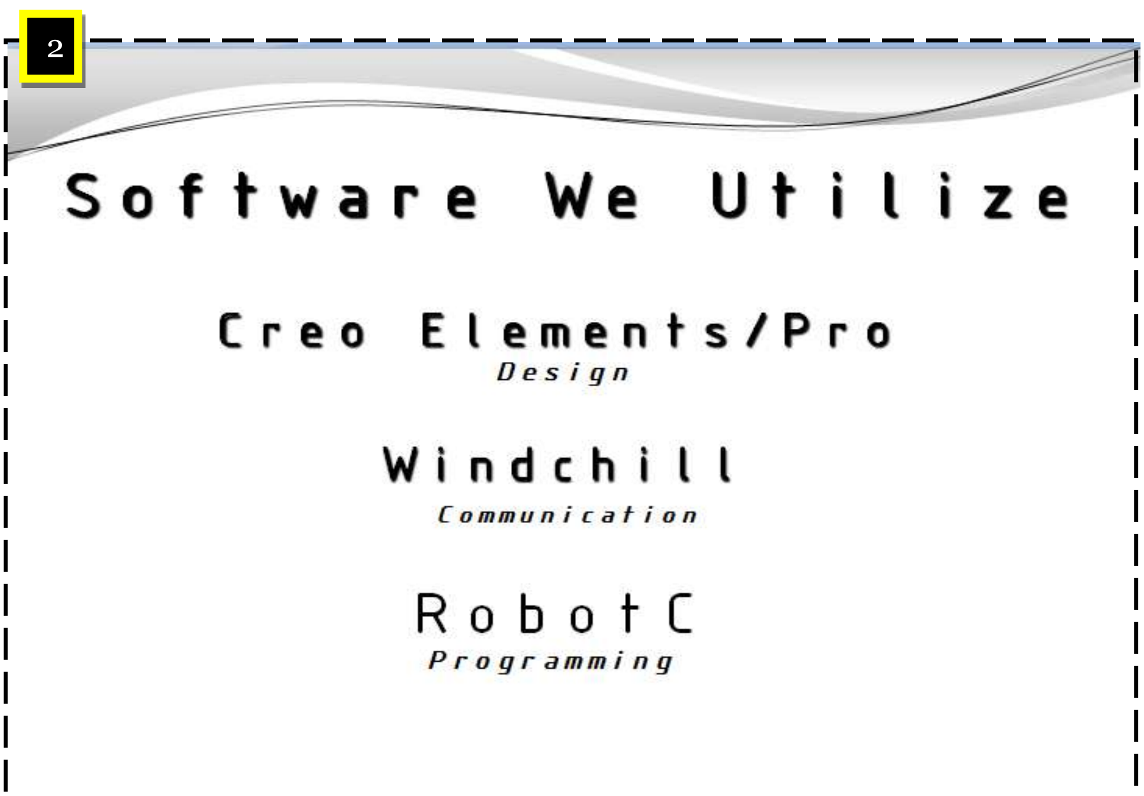
The St. Clare's FTC Team has been grateful for having PTC as a sponsor! As a PTC sponsored FTC team taking part in the 2011 FTC World Championship last year, the St. Clare's FTC Team caught the eye of PTC as a potential team for showcasing how it utilizes Creo Elements/Pro, Windchill, and/or Mathcad. The St. Clare's FTC Team ecstatic about this opportunity and, at the 2011 FTC World Championship, showcased how they used Creo Elements/Pro and Windchill by means of a PowerPoint and interactive on creating an assembly.

Website Photo – The St. Clare's FTC Team featured on the PTC webpage for presenting at the 2011 FTC World Championship

Recorded by:	Date:	Journal Coordinator:	Date:

PowerPoint Slideshow – PTC presentation (Slides 1 and 2)





PowerPoint Slideshow – PTC presentation (Slides 3 and 4)

3

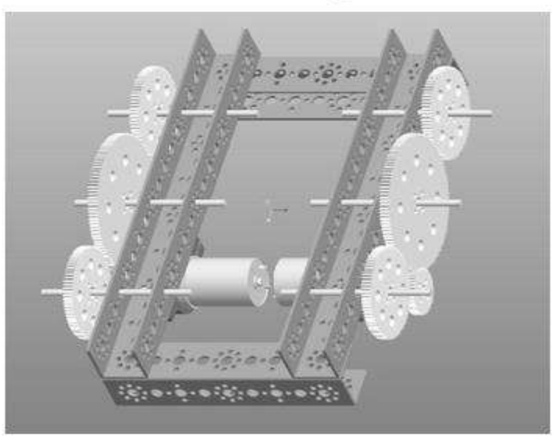
Creo Elements/Pro enables us to:

1. Assemble parts in a variety of ways
2. Define mechanisms with precise calculations
3. Practice trial and error by experimenting with different robot designs before building the actual robot
4. Enhance our engineering journal, which won many THINK awards
5. Collaborate with one another as we determined robot designs, like actual engineers do

4

We use Creo Elements/Pro in …

1. Assembling Parts

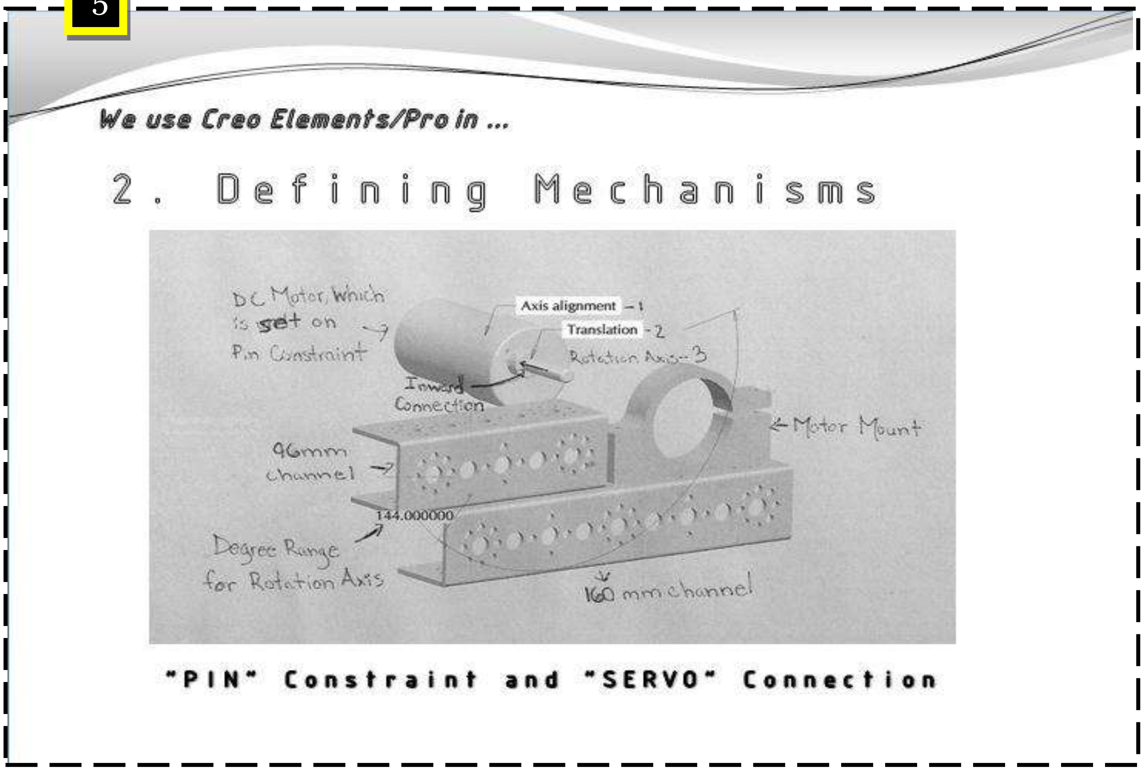


"MATE" and "INSERT" Constraints

Recorded by:	Date:	Journal Coordinator:	Date:

PowerPoint Slideshow – PTC presentation (Slides 5 and 6)

5



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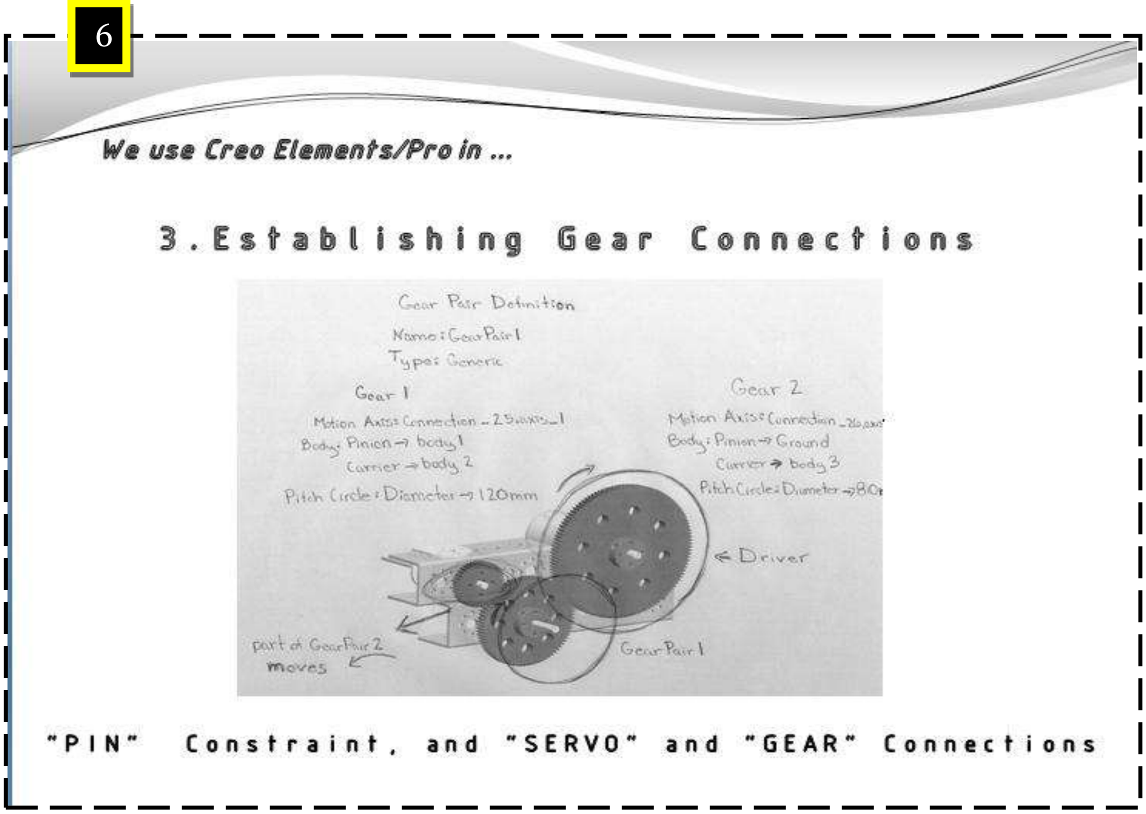

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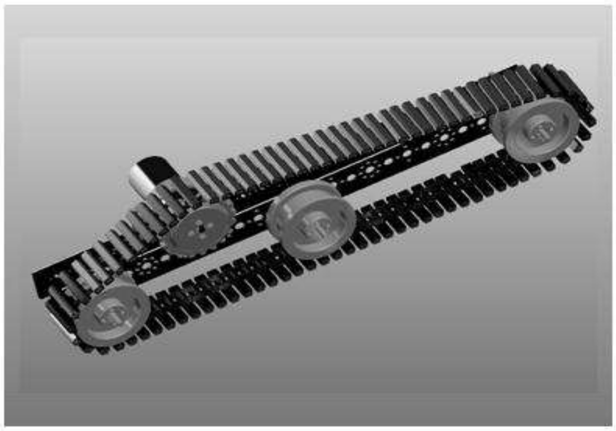
PowerPoint Slideshow – PTC presentation (Slides 7 and 8)

7

We use Creo Elements/Pro in …

4. Creating Treads



"SLOT" Constraint and "SERVO" Connection

8

Winchill enables us to:

1. Store and share Creo robot designs and projects with other team members

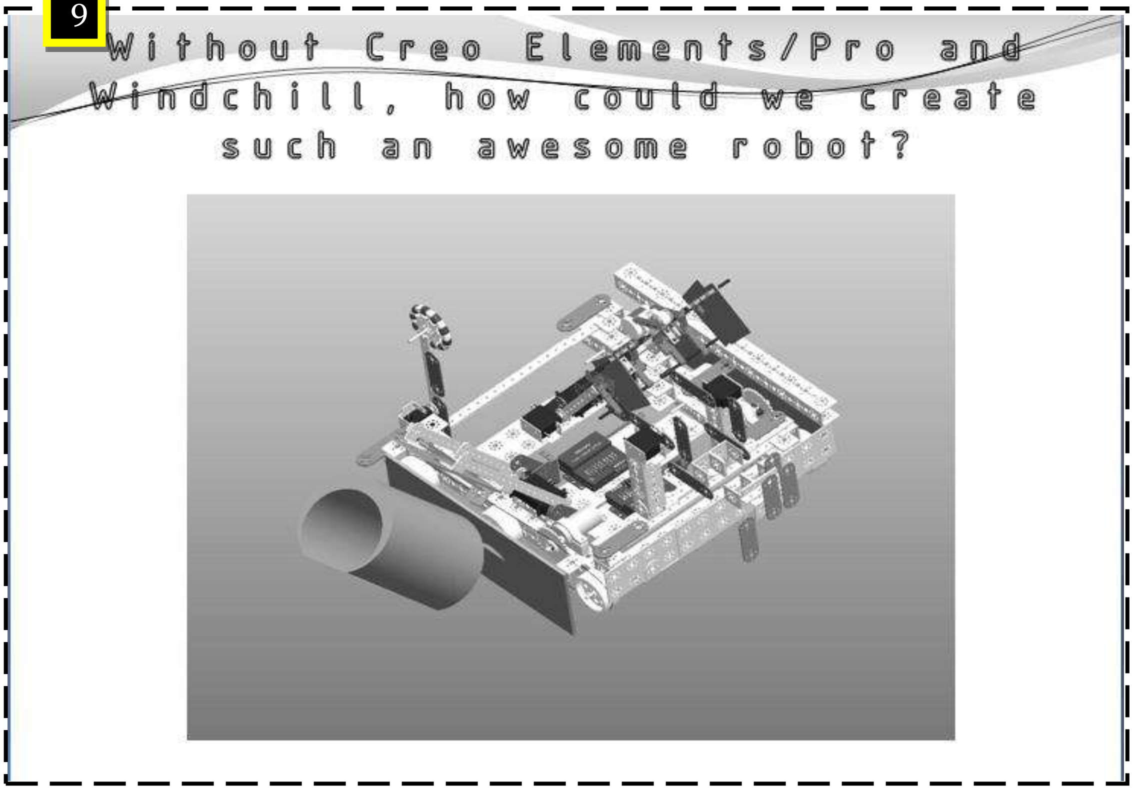
2. Become involved with the New Jersey PTC Windchill project, in which we uploaded models of our robot as it progressed during the season

3. Keep in touch with real-life engineers so that they can view our Creo renderings and give us ideas on how to enhance them

Recorded by:	Date:	Journal Coordinator:	Date:

PowerPoint Slideshow – PTC presentation (Slides 9 and 10)

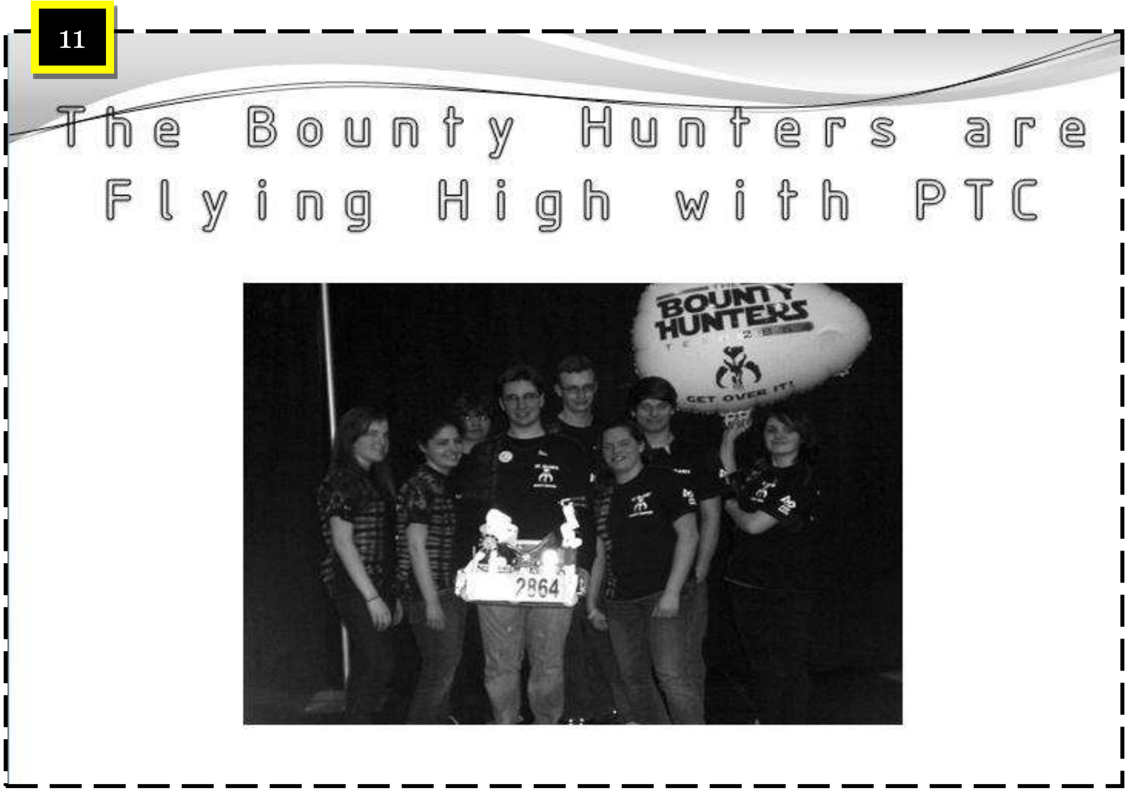
9



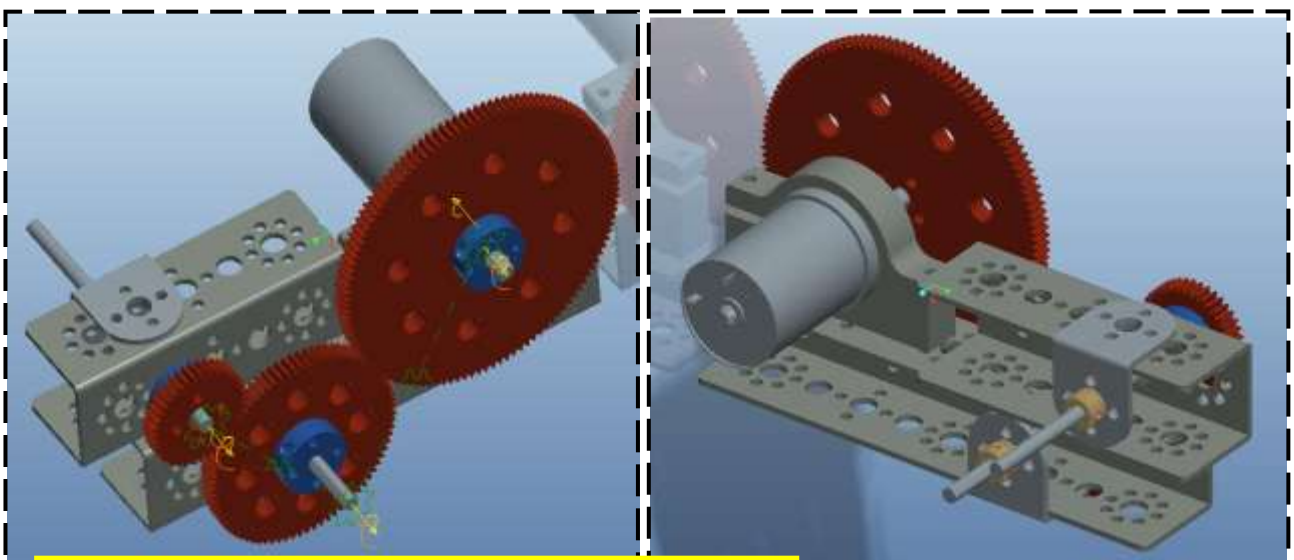
10

Recorded by:	Date:	Journal Coordinator:	Date:

PowerPoint Slideshow – PTC presentation (Slide 11)



Creo Elements/Pro Analysis – Interactive on creating an assembly



This assembly features:
- Structural channels and brackets connected to one another
- DC motor and axles set to rotate
- Different sized gears situated in a 3 : 1 gear ratio

Participating in the 2011 PTC “Show Your Stuff – K12 Design Competition”

Design competition on PTC Academic Program Facebook Page
Different times during/after the FIRST Robotics season

The “Show Your Stuff” Design Competition on Facebook is an excellent way for PTC students to showcase their abilities to render just about anything in Creo Elements/Pro. In order to vote for a PTC student’s showcase submittal, one must “Like” the PTC Academic Program Facebook page, and then “Like” his/her favorite submittal. The St. Clare’s FTC Team participated in Rounds I and II of the 2011 PTC “Show Your Stuff” Design Competition, did pretty well, and cannot wait for the next one.

Facebook Insert – St. Clare’s FTC Team’s submittal for Round I

Facebook Insert – St. Clare’s FTC Team’s submittal for Round II

Recorded by:	Date:	Journal Coordinator:	Date:

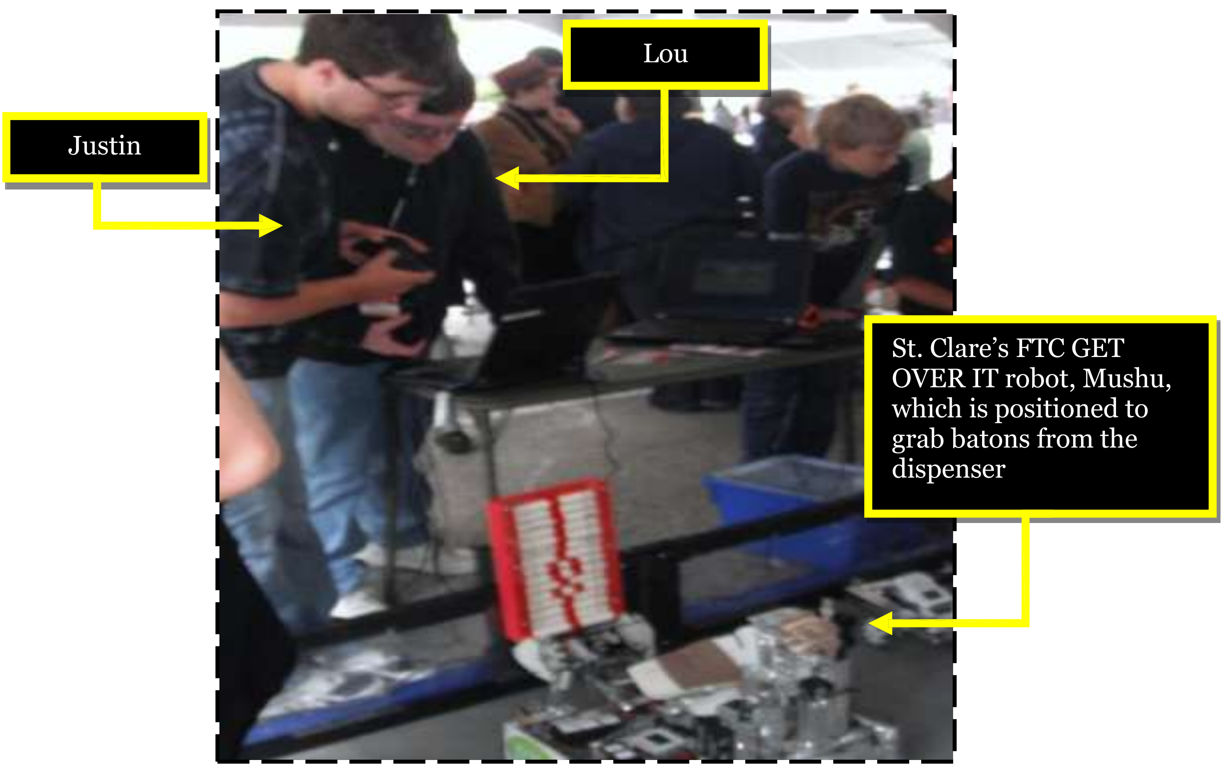
Mentoring Lou and Amanda, the St. Clare's FTC Team members-in -training

Science Lab at St. Clare School (Staten Island, New York)
Morning Sessions held on weekdays at the end of the summer

Louis Pearson and Amanda Parziale are freshmen in high school and new to the St. Clare's FTC team. Last year, they were members of the St. Clare's FLL team that we help mentor. To transition Lou and Amanda from FLL to FTC, the veteran St. Clare's FTC Team members (Michelle, Matthew, James, Justin, Erika) held RobotC programming, Creo Elements/Pro virtual designing, and TETRIX & NXT building sessions at the end of summer 2011. *(See PRE-SEASON Preparations Section for journal entries too)*

Lou found his specialty in RobotC programming. He thought that making autonomous programs in RobotC was similar to programming in NXT-G, which is the software the St. Clare FLL team uses. Lou found making a tele-operated program in RobotC harder, but he got the hang of it.

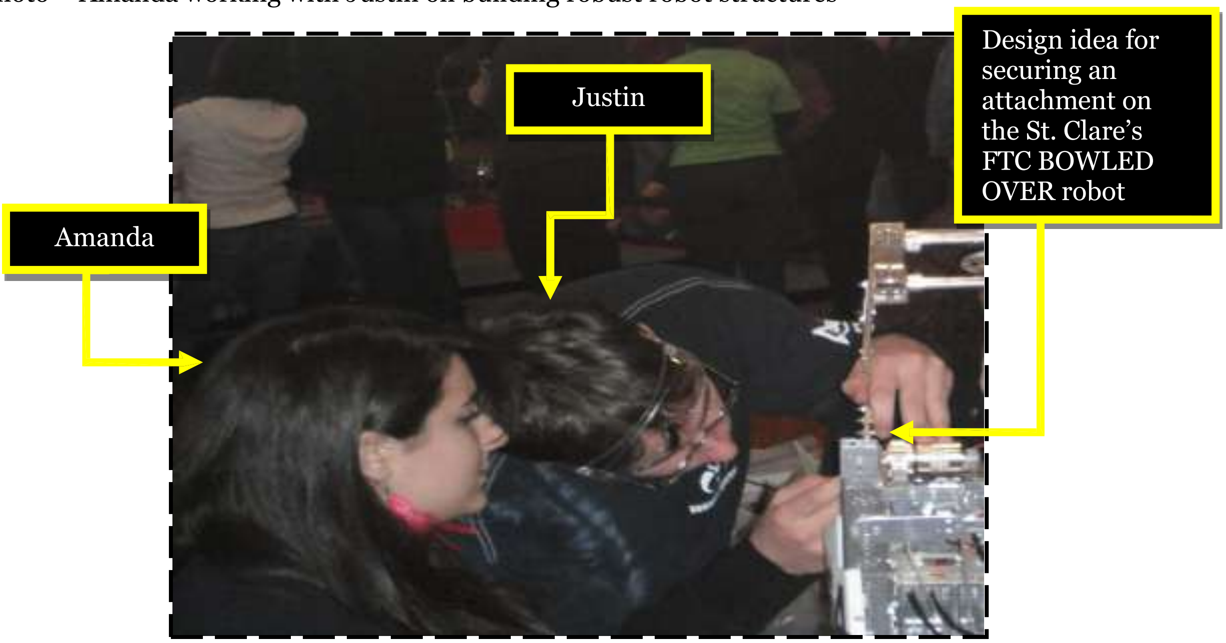
Photo – Lou working with Justin on a program for the St. Clare's FTC GET OVER IT robot, Mushu



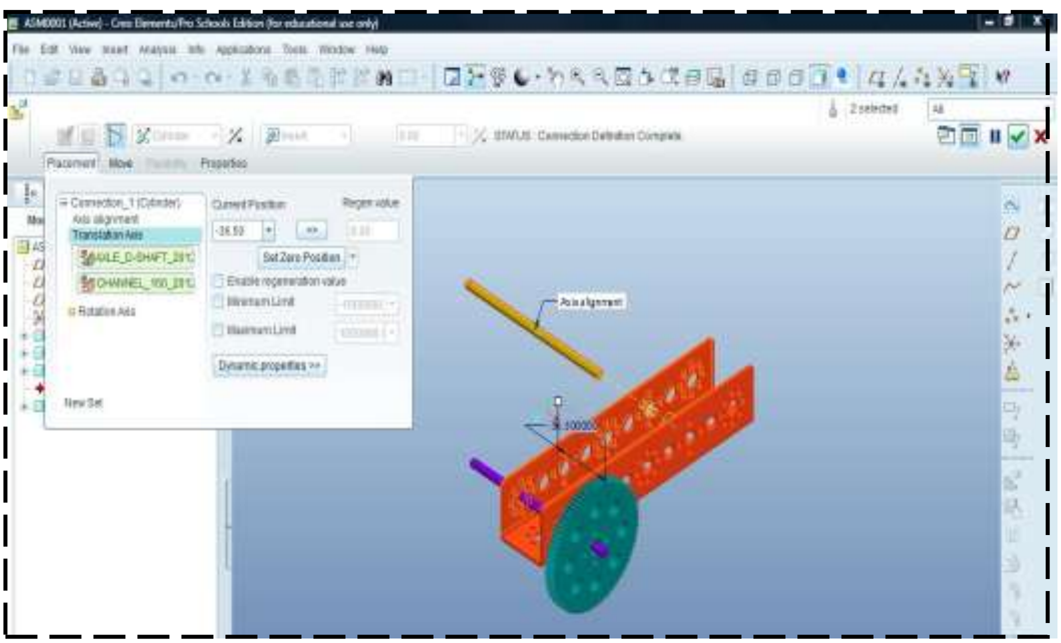
Recorded by:	Date:	Journal Coordinator:	Date:

Amanda found her specialty in TETRIX & NXT building and Creo Elements/Pro designing. Constructing from TETRIX & NXT elements came easily to Amanda since she was a main builder on the St. Clare's FLL team. Amanda thought that making virtual models in Creo Elements/Pro was confusing but slowly became better at it.

Photo – Amanda working with Justin on building robust robot structures



Creo Elements/Pro Analysis – Amanda creating a virtual robot assembly



Volunteering at the 2011/2012 New Jersey FTC Kickoff Workshops

Livingston High School (Livingston, New Jersey)
Saturday, September 10th, 2011: 8 a.m. – 4 p.m.

The St. Clare's FTC Team took part in an array of workshops at the 2011/2012 NJ FTC Kickoff having to do with building, RobotC programming, using PTC applications, and practicing team skills. In the building and RobotC programming workshops, Matt and Justin mainly participated as students and used their knowledge and experience to help those around them. Erika helped Tom Quaglia (PTC engineer) run the basic PTC workshop, which Amanda participated in, and Michelle helped Tom run the advanced PTC workshop by teaching the participants how to create a virtual forklift robot . Also, Mrs. Lee, Michelle, and Erika gave demonstrations on how to create excellent engineering journals in the team skills workshop by means of showing a PowerPoint slideshow and their journals from previous seasons. Special thank you goes to Vince & Patricia Frascella, Livingston High School, and all those involved in making the 2011/2012 New Jersey Kickoff event great and insightful!

Photo – Michelle and Erika presenting how to create an Excellent engineering journal

Photo – The St. Clare's FTC Team with its certificate for helping at the 2011/2012 NJ FTC Kickoff Workshops

Recorded by:	Date:	Journal Coordinator:	Date:

Creo Elements/Pro Analysis – Virtual fork lift robot that the St. Clare's FTC Team made for the advanced PTC workshop

Track 8: Advanced PTC

The Fork Lift Mission

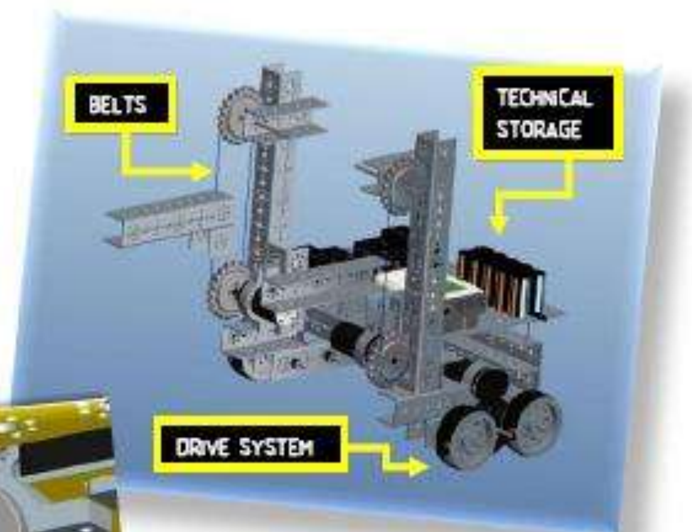
Aim: Participants will follow the track instructors in assembling their own models of the fork lift robot.

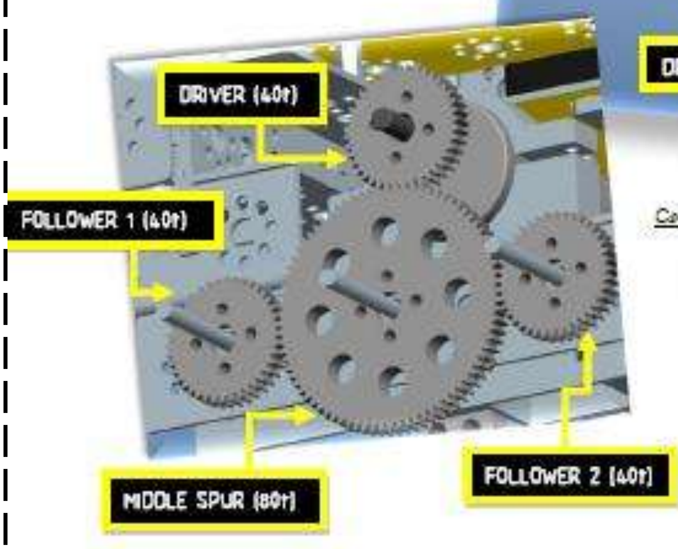
Participants will ...

- ✓ Design via Creo Elements/Pro Schools Edition 5.0 (formerly Pro/ENGINEER)
- ✓ Assemble a myriad of components from the FTC 2011 Kit of Parts
- ✓ Define various constraints and mechanisms to correctly work each component
- ✓ Save a photo and/or movie file of their robots in different stages

Characteristics of the Fork Lift Robot

- Technical items stored towards the back
- 3" wheels set into gear by DC motors
- 1:1 gear ratio applied to drive system
- Belts' sprockets moved by DC motors
- Fork lift channels manipulated by belts





Calculating the Gear Ratio for Drive System

Driver := 40 MiddleSpur := 80 Follower := 40

$$\frac{Driver}{MiddleSpur} \cdot \frac{MiddleSpur}{Follower} = \frac{1}{1}$$

Original Fork Lift Robot Shown Above was created by: The Bounty Hunters, FTC Team #2864

Recorded by:	Date:	Journal Coordinator:	Date:

PowerPoint Slideshow – Presentation for engineering journal workshop (Slides 1 and 2)

1

Staten Island Robotics at St. Clare's School

The Bounty Hunters
Team 2864

New York City

2

2010-2011 New Jersey and New York THINK Award Winners

Earned bid to the FTC World Championships in St. Louis

Recorded by:	Date:	Journal Coordinator:	Date:

PowerPoint Slideshow – Presentation for engineering journal workshop (Slides 3 and 4)

3

Creating a First Class
Engineering Notebook
(THINK AWARD)

4

TIPS- The Engineering Journal must:

- elucidate robot design in day to day entries
- have sketches or photos of robot design
- explain/show important team moments
- be a collaborative effort among team members

Recorded by:	Date:	Journal Coordinator:	Date:

PowerPoint Slideshow – Presentation for engineering journal workshop (Slides 5 and 6)

5

What sections should you incorporate into your engineering journal?

- **Dedication** (OPTIONAL) – to commemorate those who have been involved in FIRST and have made an impact on you
- **Table of Contents** – to help easily navigate through various sections and pages
- **Profiles** – to introduce your team coach, mentor, and each team member
- **Robotics Sessions** – to highlight your robot's journey from start to finish
- **Outreach** – to showcase initiatives you have taken to spread the word of FIRST
- **Fundraisers and Sponsorships** – to explain how you have raised money and to recognize supporters
- **References** – to keep record of supplements you have received from workshops and game manuals
- **Bill of Materials** – to document PITSCO orders, field and kit BOMs, and cut diagrams

6

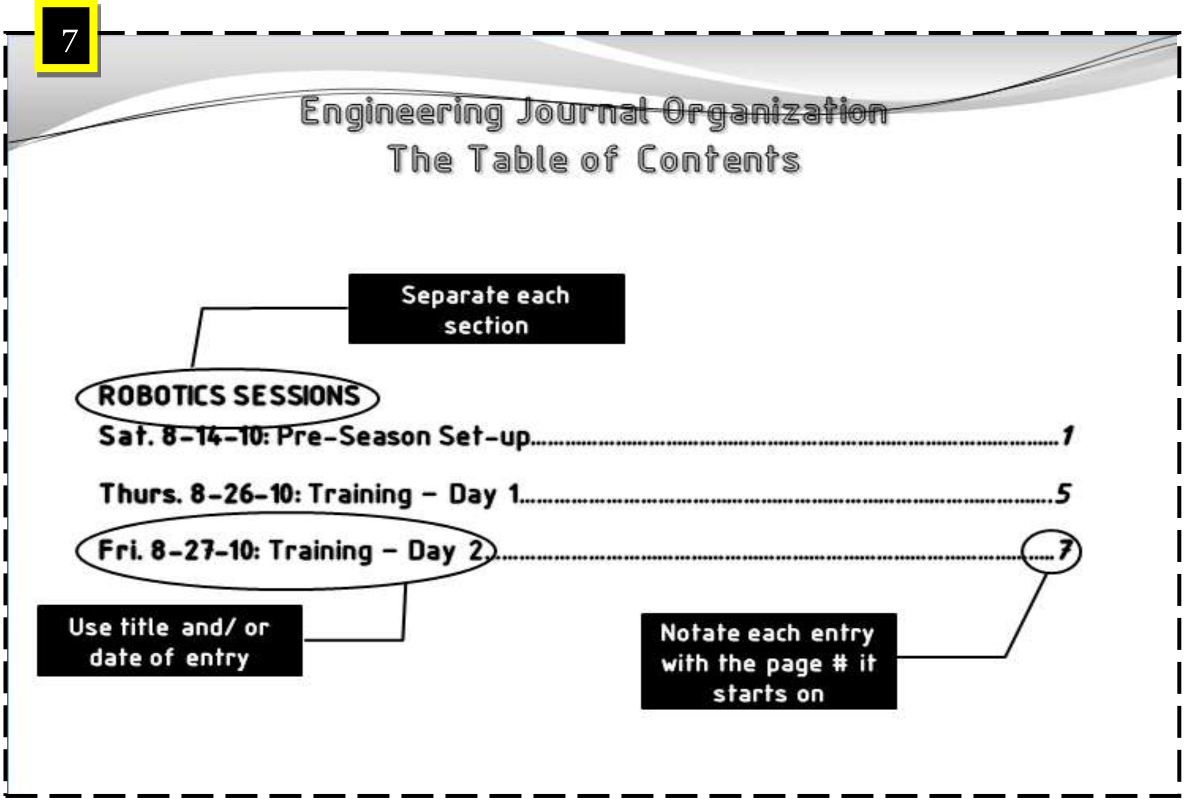
The Dedication Page

In Memory of Anthony Rizzo

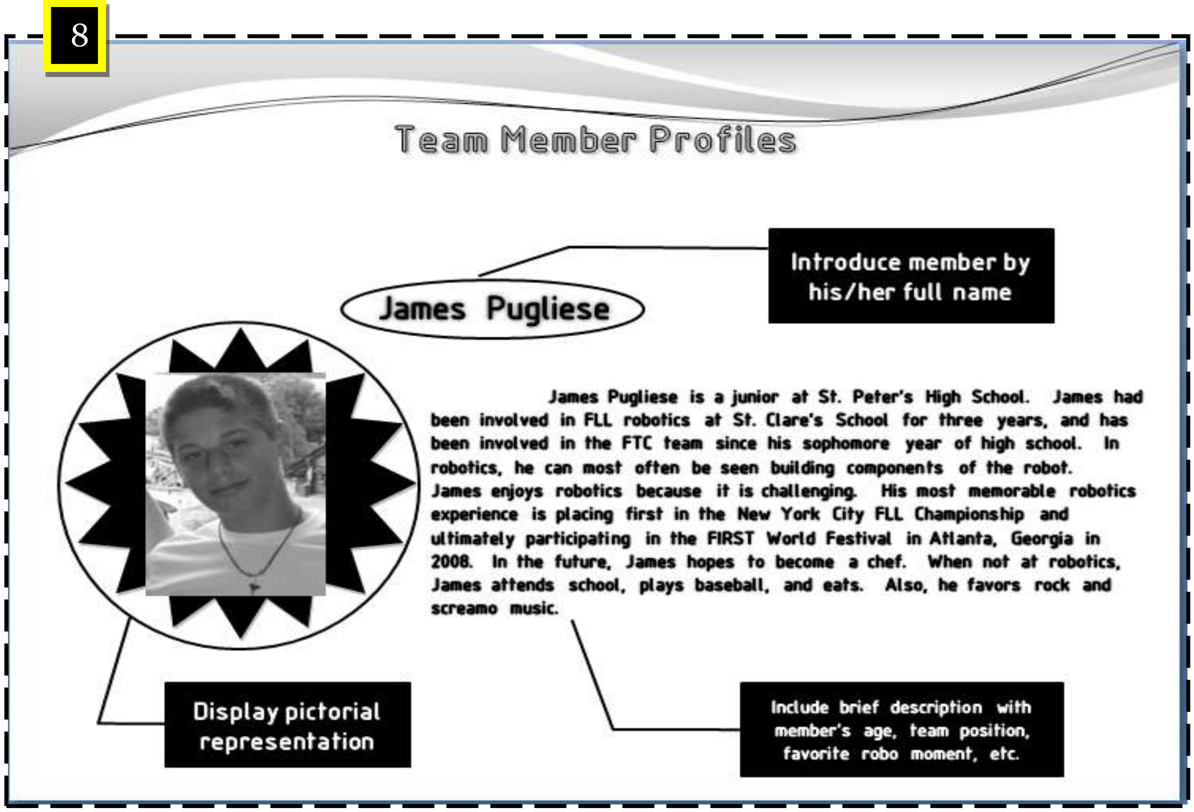
Recorded by:	Date:	Journal Coordinator:	Date:

PowerPoint Slideshow – Presentation for engineering journal workshop (Slides 7 and 8)

7



8



Recorded by:	Date:	Journal Coordinator:	Date:

PowerPoint Slideshow – Presentation for engineering journal workshop (Slides 9 and 10)

9

Journal Entry Layout – HEADING

Staten Island Robotics FTC Team #2864: The Bounty Hunters

DATE: Friday, August 27, 2010

TIME: 9 a.m. – noon

TITLE: Training – Day 2

LOCATION: Science Lab at St. Clare's School

ATTENDANCE: Justin Cassamassino, Mark Long, Kaitlyn O'Connor, Michelle Pagano, James Pugliese

COACH: Mrs. Mary Lee

RECORDED BY: Michelle Pagano and Mark Long

10

Journal Entry Layout – TASKS and REFLECTIONS

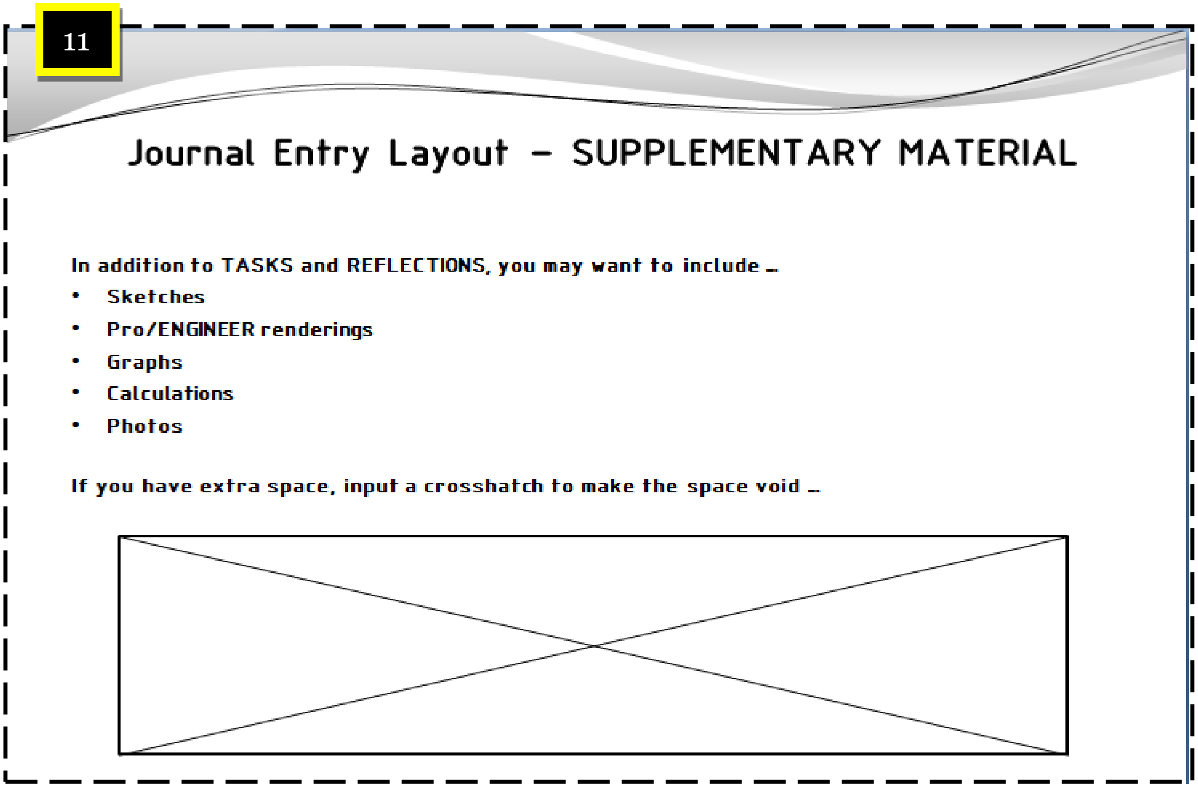
Tasks highlight your individual goals for the day

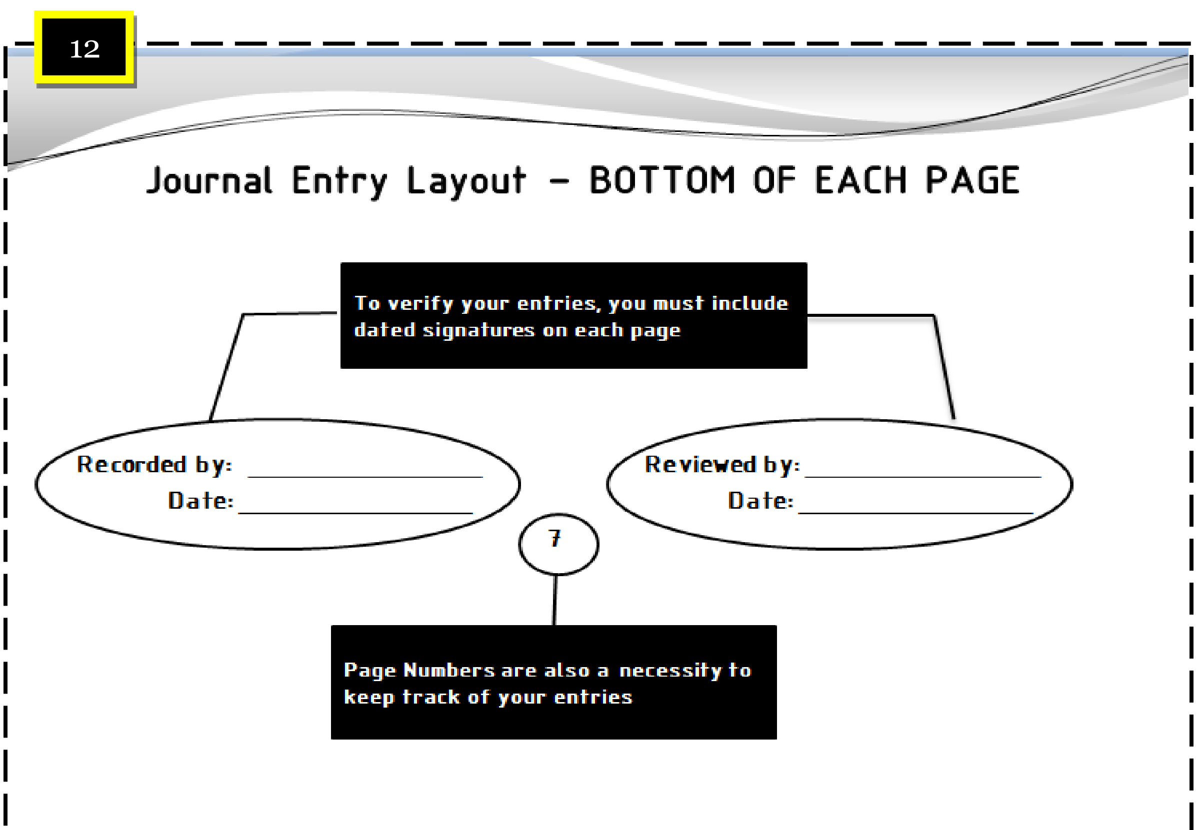
TASKS	REFLECTIONS
Continue RobotC lessons.	The trainees (Justin, Kaitlyn, and James) finished programming the NXT tri-bot, and then moved on to autonomously programming our robot from last season. Next time, they will learn how to program the same FTC robot for teleoperated mode. Mark is doing an excellent job teaching RobotC!
Keep trying to download Pro/ENGINEER Wildfire 5.0 onto Dells 6, 8, and 9.	Michelle kept trying to download Pro-Engineer Wildfire 5.0 onto computers. The software was still reading the wrong license agreement from Wildfire 4.0, so Michelle had to uninstall the whole Pro-Engineer application from the computers and re-download it. This finally worked, and Michelle was elated!!! Next week she'll hold her Pro-Engineer training sessions.

Reflections describe if/how you achieved your goals

Recorded by:	Date:	Journal Coordinator:	Date:

PowerPoint Slideshow – Presentation for engineering journal workshop (Slides 11 and 12)





Recorded by:	Date:	Journal Coordinator:	Date:

PowerPoint Slideshow – Presentation for engineering journal workshop (Slides 13 and 14)

13

Examining your notebook options…

14

Traditional vs. Electronic

A Summary

Traditional Journal

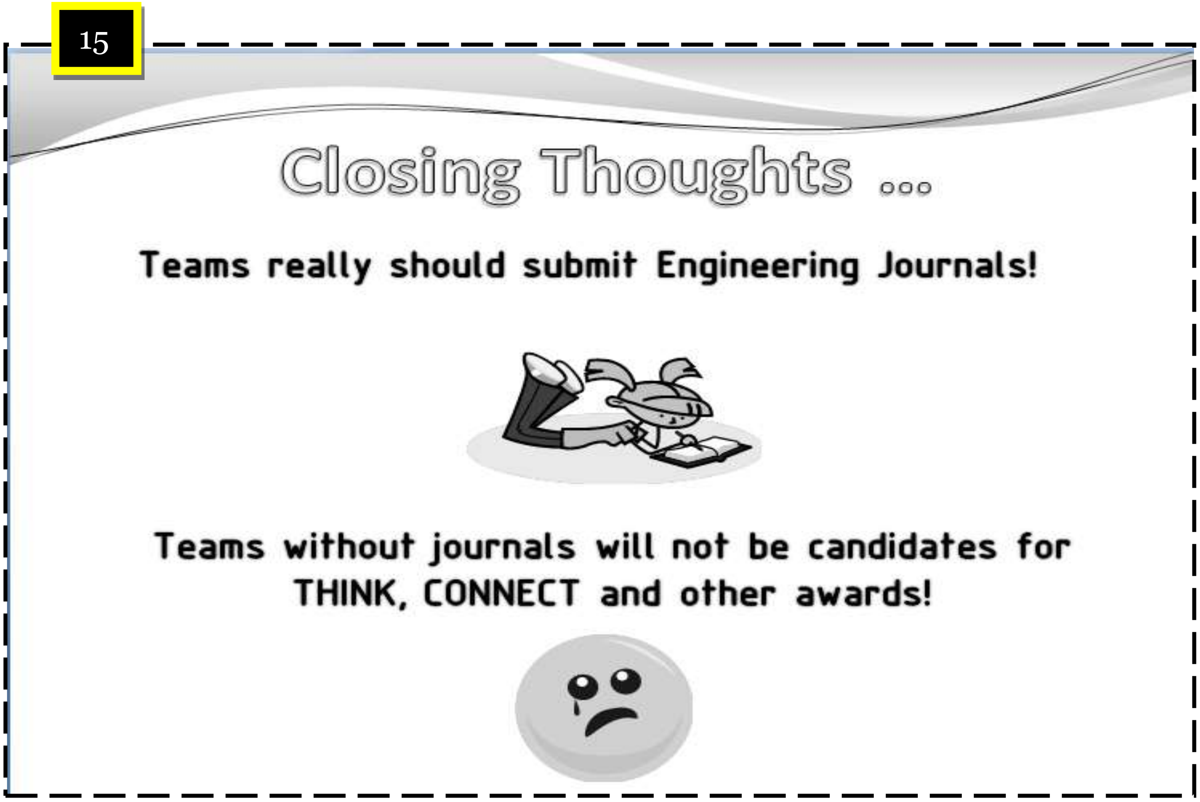
- Has quad ruled pages
- Is written in ink
- contains attached photos and articles
- organizes robotics sessions, outreach, and other topics together in chronological order

Electronic Journal

- Has digital pages that we print out
- Is typed out and made into notebook with a binding of less than 1 inch
- has photos, articles, and sketches that are scanned into journal entries before the printing process takes place
- organizes robotics sessions chronologically as one unit, outreach chronologically as another unit … etc.

Recorded by:	Date:	Journal Coordinator:	Date:

PowerPoint Slideshow – Presentation for engineering journal workshop (Slide 15)



Recorded by:	Date:	Journal Coordinator:	Date:

Holding robotics showcases at the 2011World Maker Faire NY

New York Hall of Science (Queens, New York)
Saturday, September 17, 2011: 10 a.m. – 7 p.m.

The 2011 World Maker Faire NY, located on the grounds of the 1964 New York World's Fair, featured cutting-edge developments in science and technology. So, it was no surprise that the St. Clare's FTC Team fit in perfectly. The St. Clare's FTC Team shared with visitors many things such as how its GET OVER IT robot completed tasks as well as how the Creo Elements/Pro application and engineering journal helped keep the robot's construction and calculation phases in check. The St. Clare's FTC Team caught the eye of representatives from the American Society of Mechanical Engineers (ASME) and FIRST Robotics. The St. Clare's FLL Team also participated in the 2011 World Maker Faire NY and intrigued many visitors.

Twitter Insert – St. Clare's FTC Team at the 2011 World Maker Faire

Recorded by:	Date:	Journal Coordinator:	Date:

Volunteering at the 2011/2012 New York City FTC Kickoff Workshops and New York City PTC Workshops

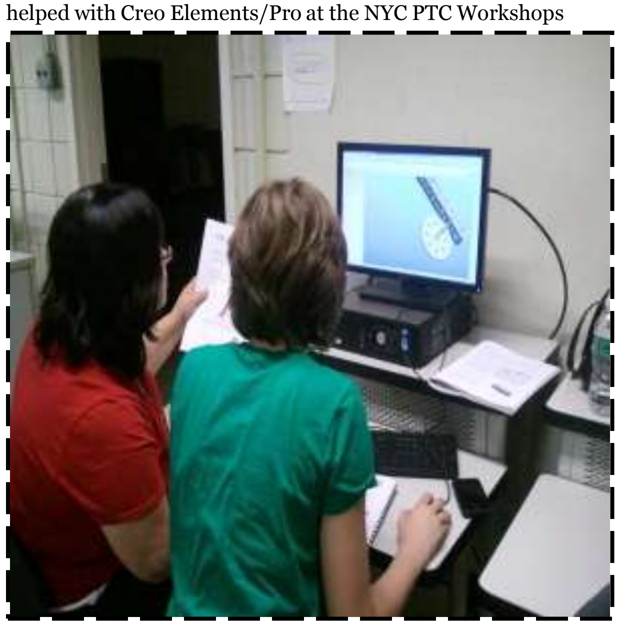
NYU-Polytechnic University/Citi-Tech College (Brooklyn, New York)
Saturday, October 22nd, 2011/ Saturday, November12th, 2011

The St. Clare's FTC Team participated in many workshops – including programming, building, utilizing PTC applications, and practicing team skills – in the New York City FTC Kickoff Workshops at NYU-Poly. They gave another demonstration on how to create an amazing engineering journal as well as helped Mike Stuart (from PTC) in Creo Elements/Pro Workshops.

The St. Clare's FTC Team also took part in the PTC workshops at Citi-Tech College. The two main components of these PTC workshops were teaching FTC teams how to use Windchill PDMLink and how to use Creo Elements/Pro. The Bounty Hunters mainly took part in the Windchill PDMLink portion as students as they were still trying to learn the application themselves. Then, the Bounty Hunters helped Mike Stuart and Dmitry Orlov (from PTC) facilitate the Creo Elements/Pro portion.

Photo – Bounty Hunters demonstrating their engineering journal from a previous season at the NYC FTC Kickoff

Photo – FTC coaches/team members that the Bounty Hunters helped with Creo Elements/Pro at the NYC PTC Workshops



Recorded by:	Date:	Journal Coordinator:	Date:

E-mail – Thank you from Len Rerek for helping at workshops in NYC FTC Kickoff

From: rerek@optonline.net
To: scientificlee21@aol.com, coolphysics@optonline.net, manuran@schools.nyc.gov, di.kitchen@gmail.com, steve.kitchener@gmail.com
CC: besner@poly.edu, pdaly09@gmail.com
Sent: 10/24/2011 10:53:08 A.M. Central Daylight Time
Subj: 10/22 FTC Kick-Off Event

Please accept my thanks on behalf of myself, the FTC Committee and NYU-Poly for your efforts in holding the afternoon breakout sessions. I've received a lot of great feed back especially from "Rookie" groups in attendance all speaking to the value you provided.
Terrific job.
Please extend my personal thanks to the team members for their pose and their expert preparation of the presentation materials.
It is your participation that has helped make the NYC FTC Community the exciting group it has grown to be.
I look forward to working with you again.
Thanks,
Len Rerek

E-mail – Thank you from Mike Stuart for helping at both NYC FTC Kickoff workshops and PTC workshops

From: mistuart@ptc.com
To: CurlzRocKoNxx@aol.com
Sent: 11/17/2011 2:09:40 P.M. Eastern Standard Time
Subj: RE: PTC Workshop, 11/12 - Thank you, Mike

Hi Michelle,

I'm happy you were able to attend the Workshop, and I really appreciate your help with the facilitation of the Creo portion of the event. Your help at the last two events has been invaluable. If you ever have questions about the software, or anything else regarding PTC, feel free to email me.

I've attached the Photos I took of the workshop, not too many, but I got as many angles as I could.

For the Mathcad documents, I've attached those as well. Let me know if you have any trouble with those!

Regards,

Mike

Recorded by:	Date:	Journal Coordinator:	Date:

Helping break down the BOWLED OVER game fields at both the New Jersey FTC Qualifier #1 New York City FTC Scrimmage

New Jersey FTC Qualifier #1
Cherokee High School (Marlton, New Jersey)
Sunday, November 20, 2011: 9 a.m. – 4 p.m.

NYC FTC Scrimmage
NYU-Polytechnic (Brooklyn, New York)
Saturday, March 3, 2011: 9 a.m. – 4 p.m.

Being able to participate in such an exciting NJ FTC qualifying tournament, the least the St. Clare's FTC Team could do was help out Vince & Pat Frascella, STORM Robotics FTC Team #4390 (host FTC team), and all of NJ FTC. So, after the tournament ended, the St. Clare's FTC Team helped disassemble the BOWLED OVER game fields.

Later on in the season, the St. Clare's FTC Team helped both assemble and breakdown the BOWLED OVER game fields at the FTC scrimmage at NYU-Poly. This was the least it could do for Len & JoAnn Rerek, NYU-Poly, and all of NYC-FTC after participating in yet another great scrimmage.

Facebook Insert – Helping breakdown a BOWLED OVER game field

Recorded by:	Date:	Journal Coordinator:	Date:

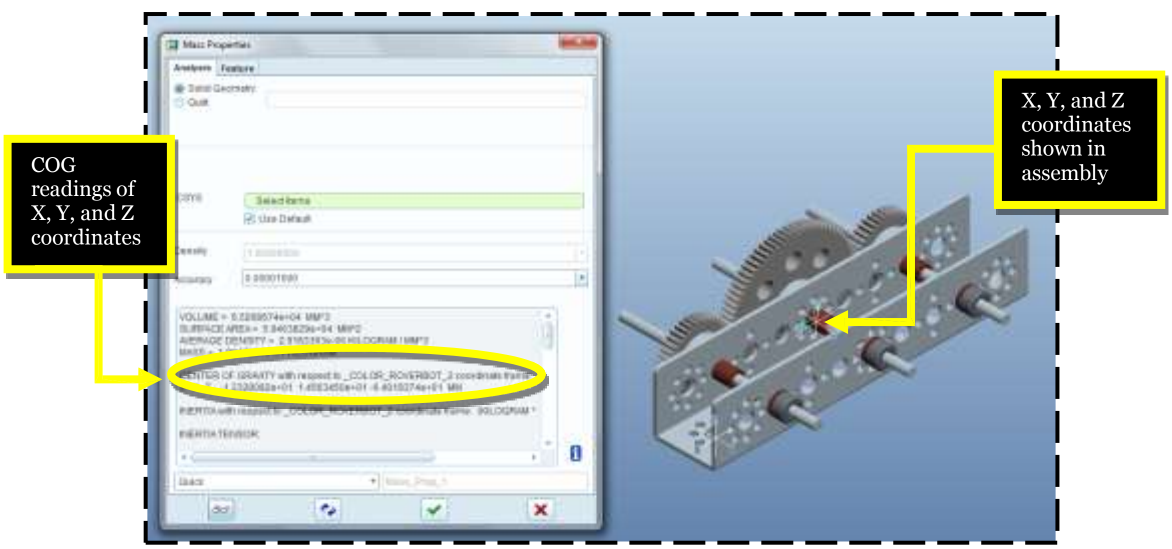
Showing the fellow Robo Rexasaurus FTC Team #4080 how to use certain features in Creo Elements/Pro

Cookie Bowl Scrimmage
Girl Scout Council (Pleasantville, New York)
Saturday, January 14, 2012: 9 a.m. – 3 p.m.

The St. Clare's FTC Team originally met the Robo Rexasaurus FTC Team #4080 at Engineering Journal and PTC workshops held earlier in the season. So, the St. Clare's FTC Team was glad to help when the Robo Rex Team came over with a PTC question, which pertained to pinpointing the center of gravity (COG) of a robot assembly.

Photo – Showing the Robo Rex Team how to locate the COG in Creo Elements/Pro

Creo Elements/Pro Analysis – Finding the COG



Recorded by:	Date:	Journal Coordinator:	Date:

Being named "New York City FTC Team of the Week" for the week of Sunday, January 29, 2012

New York City FTC Program
Sunday, January 29, 2012 – Saturday, February 4, 2012

The St. Clare's FTC Team was named "New York City FTC Team of the Week" and received this honor based on the hard work and dedication reflected in its robot's design & functions, use of PTC applications, elaborate engineering journal, and numerous outreach initiatives.

Facebook Insert – The St. Clare's FTC Team featured as "New York City FTC Team of the Week"

Team of the Week - 1/30/12 - Bounty Hunters FTC Team 2864

By New York City F.I.R.S.T. · Updated about a month ago

This week, we explore the bounty thats FTC and find a team who has all the bounty in the world…in recognition and sportsmanship! The Team of the Week for 1/30/12 is… The Bounty Hunters!

Want to be featured as our next team of the week? Send an email to gnikanorov@hotmail.com. You might be featured as the next Team of the Week!

JoAnn Gleason Rerek, Mike Parziale and New York City F.I.R.S.T. like this.

Recorded by:	Date:	Journal Coordinator:	Date:

Meeting with Nancy Paul (from FIRST), Dmitry Orlov (from PTC), and other representatives from FIRST and PTC

The St. Clare's FTC Team received the opportunity to meet with Nancy Paul, Dmitry Orlov, and others from FIRST and PTC. They reviewed the St. Clare's FTC Team's engineering journal and showed great interest in it. Nancy Paul is even planning to showcase the engineering journal in the VIP room of the 2012 FIRST World Championship!

E-mail – Sending a PDF file of the engineering journal to Nancy Paul

FTC Team #2864 - Engineering Journal
From: CurtzRockoNox <CurtzRockoNox@aol.com> Hide
To: npaul <npaul@usfirst.org>
Date Mon, Feb 13, 2012 10:00 pm
FTC_Team_#2864-engineering_journal.pdf.docx.pdf

Add to: To Do, Calendar

Hi Ms. Nancy Paul,

My name is Michelle Pagano, and I am a member of the Bounty Hunters, FTC Team #2864. My team met you at the Hudson Valley FTC Championship a couple of weeks ago.

You wanted me to send you a copy of our engineering journal, and it is attached as a PDF file. I am sorry that I couldn't send you the engineering journal sooner ... my team was very busy helping run research forums for FLL and Jr. FLL teams that we mentor, officiating at the Staten Island FLL Qualifier, and preparing for yesterday's New Jersey FTC Championship.

I am not sure if you know, but we actually won the THINK Award at both the New Jersey FTC Championship and the Hudson Valley FTC Championship, as well as earned second place for the INSPIRE Award at the Hudson Valley FTC Championship. Also, two weeks ago, we became New York City FTC Team of the week.
Here is the link showing us as NYC FTC Team of the week:
http://www.facebook.com/media/set/?set=a.351644934854016.88430.186994991319012&type=1

Since my team's engineering journal is a work in progress, please let me know if you would like me to send you a more complete version of our engineering journal later on in the season.

Let me know if you need anything else.

Thank you for your interest in our team,
Michelle Pagano
FTC Team #2864
The Bounty Hunters
Staten Island Robotics at St. Clare's School

E-mail – Nancy Paul's response concerning the engineering journal

RE: FTC Team #2864 - Engineering Journal
Nancy Paul to you - Feb 14 More Details

Add to: To Do, Calendar

Dear Michelle,

Thank you very much for remembering our request and your team's willingness to share this excellent resource. I know that our new Russian Partners are very interested in having this available, as is our great supporter PTC. Thank you, thank you, thank you!

Congratulations as well for the excellent recognition your team has achieved. It is not surprising to me at all after having had the chance to meet the team.

Is it also OK with you if we display this in the VIP room at the World Championship? We like for our VIP's to see what teams achieve. And yes, if you remember to send an end-of-season copy, I will be most grateful to have the resource.

Thank you again for your team's generosity. I wish you the very best with the remainder of your season.

Best regards,
Nancy

Nancy Paul
FTC Partner Services Manager
V +1 (603) 666-3906 x 411
E npaul@usfirst.org
W www.usfirst.org
F +1 (603) 206-2070

FIRST
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Recorded by:	Date:	Journal Coordinator:	Date:

Creating and uploading documents to the PlanetPTC Community

The St. Clare's FTC team members are avid users of PTC. They have worked on documents, such as how their team uses PTC applications and how to create tread systems via Creo Elements/ Pro, and have uploaded these documents to the PlanetPTC Community website to share with other PTC users and FIRST robotics teams.

PlanetPTC Document – PTC Journey written by the St. Clare's FTC Team

FTC team #2864 - PTC Journey

VERSION 3

Created on: Feb 11, 2012 8:04 PM by Michelle Pagano - Last Modified: Feb 13, 2012 9:35 AM by DanMarotta
Visibility: Open to anyone

The Bounty Hunters, FTC Team #2864
Our PTC Journey

Hi all members of the PlanetPTC Community! My name is Michelle Pagano and I am a member of FTC team #2864, the Bounty Hunters. This is my team's third year using PTC applications to help design and construct effective robots and my team's second year being sponsored by PTC. During our PTC "career," we have utilized a trifecta of PTC applications, which are Creo Elements/Pro, Windchill, and Mathcad. My teammate, Erika Olsen, is also very experienced in using PTC applications, particularly Creo Elements/Pro.

Three years ago, my team started using Pro-ENGINEER (now Creo Elements/Pro) Student Edition 4.0 in order to help build our physical robot. Learning how to properly configure, constrain, and move virtual models of TETRIX and LEGO parts in Pro-ENGINEER was difficult at first; however, after participating in New Jersey and New York City FTC workshops and practicing at robotics sessions, we quickly started to understand Pro-ENGINEER better. Applying various constrains to robot parts, such as the "pin" constraint, and defining gear ratios and servo motors (for movement) became second nature to us. We even placed photos that we made of our virtual robot in Pro-ENGINEER into our engineering journal in order to fully demonstrate our robot's "journey."

Last year, our second time using PTC applications, my team used Creo Elements/Pro Student Edition 5.0 and Windchill ProjectLink. We found Creo Elements/Pro Student Edition 5.0 to be similar to the previous 4.0 version; however, we found version 5.0 to offer more versatility in applying certain features to the virtual robot model. My team was even able to download the virtual game field so that we were able to test how our robot reacted to specific game elements. One of the new Creo Elements/Pro concepts that we learned involved applying "point on a line" and "slot" constraints in order to connect and manipulate tread links for our robot's drive system. Windchill ProjectLink enabled each member of my team to take part in the development of the virtual robot by being able to view and edit it in a document saved to our Windchill account. By means of creating and uploading stellar virtual robot models to Windchill so that PTC engineers can view and help edit them, my team became a finalist for the New Jersey PTC/Windchill Challenge.

We recorded many things that we did within Creo Elements/Pro and Windchill ProjectLink in our engineering journal. This helped us win the THINK Award and a bid to the 2011 FTC World Championship. At the 2011 FTC World Championship, we were given the opportunity to present how we use PTC applications and take part in awesome PTC design competitions. As a matter of fact, our robot was ranked 5th overall in the world, and we owe this in part to PTC, for supplying our team with the tools we needed to build a high-achieving robot.

This year we have started using Mathcad Prime 1.0 in tandem with Creo Elements/Pro Student Edition 5.0. Mathcad Prime 1.0 helps us make numerous calculations concerning the velocity of our robot's DC and servo motors and the range of movement for our robot's various attachments. To help us determine the exact alignment for how to put chains around sprockets on our robot, we have learned how to create chain drives in Creo Elements/Pro by means of drawing a belt skeleton and inserting the user defined chain feature. Our expanding knowledge of how to use PTC applications has led us to assisting PTC engineers run New Jersey and New York FTC Workshops. We have been very diligent in recording all the intricacies of Mathcad and Creo Elements/Pro in our engineering journal and are keeping our fingers crossed that we earn another bid to the FTC World Championship!

FTC team #2864 - PTC Journey.docx (26.3 K)
View Download

142 Views Tags: none (add) Like (1)

Average User Rating
(1 rating)

My Rating:

Recorded by:	Date:	Journal Coordinator:	Date:

PlanetPTC Document – Creo Elements/Pro tread systems tutorial made by the St. Clare's FTC Team

FTC#2864_TreadTutorial--(1).pdf

VERSION 1

Created on: Mar 13, 2012 4:07 PM by Michelle Pagano - Last Modified: Mar 13, 2012 4:11 PM by Michelle Pagano
Visibility: Open to anyone

Hi,

My FTC Team created the attached slideshow tutorial for simulating tread systems in Creo Elements/Pro.
We hope that the attached tutorial is able to help PTC users who have trouble making tread systems in Creo.

Thank you,
Michelle Pagano
FTC Team #2864
The Bounty Hunters
Staten Island Robotics at St. Clare's School

FTC#2864_TreadTutorial-(1).pdf (7.5 MB)
View Download

101 Views Tags (edit): simulation, tutorial, first, ftc, creo Like (1)

Average User Rating (2 ratings) My Rating:

Comments (2) Author Discussion (0)

Add a comment Leave some feedback about this document.

DanMarotta Mar 15, 2012 7:58 AM
Michelle,

I used a screenshot from your tutorial so others would know what kind of tread system they can expect.

Great job by the way! Very thorough and informative.

Do you have the animation file (.mpeg)? I created a "how-to video challenge" which I think you should enter this into. Take a look at the challenge, I hope you can participate.

The How-to Video Challenge >>

Like (0) Edit Delete Report Abuse Reply

Scott E Morris Mar 16, 2012 6:15 AM
Michelle,

This is awesome! Nice work. I wish there were more teams out there with your level of enthusiasm and willingness to share. Hope to see you in St. Louis again.

Like (1) Edit Delete Report Abuse Reply

Actions

- Edit document
- Manage versions
- Move document
- Manage visibility and collaboration
- Delete document
- Stop email notifications
- Send as email
- Bookmark this

Bookmarked By (0)

View: Everyone

No public bookmarks exist for this content.

More Like This

- FTC team #2864 - PTC Journey
- Pro/ENGINEER Wildfire 4.0 VB API User's Guide (June 2009):
- Creo Parametric 1.0 VB.NET Guide
- Pro/ENGINEER Wildfire 5.0 VB API User's Guide (July 2010):
- Drive Motor Calculation.xmcd

Incoming Links

- Product Development Showcase Roundup 03/16/2012

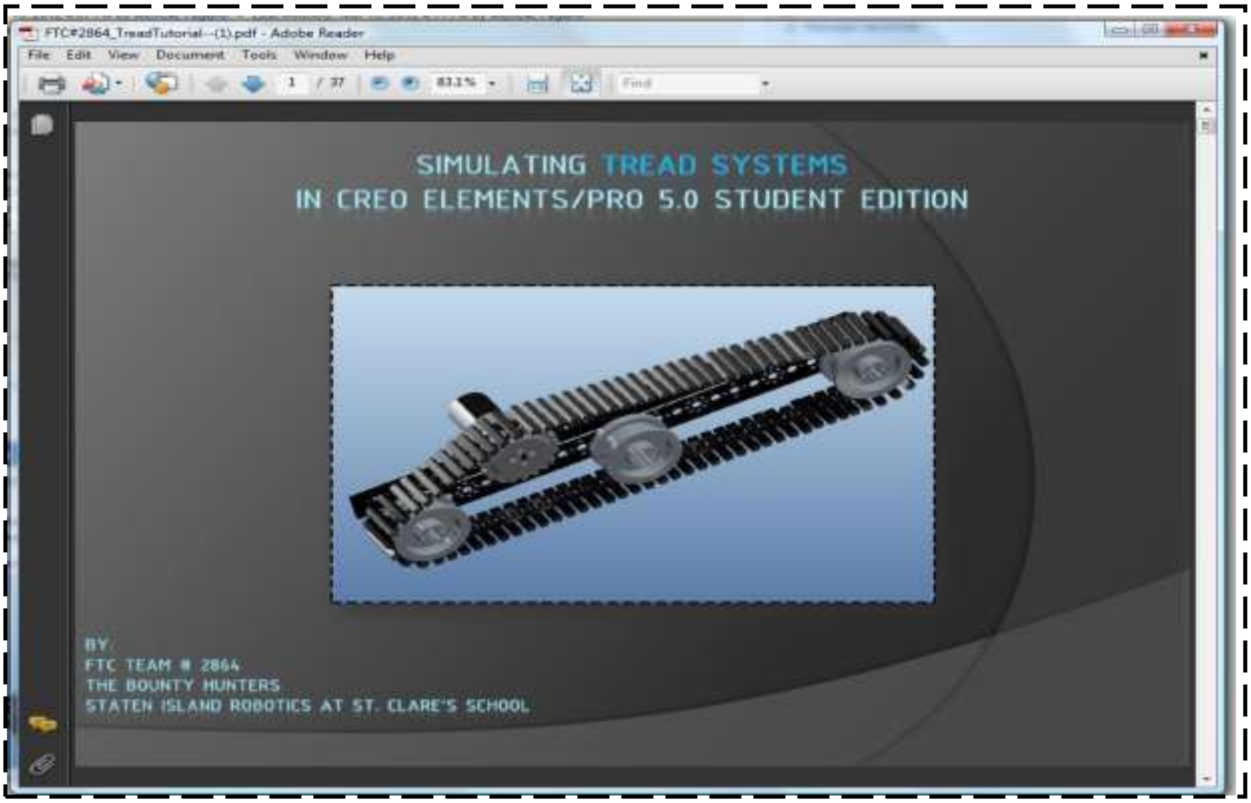
More by Michelle Pagano

- FTC team #2864 - PTC Journey

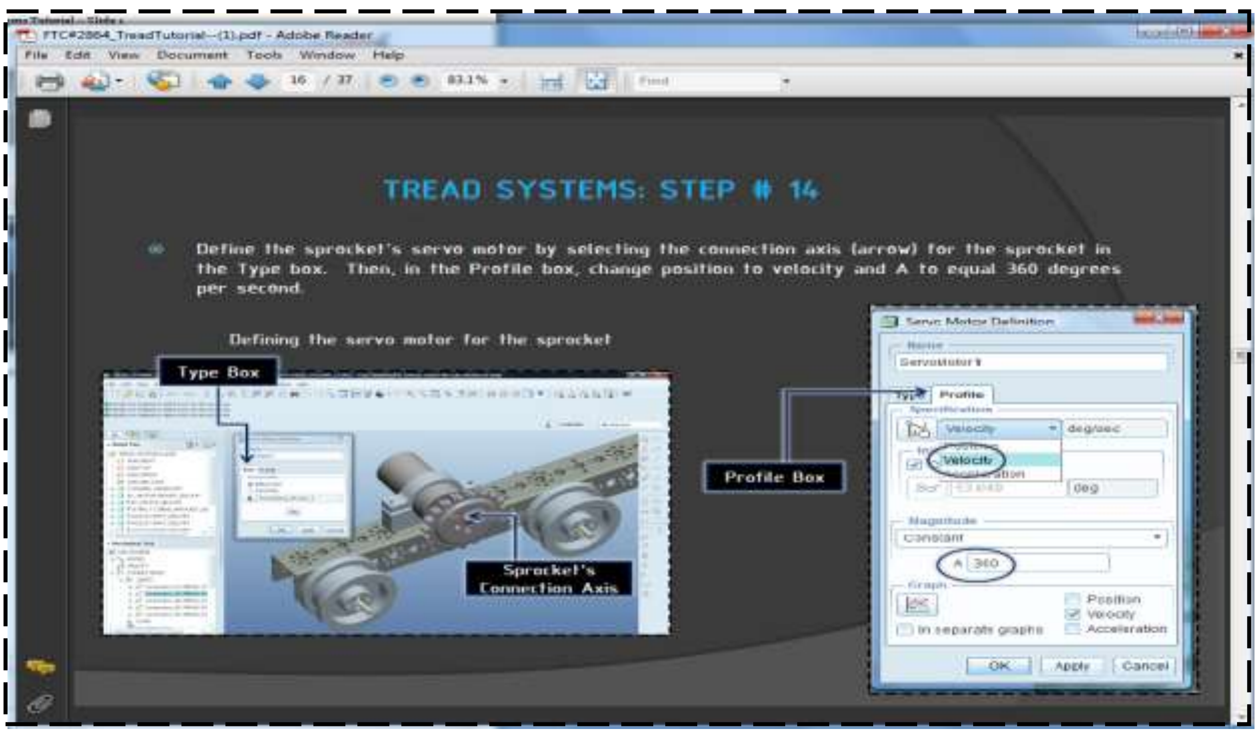
View Michelle Pagano's profile

Recorded by:	Date:	Journal Coordinator:	Date:

Tread Systems Tutorial – Slide 1



Tread Systems Tutorial – Slide 16



Recorded by:	Date:	Journal Coordinator:	Date:

SPONSORSHIP

LIFE'S BOUNTY MEDICAL CARE

Special thank you to our sponsor, Dr. Anna Marie Scopellito-Olsen, who runs a local medical practice called Life's Bounty Medical Care in Staten Island. Dr. Olsen has sponsored our team for many years. From helping us finance new equipment to purchasing dinner for us during our late night robotics sessions, Dr. Olsen is always there for us.

Special thank you to PTC, who has sponsored our team for two years. PTC has provided us with essential resource tools, such as Creo Elements/Pro Student Edition 5.0 and Mathcad Prime 1.0.

PTC® the product development company

Thank you for applying for the 2011-2012 PTC/FTC Grant!

PTC – FIRST Partnership:

PTC, a Strategic Partner of *FIRST,* is proud to be part of a technological literacy movement that seeks to bridge the academic gap to industry and furthermore encourage workforce development. Through the sponsorship of *FIRST*, PTC is donating software (Creo, Mathcad and Windchill) to all *FIRST* teams. In addition, we are providing funding to sponsor teams, events and scholarships.

Deadlines

1. The application submittal deadline is Friday, September 17.

2. Final announcements of the PTC grants will be made Friday, September 30.

3. Final paperwork is due back to *FIRST* on or before Friday, October 21.

FTC Grant Policy:

For the 2011-2012 FTC season, PTC will provide $1000 grants to teams across the United States. These grants will be distributed directly from *FIRST* to the team, and can be used for travel expenses, general robot expenses, computer needs, etc. In order to receive the funding for this grant, you must first register your FTC team and pay the registration fee. The team is responsible for submitting the necessary documentation to *FIRST* (completed w9 form with a tax ID & the re-granting documents) by October 21.

FTC Grant Commitments:

Team commits to:

1. Currently using at least one of the software solutions PTC offers (Creo, Mathcad or Windchill)
2. Demonstrate the use of at least one of the software solutions in a summary (written or video) at the end of the season (Be creative)
3. Display the PTC logo on the robot, pit and website
4. Join and actively participate on the PlanetPTC - *FIRST* Community site

Grant Acknowledgment

The individual completing this application commits to all the criteria outlined above. Failure to provide any of the requested information on this application could impact the decision whether to award a grant to your team or the amount of the grant awarded. By submitting this application, your team understands there is no guarantee of a grant award by PTC now or in the future.

If you have any questions, please contact srogers@ptc.com.

Thank you!

Recorded by:	Date:	Journal Coordinator:	Date: