

Beavertronics 5970 presents **Strategic Analysis**





What will be covered

What does strategy mean?

Understanding the Game on Kickoff

- ◇ Read rules
- ◇ Key notes while reading
- ◇ Act out the game

Analyzing the Game

- ◇ Chokehold
- ◇ Cost-Benefit Analysis

Products of the Day

- ◇ Desired functions & qualities of the robot
- ◇ Strategy poster
- ◇ NWL Chart



1

What does strategy mean?

Isn't that just a fancy word for big brain?



an organized way of
creating realistic,
tangible goals

not designing the robot



2

Understanding the Game

What the heck is going on??





Read the Rules

- ◇ After members return from U of P...
 - Read!! Yes, ALL of the pages.

- ◇ Split into groups, one veteran per group
 - Highlighters
 - Veteran explains repeat rules





Key Notes while Reading

List every possible way to...

- ◇ Score
- ◇ Prevent scoring
- ◇ Get penalties

Then we'll come together as a team, making sure we haven't missed anything.

ALSO we will review ranking system & how that works

AS WELL AS type of scoring (linear v nonlinear → 2018 v 2017)





Act Out the Game

Why?

- ◇ Make key observations
- ◇ Understand the game better
- ◇ Make note of them on large whiteboard as team

How?

- ◇ Rolly chairs (can we get them from MD?)
- ◇ Mobility hindrances → realistic goals
- ◇ Refs & emcees



3

Analyzing the Game

What do we do with what we now know?





Chokehold Strategies

- ◇ When executed, guarantees win (loophole)

$(\sum \text{points you can score})$

>

$(\sum \text{opponent's possible points} - \sum \text{prevented points})$





Cost-Benefit Analysis

- ◇ Look quantitatively at each possible robot function
 - Point value
 - Difficulty (time in match and build season)
- ◇ Look for relatively easy tasks with big points
 - Often endgame
- ◇ Denying your opponent 10 points is just as good as scoring 10 points
 - Just keep in mind penalties



4

Products of the Day

What will this actually look like?





Desired Functions & Qualities

- ◇ Desired Functions
 - What ACTION will the robot perform
 - NOT how (we are NOT designing anything)
- ◇ Identify tradeoffs
 - E.g. speed vs power, durability vs low weight
- ◇ Desired Qualities
 - What in GENERAL will the robot look like?
 - What qualities should we be shooting for with each desired function?





Strategy Poster

- ◇ Way to involve the marketing team
 - Need to understand the robot, too! Judges and more!
 - Summarize our strategy process
 - Pictures of acting out the game ??
 - Summarize our desired functions & qualities





Needs, Wants, Luxuries

- ◇ Fishbowl leadership discussion
 - What is NWL?
 - Main object: create realistic goals in the wants column
 - Members can still ask questions and participate
- ◇ Identify resources
 - Past similar games
 - Past robots
 - Key guides to read
 - Ri3D

