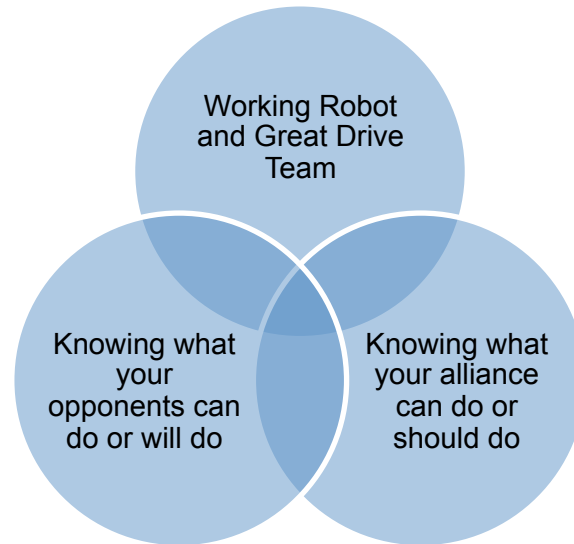


Includes Parts Taken From Team 358 Website

Scouting Builds Winning Alliances and Winning Strategies



A working robot, a great drive team, and scouting -- all three are required to win
In the FIRST® Robotics Competition (FRC®), no one plays alone!
Who will you choose and why?
Who will choose you and why?

One of the most important *competition* aspects of FRC, scouting other teams, is too frequently overlooked.

- Knowing your opponents strengths/weaknesses wins matches
- Knowing your alliance partners strengths/weaknesses wins matches
- Knowing your own strengths/weaknesses wins matches

Remember, scouting can be as simple as one or two members watching all or most of the matches, and they can be students, parents, chaparones - whoever is sitting in the stands.

Scouting is much more than casually watching each match to see one robot that is better than the others. Good scouting lets you pick out that under-appreciated robot that scores or defends consistently and brings home a steady dependable match every time even when the rest of their alliance under performs and they lose the match and end up way down in the rankings.

Why is Scouting so important?

It's part of a plan that succeeds year after year, because it affects:

- Match-by-Match Strategy: For effective strategy your drivers need to know what to expect from alliance partners as well as opponents in any match.
- Alliance robots: Select partners that can bring home a task better than you, so together you are greater.
- Alliance strategy: Select partners that complement a general strategy you plan for the finals, e.g., score or defend.
- Marketing: Promote your own team based on your strengths. Use real data to prove what do you do better than anyone
- Future designs!: Gain from the creativity of 50 to 1500 other teams. Spearhead an engineering analysis of:
 - What designs worked best,
 - How they were countered,
 - What strategies succeeded/failed,
 - What might fit with your tools/talents/skills,
 - What can you improve on,
 - What should you strive for?

Face it, even if you never expect to finish in the top eight, you'd at least better understand what other teams look for in a partner. Be the partner they want, do what they can't do, be easy to work with, be strong and accomodating in strategy, perform consistantly, be dependable, don't draw penalties.

Types of Scouting

- Internet scouting (*FIRST* team database, team websites, Chiefdelphi, Blue Alliance)
- Robot photos
- Match video (The Blue Alliance)
- Basic data
- Preliminary capabilities
- Team history of performance and reliability
- Pit scouting (roving packs of scouters)
- Talk to pit crews (drive teams too if you can)
- Take current robot photos
- Collect data on type of drive train, power (# of motors), wheel traction material, manipulators, complex or simple design, etc.
- Visually observe robots and pits. Does a robot seem to be under repair a lot? Do they have ready to go spare parts & assemblies?
- Collect robot information sheets describing robot capabilities, past performance, special characteristics Talk to other scouters (robot capabilities/record)
- Match scouting (sedentary group of scouters)
- Collect results, both subjective (defense success, speed, stability, drive team skill) and objective (points scored, mechanical reliability, penalties)

- What did they do in autonomous/hybrid. Will you interfere with one another as partners? Can they disrupt you or you them as opponents?
- Drive team impressions easy/hard to work with, cooperative/uncooperative
- What strategies defeat them?
- What strategies do they defeat?
- Remote event scouting (after the fact for robots you'll compete with at upcoming events)
- Standings
- Match Records

Scouting Process

- Decide what you want to know about each robot.
- Make simple pit & match scouting sheets.
- Watch, even visit, early regionals if possible to see what other data you missed
- Ask the coach/drive team/match strategist what they want to know each match.
- Train your scouters on Practice Day or match video from early regionals.
- Assign a scouter to every robot on the field for each match of the day (one or more people).
- Collect photos of every robot to prompt your memory later.
- As data comes available brief your drive team on partners & opponents for each match.
- Debrief drive team for impressions/details after each match.
- Review your data after the first day of Qualifiers.
 - Discuss pros & cons as a group with the photos to remind everyone.
 - Develop preliminary “best” lists that complement your robot & anticipated strategy. May be best offensive robots and best defensive robots.
- Watch the robots on your best lists during the last qualifying matches.
- Refine and finalize your lists. Don't forget to watch for late bloomers – robots that finally get it together after a rough beginning.
- Send your Team Captain to Alliance picks with your final lists, even if you aren't doing the picking. Compare lists for that all important third pick overlooked diamond.
- Joint Alliance briefing/strategizing on finals matches.

Some Issues to Consider

- Scout yourself as well as others to know where your real strengths and weaknesses lie
- How will you evaluate robot performance & reliability, drive team teamwork, and strategy
- Head Scouter must be well organized
- Scouts must be trained so every report is consistent in how performance is rated.
- Keep it simple
- Your scouting should match your people resources.

- Counts and multiple choice answers are easiest to sort and analyze team performance. Essay and freeform write in answers are only good as backup material.
- Paper records vs computerized
 - Paper never fails. It's easy to pull a team summary from and pass around, but is hard to sort and analyze all teams by different criteria
 - Computer requires resources and data entry can be time consuming. Data can be forever lost. Convenient power outlets can be hard to come by. Very useful for displaying current robot photos.
- Save team performance, reliability, cooperation data year-to-year to build up a history for future seasons