Evonik Sponsorship of Team Overdrive

This is the seventh year that Evonik has sponsored Team Overdrive. Thank You!!

Without your support we would not be able to compete in FTC and learn about science and technology

Team Overdrive 2011-2012 Season

Team Overdrive 2011-2012 season was very successful

We had epic failure and learned from that to have success with the robot

We learned about science and technology

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2011-12 FTC Game

- Autonomous mode
- Driver Control mode
- Scoring through racquetball pickup and placing in crate
- High scoring through lifting crates high

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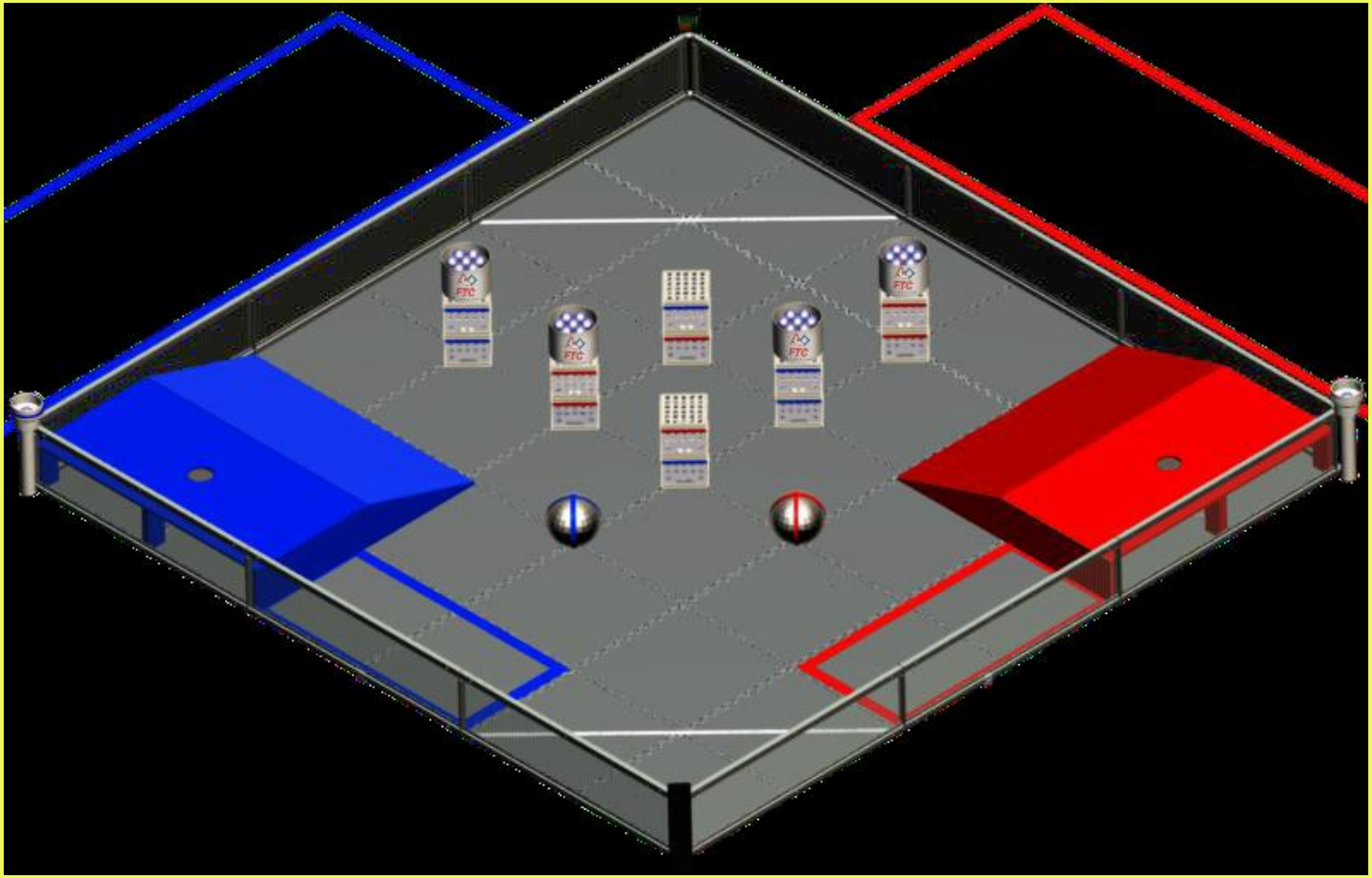
2011-12 FTC Game “Bowled Over”



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Team Overdrive 2011-12 Season Highlights

- Events
  - NJ Qualifier - Inspire Award, 2nd place Alliance Captain
  - MD Qualifier- Think Award, 2nd place Alliance
  - NJ Championship – Problems, learned
  - MD Championship – Motivate Award, 2nd place Alliance Captain
  - NY Championship – 1st Place Alliance Captain
  - World Championship – 5th place through 1st day

Team Overdrive 2011-12 Season Highlights

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NY Championship

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Team Overdrive 2011-12 Season Highlights

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Team Overdrive 2011-12 Season Highlights

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What we learned – tools we used

- CAD design
- Engineering notebook
- Sensors and programming
- Gantt chart
- Prior art searches
- Want/How analysis
- Scouting

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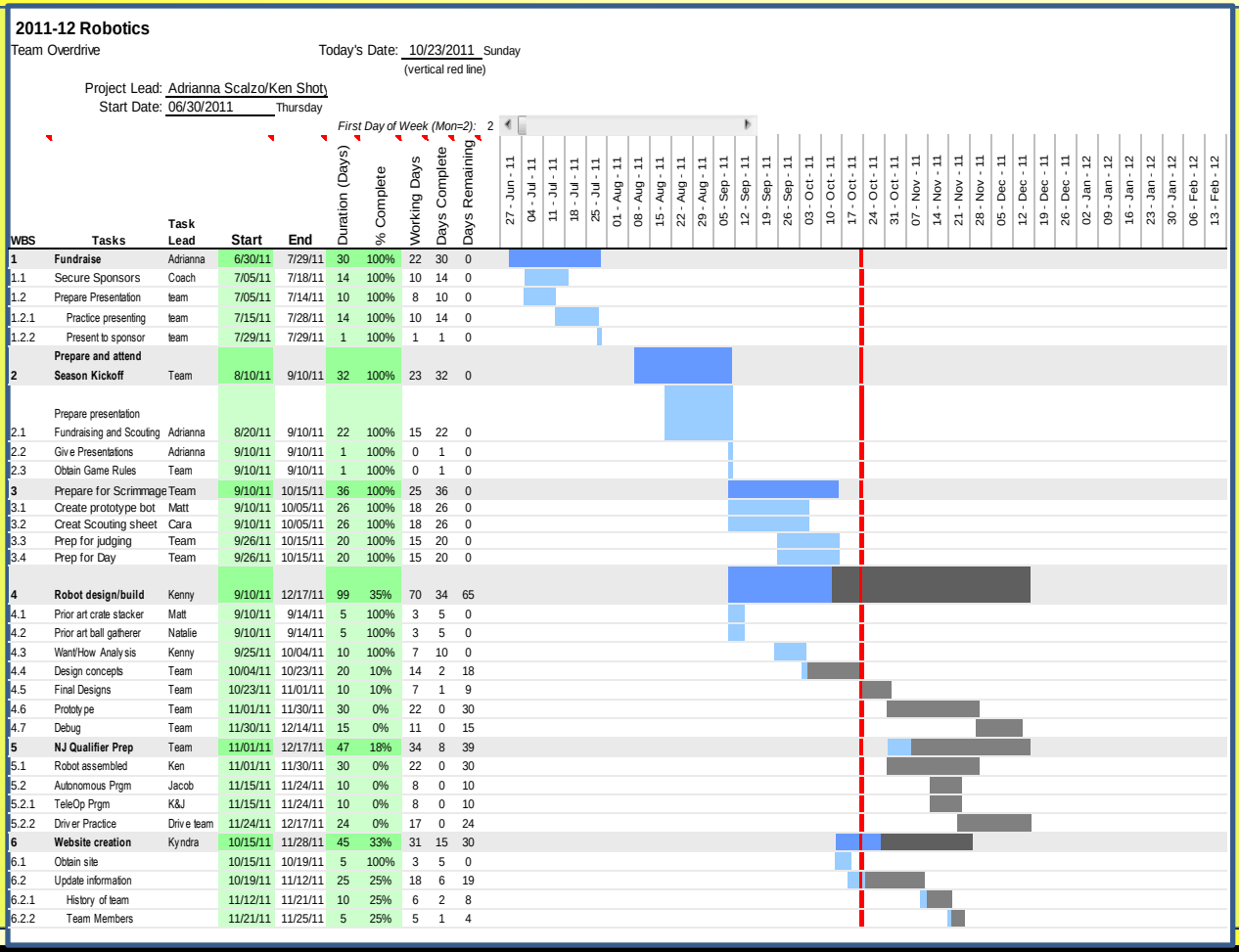
Gantt Chart



2011-12 Robotics

Team Overdrive

Today's Date: 10/23/2011 Sunday

(vertical red line)

Project Lead: Adrianna Scalzo/Ken Shotz

Start Date: 06/30/2011 Thursday

First Day of Week (Mon=2): 2

WBS	Tasks	Task Lead	Start	End	Duration (Days)	% Complete	Working Days	Days Complete	Days Remaining
1	**Fundraise**	Adrianna	6/30/11	7/29/11	30	100%	22	30	0
1.1	Secure Sponsors	Coach	7/05/11	7/18/11	14	100%	10	14	0
1.2	Prepare Presentation	team	7/05/11	7/14/11	10	100%	8	10	0
1.2.1	Practice presenting	team	7/15/11	7/28/11	14	100%	10	14	0
1.2.2	Present to sponsor	team	7/29/11	7/29/11	1	100%	1	1	0
2	**Prepare and attend Season Kickoff**	Team	8/10/11	9/10/11	32	100%	23	32	0
2.1	Prepare presentation Fundraising and Scouting	Adrianna	8/20/11	9/10/11	22	100%	15	22	0
2.2	Give Presentations	Adrianna	9/10/11	9/10/11	1	100%	0	1	0
2.3	Obtain Game Rules	Team	9/10/11	9/10/11	1	100%	0	1	0
3	Prepare for Scrimmage	Team	9/10/11	10/15/11	36	100%	25	36	0
3.1	Create prototype bot	Matt	9/10/11	10/05/11	26	100%	18	26	0
3.2	Creat Scouting sheet	Cara	9/10/11	10/05/11	26	100%	18	26	0
3.3	Prep for judging	Team	9/26/11	10/15/11	20	100%	15	20	0
3.4	Prep for Day	Team	9/26/11	10/15/11	20	100%	15	20	0
4	**Robot design/build**	Kenny	9/10/11	12/17/11	99	35%	70	34	65
4.1	Prior art crate stacker	Matt	9/10/11	9/14/11	5	100%	3	5	0
4.2	Prior art ball gatherer	Natalie	9/10/11	9/14/11	5	100%	3	5	0
4.3	Want/How Analysis	Kenny	9/25/11	10/04/11	10	100%	7	10	0
4.4	Design concepts	Team	10/04/11	10/23/11	20	10%	14	2	18
4.5	Final Designs	Team	10/23/11	11/01/11	10	10%	7	1	9
4.6	Prototype	Team	11/01/11	11/30/11	30	0%	22	0	30
4.7	Debug	Team	11/30/11	12/14/11	15	0%	11	0	15
5	**NJ Qualifier Prep**	Team	11/01/11	12/17/11	47	18%	34	8	39
5.1	Robot assembled	Ken	11/01/11	11/30/11	30	0%	22	0	30
5.2	Autonomous Prgm	Jacob	11/15/11	11/24/11	10	0%	8	0	10
5.2.1	TeleOp Prgm	K&J	11/15/11	11/24/11	10	0%	8	0	10
5.2.2	Driver Practice	Drive team	11/24/11	12/17/11	24	0%	17	0	24
6	**Website creation**	Kyndra	10/15/11	11/28/11	45	33%	31	15	30
6.1	Obtain site		10/15/11	10/19/11	5	100%	3	5	0
6.2	Update information		10/19/11	11/12/11	25	25%	18	6	19
6.2.1	History of team		11/12/11	11/21/11	10	25%	6	2	8
6.2.2	Team Members		11/21/11	11/25/11	5	25%	5	1	4

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Team Overdrive

Prior Art Searches

United States Patent [19]
Rohrer et al.

[11] **Patent Number: 4,721,428**
[45] **Date of Patent: Jan. 26, 1988**

[54] **TENNIS BALL RETRIEVER**

[75] Inventors: **David C. Rohrer**, Gaston; **Daniel F. Rohrer**, Redmond, both of Oreg.

[73] Assignee: **Double D Corporation**, Forest Grove, Oreg.

[21] Appl. No.: **905,857**

[22] Filed: **Sep. 10, 1986**

[51] **Int. Cl.**[4] **B60P 1/00**
[52] **U.S. Cl.** ..... **414/439**; 273/29 R; 56/328.1
[58] **Field of Search** ..... 414/434, 437; 438, 439, 414/440, 441; 198/512, 518, 624; 294/19.2; 273/29 R, 32 B, 397; 124/78; 193/38, 41; 56/328 R

[56] **References Cited**

U.S. PATENT DOCUMENTS

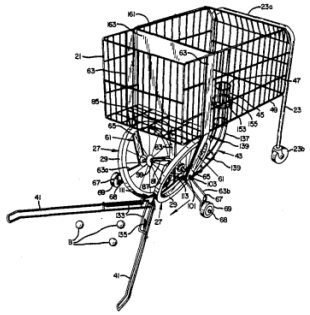
1,099,540	6/1914	Douglass	414/440 X
2,658,637	11/1953	Bailey	414/440
4,063,769	12/1977	Zimmer	294/19.2

Primary Examiner—Robert J. Spar
Assistant Examiner—Stuart J. Millman
Attorney, Agent, or Firm—Klarquist, Sparkman, Campbell, Leigh & Whinston

[57] **ABSTRACT**

A tennis ball retrieving apparatus comprises a wheeled vehicle having a front end and a rear end. The vehicle has a ball storage container disposed at a level enabling ready removal of balls therefrom by a person next to the vehicle while the person is in a standing position. There are a pair of horizontal ball gathering arms at the front of the vehicle arranged in V formation to provide an apex portion to which gathered balls are fed. A pair of the wheels of the wheeled vehicle are in traction contact with the surface on which the vehicle is supported to be driven thereby in rotary fashion as the vehicle is moved over the supporting surface. The wheels are supported with the lower portions of the tires spaced from one another less than the diameter of a tennis ball so as to grip the same when a ball is fed thereto. A chute extends from the area just rearwardly of the lower portions of the tires upwardly to the storage container. The feed wheels are operable by successively feeding balls into the chute to cause previously fed balls by nudging contact to be fed upwardly to deposit the balls into the storage container.

4 Claims, 6 Drawing Figures



United States Patent [19]
Keller

[11] **4,252,490**
[45] **Feb. 24, 1981**

[54] **BALL RETRIEVING AND STORAGE DEVICE**

[76] Inventor: **Ernst Keller**, 259 Leota Ave., Sunnyvale, Calif.

[21] Appl. No.: **927,098**

[22] Filed: **Jul. 24, 1978**

[51] **Int. Cl.**[3] **B60P 1/00**
[52] **U.S. Cl.** ..... **414/434**; 56/328 R
[58] **Field of Search** ..... 414/434, 435, 436, 437, 414/438, 439, 440; 56/328 R

[56] **References Cited**

U.S. PATENT DOCUMENTS

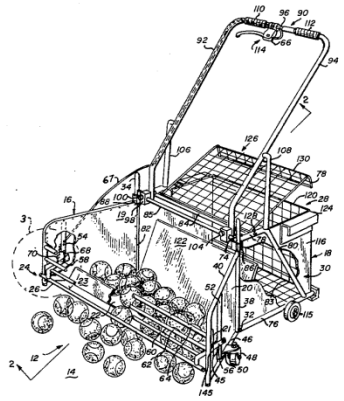
3,485,398	12/1969	Offner	414/440
3,902,749	9/1975	Falitz	414/440
4,077,533	3/1978	Meyer	414/440

Primary Examiner—Lawrence J. Oresky
Attorney, Agent, or Firm—Claude A. S. Hamrick

[57] **ABSTRACT**

A ball retrieving and storage device for gathering balls lying upon a court floor or other flat surface and including a wheeled box-like collector having a bar extending across the front of the collector, the bar having a ball engaging surface which is normally carried above the floor at a height slightly less than the diameter of the balls to be collected so that when the device is moved over the floor and the bar contacts a ball, the bar is caused to ride across the top of the ball and trap it within the collector.

14 Claims, 6 Drawing Figures



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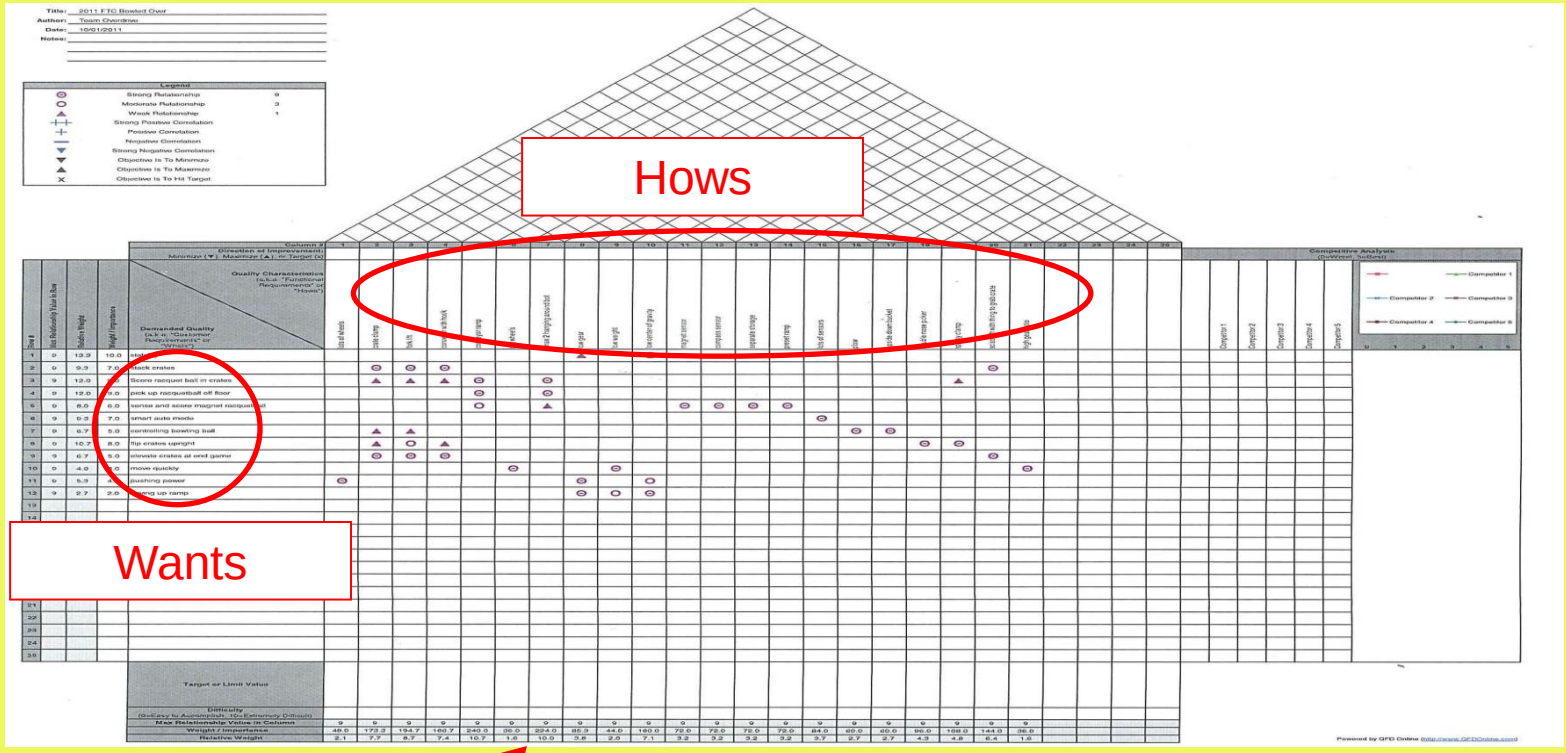
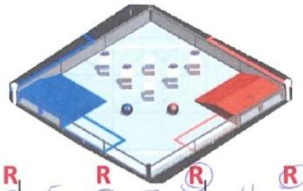
Want-How (House of Quality)

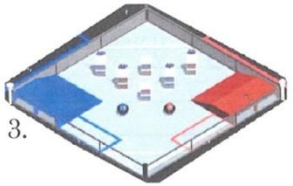


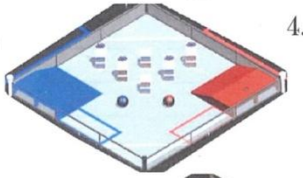
Scouting

Team #: 2753 Team Name: Team Overdrive

1.

2. 

3. 

4. 

5.

	Match # & Color	Match 1 R / B	3 R / B	5 R / B	7 R / B	11 R / B
Autonomous	Auto Mode?	Y/N	Y/N	Y/N	Y/N	Y/N
	Bowling Ball in back zone?	Y/N	Y/N	Y/N	Y/N	Y/N
	Bowling Ball in front zone?	Y/N	Y/N	Y/N	Y/N	Y/N
	# of Uprighted crates	0	0	2	2	1
	Park robot in front zone?	Y/N	Y/N	Y/N	Y/N	Y/N
	Park robot in back zone?	Y/N	Y/N	Y/N	Y/N	Y/N
	Comments:	Example of Scouting Sheet				
Driver Control	# of Balls in Crate	5	4	7	3	2
	# of Balls in Low Goal	15	10	17	25	12
	# of Stack crates	1	0	2	3	1
	# of Magnet balls scored	0	0	1	0	2
	Parked Bowl Ball in Hone zone?	Y/N	Y/N	Y/N	Y/N	Y/N
	Penalties?	Y/N	Y/N	Y/N	Y/N	Y/N
	Initials:	CS	HS	AS	TB	JJ
	Comments:					

FTC FIRST Tech Challenge

Team Overdrive

Scouting Data Analysis

NYC Championship-Gotham City Division

Ranked by Average Total Score

Team # in numerical order	FIRST Ranking	Our Ranking	Team #	Team Name	Average Total Score	Average Score: Bowling ball in auto.	Crates in auto	Robot in auto.	Balls in crates	Magnet Balls	Stacked crates	Bowling ball in end zone	Avg. # of Crates Stacked Driver Control	Avg. # of Platform Crate Bonuses Driver Control	Highest Score
123	1	1	2753	Team Overdrive	268.00	0.00	0.00	0.00	4.67	0.00	263.33	0.00	2.33	0.00	316.00
207	5	2	4995	Francis Lewis 4/4	265.00	0.00	8.33	0.00	3.33	0.00	253.33	0.00	1.67	0.00	369.00
310	11	3	5484	Endobots	161.67	0.00	6.67	5.00	3.33	0.00	146.67	0.00	1.33	0.67	241.00
356	4	4	5485	PRO	84.67	0.00	0.00	0.00	1.33	0.00	83.33	0.00	0.33	0.33	132.00
2753	2	5	4102	CHS Cougars	80.33	0.00	0.00	5.00	2.00	0.00	73.33	0.00	1.00	0.33	167.00
3031	14	6	5362	HEAFINATORS	55.00	0.00	0.00	5.00	3.33	0.00	46.67	0.00	1.00	0.33	71.00
3371	9	7	4326	Basement Lions	41.33	6.67	0.00	6.67	1.33	0.00	26.67	0.00	0.67	0.33	62.00
3419	7	8	5602	Bionic Gaels	30.00	0.00	0.00	0.00	0.00	0.00	0.00	30.00	0.00	0.00	30.00
3541	15	9	5477	Innovo	25.67	0.00	0.00	1.67	0.67	0.00	23.33	0.00	0.33	0.00	77.00
3582	21	10	3912	Liberty	22.00	10.00	0.00	10.00	2.00	0.00	0.00	0.00	0.00	0.00	36.00
3744	6	11	3744	Username:awesome	21.67	3.33	1.67	3.33	3.33	0.00	10.00	0.00	0.33	0.67	33.00
3912		12	4174	Atomic Theory	18.00	0.00	0.00	3.33	1.33	0.00	0.00	13.33	0.00	0.00	20.00
3922		13	4783	Francis Lewis 2/4	17.00	0.00	0.00	5.00	2.00	0.00	3.33	6.67	0.33	0.33	37.00
3950		14	123	Vanguard	15.67	0.00	0.00	5.00	0.67	0.00	0.00	10.00	0.00	0.00	35.00
4017	12	15	3950	Suffern Syborgs1	15.67	0.00	0.00	1.67	0.67	0.00	13.33	0.00	0.33	0.00	42.00
4102	8	16	4137	Islandbots	13.33	3.33	0.00	3.33	6.67	0.00	0.00	0.00	0.00	0.00	30.00
4137		17	5283	LAIMO	8.33	0.00	0.00	1.67	0.00	0.00	0.00	6.67	0.00	0.00	25.00
4174		18	207	Critical Mass	8.00	3.33	0.00	3.33	1.33	0.00	0.00	0.00	0.00	0.00	12.00
4326		19	4785	Francis Lewis 3/4	6.67	3.33	0.00	3.33	0.00	0.00	0.00	0.00	0.00	0.00	20.00
4490	10	20	4756	QSI Nutcrackers	4.67	0.00	0.00	3.33	1.33	0.00	0.00	0.00	0.00	0.00	9.00
4638	3	21	4490	Skybots	4.00	0.00	0.00	3.33	0.67	0.00	0.00	0.00	0.00	0.00	7.00
4713		22	310	Stuy Fusion	1.67	0.00	1.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00
4756		23	3371	Botley Crue	0.67	0.00	0.00	0.00	0.67	0.00	0.00	0.00	0.00	0.00	2.00
4781		24	4781	Francis Lewis 1/4	0.67	0.00	0.00	0.00	0.67	0.00	0.00	0.00	0.00	0.00	2.00
4783		25	356	Gigabots	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4785		26	3031	Robo Hawks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4995		27	3419	BannekerBots	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5283		28	3541	RoboOwls2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5362		29	3582	Mass Madness	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5477		30	3922	Maximus Mechanicalis	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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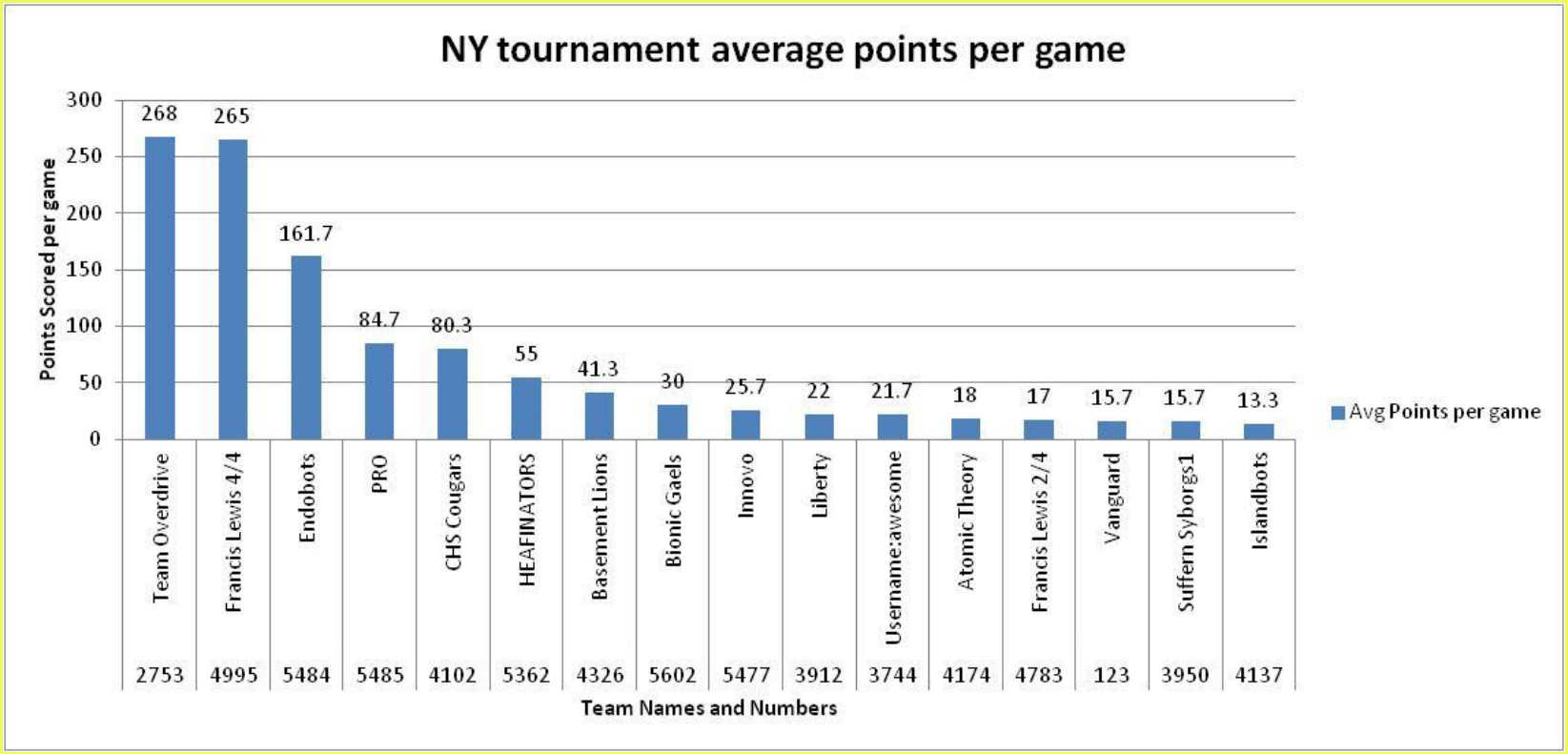
Team Overdrive

Scouting Data Analysis



Graph showing scouting data from NY Tournament

Scouting Data Analysis

NYC Championship-Gotham City Division								Elimination Brackets							
								Semi Finals			Finals				
Alliance #	Team # (entered)	Avg. Total Score (from Lookup Table)	Our Ranking (from Lookup Table)	Team Name (from Lookup Table)	Alliances sorted by Average Total Score	Average Total Score		Alliance #	Average Total Score by Alliance	Calc. Winner	Average Total Score by Alliance	Calc. Winner			
1	2753	268.000	1	Team Overdrive	Alliance 1 Total	694.667		1	694.667						
1	4995	265.000	2	Francis Lewis 4/4	Alliance 2 Total	183.000		4	55.667	1	694.6667				
1	5484	161.667	3	Endobots	Alliance 3 Total	80.667									
					Alliance 4 Total	55.667		2	183.000						
Alliance 1 Total		694.667			Alliance 5 Total	#N/A		3	80.667	2	183	1			
2	4102	80.333	5	CHS Cougars	Alliance 6 Total	#N/A									
2	5485	84.667	4	PRO	Alliance 7 Total	#N/A									
2	4174	18.000	12	Atomic Theory	Alliance 8 Total	#N/A									
Alliance 2 Total		183.000													
3	4490	4.000	21	Skybots											
3	3744	21.667	11	Username:awesome									Actual Robots Played		
3	5362	55.000	6	HEAFINATORS									1	533.000	
													4	30.000	1
Alliance 3 Total		80.667													
4	5602	30.000	8	Bionic Gaels									1	429.667	
4	5477	25.667	9	Innovo									4	55.667	1
4	4017	0.000	31	Robopandas											

Using scouting data to predict winners

FTC FIRST Tech Challenge

Team Overdrive

Team Overdrive 2011-12 Activities

- Purchased an FLL kit for start up team
  - Team would not have started without this
  - Overdrive team member-Jacob mentoring
- Girl scout mall event
- NJ school Board association
- Midland School
- Bridge building team

Donated FLL kit to start up team Team Teknik

FLL
FIRST LEGO® League

FTC
FIRST Tech Challenge

Team Overdrive

Mentoring an FLL team

FLL
FIRST LEGO® League

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Team Overdrive

NJ School Board Association

FTC
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Team Overdrive

Community Service–6th Grade Physics Club

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Team Overdrive

Community Service – Monmouth Mall

FTC
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Team Overdrive

Community Service – Midland School

FTC
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Team Overdrive

Bridge Building

FTC
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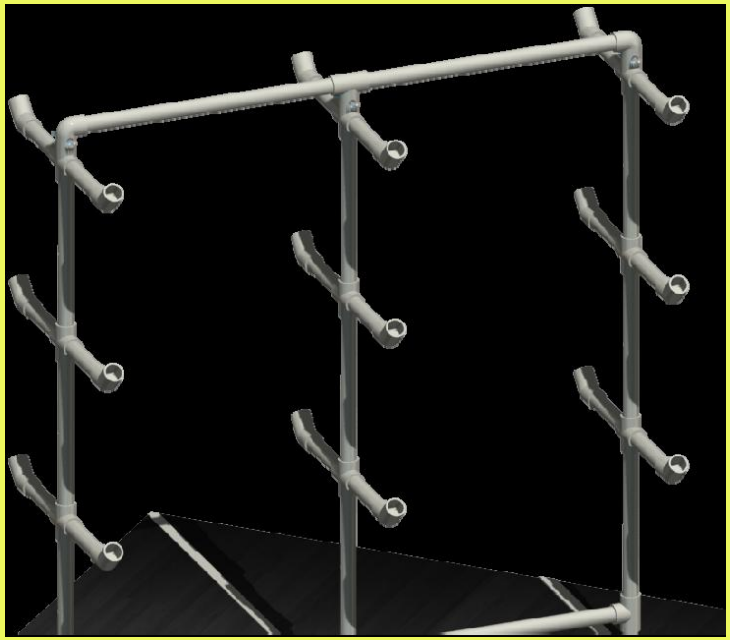
Team Overdrive

Team Overdrive 2012-2013 Season

- This year's game called "Ring it up"
  - Red rings and blue rings



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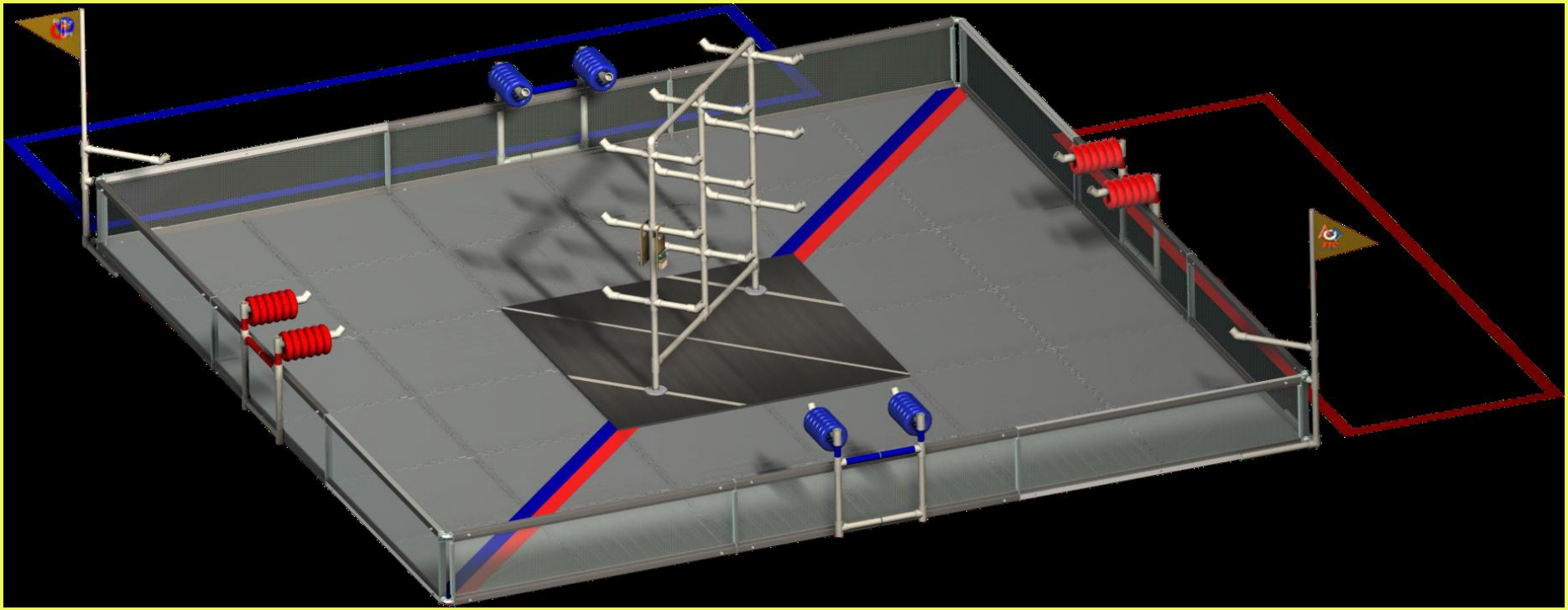
Ring it Up Field



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Ring it Up

- Robot wants
  - Arm that grabs rings
  - Find IR beacon during autonomous
  - Lift alliance partners robot

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Team Overdrive

Team Overdrive 2012 Season

November 9, 2012.mp4

Team Overdrive 2011-12 Season Plans

- Compete in NJ Meets and Qualifiers
  - Hope to qualify for NJ Championship
- Compete in Delaware Championship
- Compete in NY Championship

- Community outreach!

Summary

- Last year was a great year
- This year is very exciting
- We are learning about Science and Technology
- Evonik makes it all possible

THANK YOU!!!

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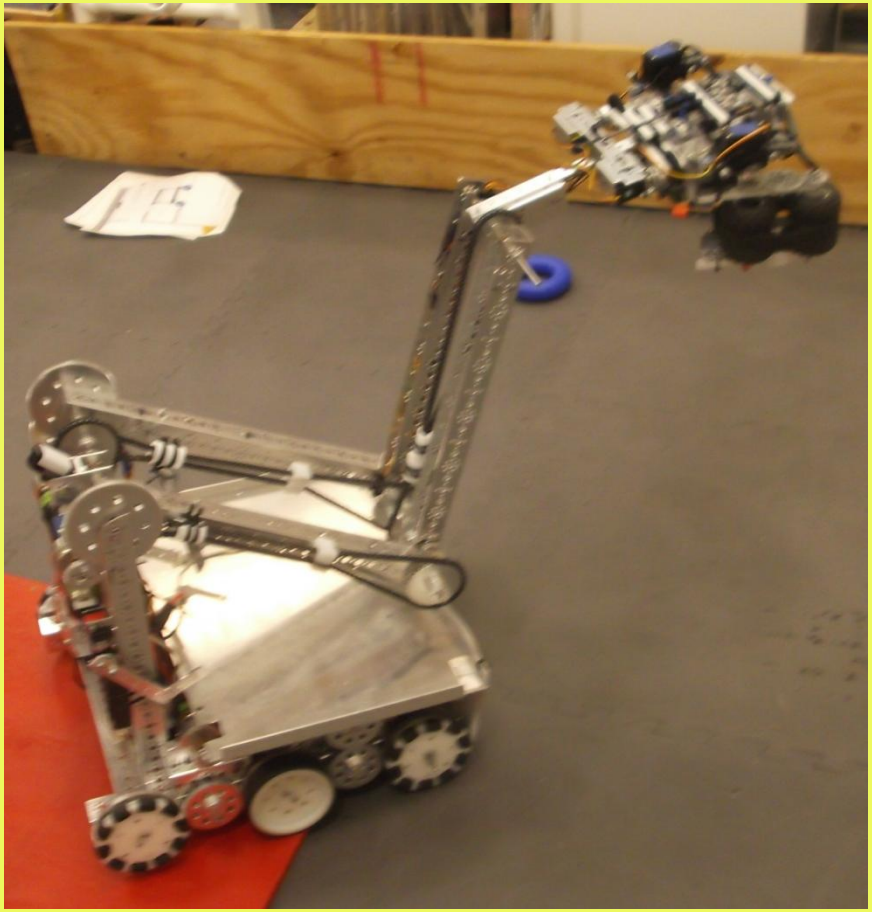
Team Overdrive

Robot Demonstration



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