

Scouting in FRC

Hamzah Khan (and Peter Smith and Zach Alan)

About Me

Twitter: @JSandrobots1540

17 years old

Marketing and Communications Lead at 3636

Competitive Analysis co-manager at 1540

Non-Robot Software at 1540

Why is scouting important?

- One team can make or break an alliance
- Opportunity for lots of members to get involved
- Essential for alliance selection
- Leg up on the competition
- FIRST rankings are unreliable
- Judges like it

The Big Picture

FIRST is becoming bigger

Districts by 2017

Superregionals

Media coverage

Karthik Kanagasabapathy

Scouting Procedure

Kickoff

Read the Rules! Read them thoroughly!

Go through the types of robots you could possibly see

Think about all the aspects of the game

The Rules are your Friend

A strategy we in competitive analysis use, is scanning the rules for grey areas or loopholes.

Look for chokehold strategies

Disclaimer: Please try to use loopholes in a way that is sportsmanlike. Remember Gracious Professionalism!

Pre-Competition Scouting

- Districts are changing everything
 - Find teams that you're competing against
 - Watch them and take notes
 - Watch their other event matches if you can
- TheBlueAlliance.com
- <http://www.usfirst.org/roboticsprograms/frc/regional-events>

Pit Scouting

- First day (or less) of competition
- Quantitative
 - Play Style
 - Autonomous (starting position!!!)
 - Drivetrain
- Qualitative
 - Build Quality
 - Appearance

Match Scouting

Roles:

- At least 8 scouts per match
 - Shifts make people happy
- 1 or 2 supervisors in stands
 - Manage shifts and communicate to drive team
- 1 or 2 managers (can be supervisors)
 - Compile list on
 - Executive decisions on list

Things to Track

- Every match
- Points scored by each robot
- Auto points vs tele-op points
- Position (starting and during match)
- Other pertinent statistics
- Notes

Methods of Scouting:

- Lots of paper
- Smartphone/tablet apps
- Spreadsheets
- Databases
- Crowdscouting

MAKE IT FUN!

Paper-based Scouting

Logomotion:

Match #:

Team #:

Minibot Time:

Minibot Place:

Out of 5

Placement Skill:

Pickup Skill:

Driver Skill:

Feeder Skill:

Offensive Ability:

Feeding Ability:

Defensive Ability:

Notes:

Breakaway:

Match #:

Starting Zone:

Offense

Middle

Defense

Team #:

Zone	Offense	Middle	Defense
Balls Scored:			

Clears	1 Zone	2 Zone

Midfield (Circle One):

Defender (Circle One):

Overall (Circle One):

Notes:

Smartphone/Tablet Apps:

Hybrid	2200	1241	Tele-Op											
<div>100.0%</div> <div>T <div>- 3 +</div> <div>- 0 +</div></div> <div>M <div>- 0 +</div> <div>- 0 +</div></div> <div>B <div>- 0 +</div> <div>- 0 +</div></div> <div>Scored Missed</div>	<div>3357</div> <div>1540</div>	<div>4188</div> <div>222</div>	<div>83.3%</div> <div>T <div>- 4 +</div> <div>- 1 +</div></div> <div>M <div>- 0 +</div> <div>- 0 +</div></div> <div>B <div>- 1 +</div> <div>- 0 +</div></div> <div>Scored Missed</div>											
<div>Usual Location <div>Key ▼</div></div> <div>Kinect <div>Yes No</div></div> <div>Balls Fed <div>- 2 +</div></div> <div>Bridge Tips <div>- 1 +</div></div>	<div>Notes</div> <p>This team display extremely developed drive team coordination during their first match. They consistently scored on the top basket, and one of the misses fell into the bottom basket.</p> <p>Team 1540 chose to use the Kinect to maneuver the robot after shooting their hybrid baskets to tip the bridge, despite some wobbles in the human player's balance.</p> <p>The Flaming Chickens finished their match by balancing with 4188 on the coop bridge, effectively compensating for their opponents apparent lack of bridge manipulation.</p>	<div>Usual Location <div>Key ▼</div></div> <div>Play Style <div>Shooter ▼</div></div> <div>Passes <div>- 0 +</div></div> <div>Balanced Rbts <div>- 2 +</div></div>												
<div>Control</div> <div>Submit</div> <div>Tucker ▼ Qual 5 ▼</div>	<div>Flaming Chickens</div> <div>Dead Broken Describe...</div>	<div>Ratings</div> <table><thead><tr><th>Driver</th><th>Robot</th><th>7/7</th></tr></thead><tbody><tr><td>Bump Crossing</td><td>★★★★★</td><td></td></tr><tr><td>Bridge Manipulation</td><td>★★★★★</td><td></td></tr><tr><td>Balancing</td><td>★★★★★</td><td></td></tr></tbody></table>	Driver	Robot	7/7	Bump Crossing	★★★★★		Bridge Manipulation	★★★★★		Balancing	★★★★★	
Driver	Robot	7/7												
Bump Crossing	★★★★★													
Bridge Manipulation	★★★★★													
Balancing	★★★★★													

Databases:

- Cowscout
- Blue Alliance
- Cheesy Scout

Other

Xbox controllers

Clickers

Other ideas?

Crowdscouting

As FIRST grows, we'll see more teams

More teams = more potential data

Analysts want quantitative data!

Making a Pick-List

Make your Pick lists

- Make separate lists for different scenarios.
 - One list for if you are a alliance captain
 - One list if you are a first pick
 - One list if you are picked a certain type of robot (or group of robots ranked high)
 - Use multiple lists or lists within lists to account for any alliance scenario

Ranking Teams:

- Go team-by-team
- Decide what list they go on
 - could be picked by....
 - could pick....
 - dont pick....
- Narrow lists down to a reasonable number of teams

What's in a Pick?

- First Picks:
 - A team that counters your weaknesses and complements your scoring ability
 - not a good shooter? pick a team that is.
 - Full court shooter? dont pick a team that shoots from the exact same place as you.
- Second Picks:
 - All around ok robot that can do many things, not perfectly but decently

The Pick-List (on Saturday)

- Make sure the picker (head scout or drive coach) has the completed list
- Have a method to mark off teams from the list
- Have an organized list/picker system so it is easy to use on the field
- If you are using a multi-list system, find a way to make it easy to differentiate between lists.

Strategic Preparation:

- Look at current FIRST rankings
 - Will you say yes or no to top teams?

Friday Night

- Hold a meeting
 - Bring anyone who's interested or has a good knowledge of the teams.
 - Make picklist (subject to change)
 - Mark teams to watch on Saturday

Saturday

- Observe robots and adjust pick list accordingly
- Don't need to do heavy scouting
 - Chance for scouts to relax and have fun
- Don't be desperate, but go up and talk to teams!

Saturday

- Hold a final meeting
 - Finalize the pick list with key members
 - look at new notes on certain teams and rank them

Final Thoughts:

- Look at Chiefdelphi.com
- Scouting can make or break you
- Lots of teams don't do it
- Getting everyone involved

Questions?

- Contact us if you think of any others:
- khanh@catlin.edu
- Twitter: @JSandrobots1540
- Our Drive Coach/head scout: smithp@catlin.edu
- Our other Co-manager: alanz@catlin.edu