Strategy Report

The strategy we implemented is basically to have an archon make its way to a corner then send out gardeners to move away from it and either actively produce combat units or to form a hexagonal cluster of trees and slowly donate bullets for victory points. For combat, all attacking units, especially scouts, maintain several channels for targets especially the enemy archon; soldiers and tanks will then pursue these targets. Lumberjacks will move around the field chopping down terrain.

Archons serve as a central hub that produces gardeners and where all the allied robots move away from. They also maintain communication channels to keep track of the number of robot building gardeners and maintain a limit.

Gardeners can be either active robot builders or inactive tree planters. Active robot builders move around and try to either find a settling spot where it can plant several trees around itself or build attacking robots. Using a channel maintained by the archon, they also keep track of which gardener is farthest away from the archon by broadcasting, reading and clearing two channels in a three-turn cycle. The farthest gardener is designated as a tank builder to try and build tanks as close to the enemy as possible to compensate for low movement speed.

Soldiers and tanks run roughly the same code, where they either try to sense enemies and shoot at the enemies or, if no enemies can be sensed, read the channels for an enemy location and try to approach that location. For attacking, they will fire pentad or triad shots if they can sense multiple enemies, and only single shots if there is only one enemy within sensing range.

Scouts primarily fly around the field looking for the enemy archon as well as locating other enemy robots. When there are large numbers of trees, they also serve as an attacking force by swarming the enemy archon, which often also prevents it from hiring gardeners. Once low on hp, they will continue to shoot but try to hide in enemy trees to try to make the enemy shoot their own trees.

Lumberjacks are used primarily for chopping terrain and will look, move towards and chop the nearest non-ally tree or a tree specified in the communication channels if none are within sensing range.

For movement, we implemented code which is meant to make the robots move towards a certain direction, but also allow it to curve around obstacles without turning back.

For attack, we scan for nearby allies and have code to minimize friendly fire by not shooting whenever there is an ally that can be hit by a bullet between the robot and the target.

For communications, each archon operates independently of the others, e.g. archon 1 and all robots created from archon 1 and its gardeners only use channels that are 1 mod. 3.