Robot requirements:

1. Shall have a fixed intake to line up with the station.
2. Shall accept coral in any orientation from the station
3. Shall place coral on all levels without rotating the robot.
4. Shall score coral on L1 in Autonomous
5. Shall score algae in processor

Constraints:

1. 42 in starting height
2. 37 in station receiving height
3. 18 in extension out from robot.
4. One of each item at a time
5. L1 17 in from ground
6. L2 32 in from ground
7. L3 46 in from ground
8. L4 72 in from ground

Features needed to compete in priority order

1. High speed of getting and scoring coral
   1. Rationale: More coral than algae and coral scores more
2. Score coral on all levels with L1,L2,L3 the highest priority
   1. Rationale: Coral on L1 needed in auto for consistent ranking point.
   2. Coral on L4 will be important when you get to states or worlds
3. Remove algae from reef and ground
   1. Rationale: Someone must do algae. Getting algae from reef is required to score most coral. This supports the highest priority item.
4. Score algae in processor
   1. Worth 6 points and coopertition which lowers the coral needed for ranking point.
5. Autonomous score algae and another coral
6. Score on deep cage or keep scoring algae.
   1. Rationale: States and worlds will need deep cage to get ranking points. But ranking points will always be done at worlds so in playoffs 2 algae is worth a deep cage. If algae are left on the field.

Game play or robot types to deal with in Quals, States and Worlds

1. Coral only bot that can remove algae
2. Algae only bots that also play defense
3. Coral L1 bots. Or flat tops

Concept 1:

1. Boat style robot with 3 wheel swerve.
2. Pickup coral from the station with large, stationary intake that is active and can get coral in any orientation.
   1. Rationale: This the fastest you can get coral from the station. Line up is easy with a large intake. You may need to go to the other side of the field where a human player will deliver it in a different orientation.
   2. A stationary intake means the intake never has to move.
3. Place coral on L1 and L2 without lifting it.
   1. Rationale: L1 is needed for Auto. No movement of a lift should guarantee a quick score on L1 and L2. The robot will need to extend outside of the bounds and maybe a simple small arm will work.
4. Transfer the coral from flat side to point side so robot does not have to turn around.