Team Strategy Report

The purpose of the Team Strategy Report is to codify your strategies for playing the game, and to get feedback from the instructor. Your report should be a clear and concise description of your approach to the problem specified by the contest: what your robot is going to do to win the game, and how it is going to interact with the game board and its opponent. Your strategies will have a direct influence on the design decisions you will make in building and programming your robot, but you should NOT specify how you are going to build your robot in this report. Your plan is not final or binding; you can, and should, change it as your work progresses. See the grading rubric for information on how the report will be graded.

Strategies

Your report must describe at least two strategies:

- Beat-the-Brick strategy. This should be your most basic, reliable, and low risk plan to score at least one point; it should *always* work. You will use this strategy for the qualifying round, when there is no opponent to worry about (the inert brick). You might also choose to use it for a game if you believe your opponent is not very capable of scoring, or of interfering with you, or is likely to malfunction and act like a brick.

- Game strategy. All successful robots implement multiple strategies to play the game against an opponent. These vary in approach (defensive, offensive), scoring possibilities, difficulty, and risk. Multiple strategies allow you to alter your robot's actions to suit your particular opponent's approach, and they make it difficult for your opponent to predict what your robot is going to do. A separate strategy can be just a modification of another one, e.g., adding a delay somewhere in the path, or going to a different goal. For each strategy: describe the general characteristic or approach (moderately aggressive, high scoring, defensive, etc.); the details of the strategy (a diagram of the robot's path is often useful); and when or why you might use the strategy.

Factors to Consider

As you consider strategy options, try to think like your opponent. What strategies are other teams likely to adopt? Devise a plan to beat them. How would you beat your own strategy? Assigning a team member, friend, or labbie to play opponent or spoiler is often useful. Use that input to make suitable strategy modifications or to add options, perhaps as new strategies. Include this reasoning in your description of your strategy.

Strategies that modify actions depending on conditions during the game can be particularly effective, although more difficult to implement. For example, if time is running out and you still haven't scored, you might want to enter Panic mode. Or if you trigger the ball dispenser but no balls come out (maybe your opponent has been there first), it probably doesn't pay to just wait there; go to the other dispenser, or give up on scoring and try to prevent your opponent from scoring. Finally, try to think about things that could go wrong, how to recognize them, and how to recover. If you plan on following the line, but you loose it, or something is in the way, have a Recovery or back-up routine that might get you back on track to score, or at least to confuse your opponent. A Panic or Recovery plan is not a complete strategy but may be a feature of several strategies; describe it as a strategy option and detail what will trigger it.

Team Strategy Report Grading Rubric

Aspect	+ Excellent (4)	✓ Acceptable (3)	− Deficient (1)
General	Clear, complete heading. Organized, concise, easy to read. Clear, concise descriptions of strategies with good diagrams. No grammar errors or misspellings. Contains no irrelevant material.	Complete heading information. Organized, reasonably concise. Clear strategy descriptions, with some diagrams as needed. Minimal usage & spelling errors. Very little extraneous material.	Incomplete heading information. Poor organization, difficult to follow, long and/or rambling. Strategy descriptions unclear, missing or poor diagrams. Many usage &/or spelling errors. Includes construction details and unnecessary material.
BTB Strategy	Excellent strategy, low risk.	Reasonable strategy, very likely to be successful.	Strategy contains unnecessary risks or complexity.
Game Strategies	Wide variety of strategies, some with unique or clever aspects. Includes each strategy's purpose, when to use, and evaluates risk-reward tradeoff.	Multiple strategies with good variety. Gives purpose of each strategy, & when to use.	Only one strategy, or little or no variety in strategies. Little analysis or justification of strategies.
Depth of Thinking	Unique or clever application of game rules. Considers opponent strategies & possible responses. Proposes adaptive actions based on specific game conditions. Recognizes weaknesses of own strategies and proposes changes.	Adheres to game rules. Some consideration of opponent's actions. Considers some adaptive actions. Considers strategy's vulnerabilities.	Strategy violates game rules. Little thought to opponent's probable actions or strategies. No mention of responding to game conditions in real time. No consideration of possible weaknesses.