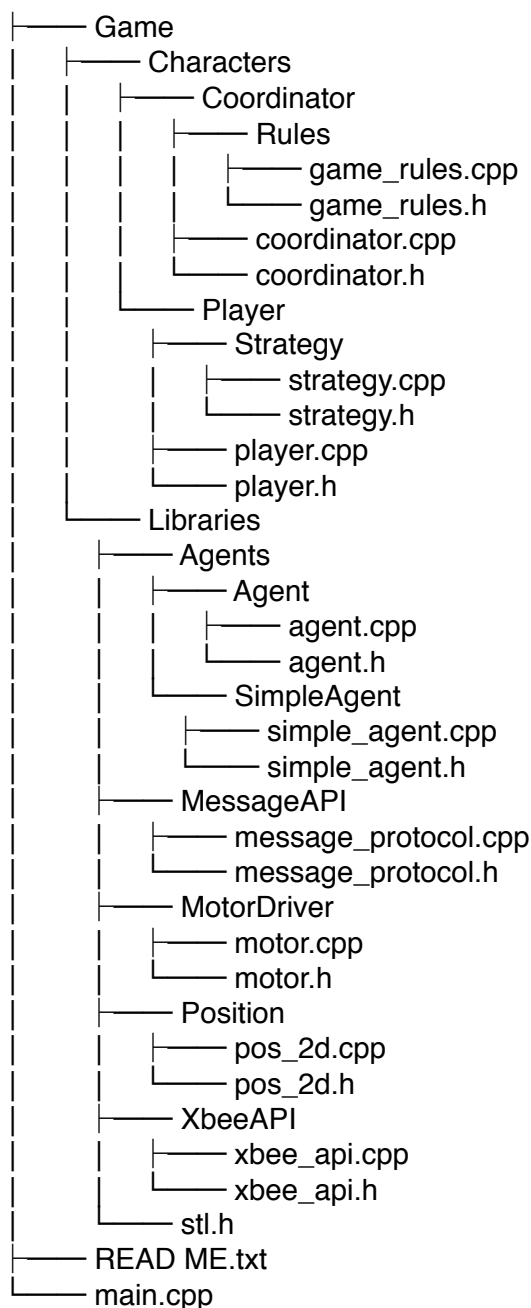


Project Title: Robot Kabaddi Game

Description:

It is important to have robots that need to simultaneously handle cooperation and completion in games. In particular, the robot player has to implicitly cooperate and coordinate within the team, while competing with other team players. In this project, we consider robots playing Kabaddi, a popular and an intense game played in Indian sub-continent. The game is played on the principle capture the raider, while not getting caught by the raider. Kabaddi can provide an environment and a framework for Multi-Robot Systems and MAS researchers to evaluate their cooperation and competition strategies.

Code Architecture:



Project File Descriptions:

1. main.cpp : Main file from which either a coordinator or a player role for the game can be invoked.
2. pos_2d.cpp : This file contains the data structure to store a 2 dimensional point (X and Y coordinate). Also supported with additional functionality to get distance between two points.
3. xbee_api.cpp : Contains an interface for XBee wireless network module which transmits and receives data. Provides data extracting from a Xbee data packet and transmission acknowledgement support.
- 4 simple_agent.cpp : Data structure to hold the agent properties like position, Network address (64bit, 16bit).
5. agent.cpp: : An optimised version of simple agent in terms of memory management.
6. motor.cpp : Driver to communicate with motor components of the robot. Provides Functionality for move commands like (forward, backward, rotate)
7. message_protocol.cpp : A custom messaging protocol designed for robots to communicate with coordinator and vice-versa.
8. coordinator.cpp : Provides functionality to discover, configure other game players. Established a mode of communication implicitly between game players.
9. player.cpp : Brain of a game agent. Communicates with coordinator, makes decisions, controls the robot.
10. strategy.cpp : Contains various strategies for Kabaddi games using heuristics and concept of formations among agents.