COP 701 - Assignment3
Football

16 October 2015

You are required to implement 2D Football Game (more or less variation of street soccer) on C++ using opengl library. See this. Remember, this game is highly customizable by your own innovative thinking and a majority of marks will be dedicated towards it. It will have three phases

- Phase 1 - Attacking actions : Shoot, pass, movement and modelling players. **Deadline 25 October 11:55PM**
- Phase 2 - Defending actions, Dynamics and multiplayer mode(networking). **Deadline 5 November 11:55PM**
- Phase 3 - Bot Mode. **Deadline 10 November 11:55PM**

1 Introduction

Each team would consist of three players - One goal keeper and two attacking players. Goal keeper would be on bot mode consistently and only attacking players could be controlled by user. Single half should be played for no less than 3 minutes. At end of the game team with more goals win.

2 Actions

- Shoot - Each player can shoot the ball and power of the shot will depend on type of player and duration for which shoot key is pressed. If the key is pressed for longer time shot would be powerful.
- Pass - Pass would need a single tap of key. Power of pass should be significantly lesser than power of shoot.
- Movement - Attacking players can move anywhere on the field but goal keeper would just move near goal line.
- Deflection - If player from opposite team comes in way of the shot then ball should be deflected in appropriate direction.
- Interception - If player from opposite team comes in way of pass then ball would now be controlled by that player.

- Goal Saves - Incoming shot from opposite team will be saved by goalkeeper if it comes in contact with the ball. On hitting goalkeeper, ball will not get deflected and would be controlled by it.

3 Player Attributes

- Agility - Determines movement speed of player.
- Strength - Determines shot speed of player.

If the player is more agile than its strength should be less and vice versa. Each team should have one player with more agility and one player with more strength.

4 Dynamics

- On hitting the sidelines of the field ball should be reflected back towards pitch(Use Law of reflection).
- Direction of shot and movement of players should be controlled by arrow keys.
- Pass should go in direction of other team player, without manually setting direction using arrow keys.
- Deflection of ball should be modelled on two dimensional collision. Check this. Only the ball should be deviated from its path and not the player.
- The energy of the ball should reduce with time after a shot/pass.

5 Multiplayer Mode and Bot Mode

Both goal keepers would be on bot mode consistently. Each of the attacking players could be user-controlled or a bot. For multiplayer mode you can use a central server or any other networking mechanism you like. For networking capabilities, in start there will be one minute duration where other players may join the game. On initiation of game all users should pick their players which they wish to control. Unpicked players will run in bot mode.

6 Bonus - Subject to fulfillment of all basic requirements

- Penalty Shootout - At the end of game if both teams score equal number of goals then game could be decided based on penalty shootout.
- Player Switch - If one player in team is user controlled and other is bot then on passing the ball user control should shift to other player(running on bot mode earlier) and first player should switch to bot mode.

- Weather Conditions - Based on weather conditions dynamics of game play could change. For example under rainfall movement speed of player reduces or in windy conditions ball speed gets affected.

You can implement as many ideas as you want!!