**Server**

Communication

* Receive initial player co-ordinates from teams
* Receive player movement updates from teams – not positions, only speed and direction
* Receive ‘kick’ information from the teams
* Send ball position, direction, speed
* Send teams players’ positions
* Send goal scored control packet
* Send foul information

Processing

* Start – Store initial position of players.
* Ball – Random generation of initial position of the ball (within 50px radius from center).
* Ball – Limit speed of motion of ball.
* Ball – Determine perimeter of movement of ball (including deflection).
* Ball – Determine direction of motion of ball.
* Ball – Determine speed of motion of ball post-kick, accounting for fiction.
* Ball – Determine retardation of speed of ball along the ground.
* Players – Limit speed of motion of ball.
* Players – Determine perimeter of movement of players (including deflection).
* Players and Ball – Determine overlap of ball and players.
* Players and Ball – In each of the above cases, account for conservation of momentum.
* Scoring – Number of goals/fouls.
* Timer – Countdown 3 seconds at the start of the game.
* Timer – Maximum of 5 minutes per game.
* Timer – Wait for 2 seconds following detection of goal.
* Initial Post-Match – Initiate 3 minutes extra time if it’s a goal draw.
* Final Post-Match – Declare team with greatest goals or least fouls as winner.
* Referee – Monitor red zone limitations. Stop the game if there’s a foul.
* Referee – Monitor occurrence of a goal. Update score area.
* Goal Restart – Have a restart function. Determine position of ball based on who scored the goal.
* Foul Restart – Make players go to the foul half of the field. Make sure players send appropriate side position. Other requirements such as proximity of one player from the opposing team near the ball.
* Possession of ball (? Who came first etc).

Display

* Starting screen – team 1 ready
* Field (goal posts, colouring and line)
* Ball
* Players (Colors)
* Score Area (Goals and fouls) – 80px
* Countdown display
* Foul display

External/Interrupt

* Start Match - Push Button (North U4) to trigger.
* On-Spot Refereeing – 2 push buttons