easycardgame.com/fs

Football Simulator

is a complete Unity project. It is playable, supports gamepad, touch and mouse-keyboard. In this documentation, we will see the details of the project to see how it works to be able to modify as much as we can.

Table of Contents

AI

Footballers AI works with a simple behaviour trees. There are 32 behaviours defined in total.
Each position (GK, CB, RB, LB, DMF, CM, LMF, RMF, LW, RW,AMF, ST) has their own tree structure.
To check their trees, you can locate Assets/Code/MatchEngine/Players/Positions
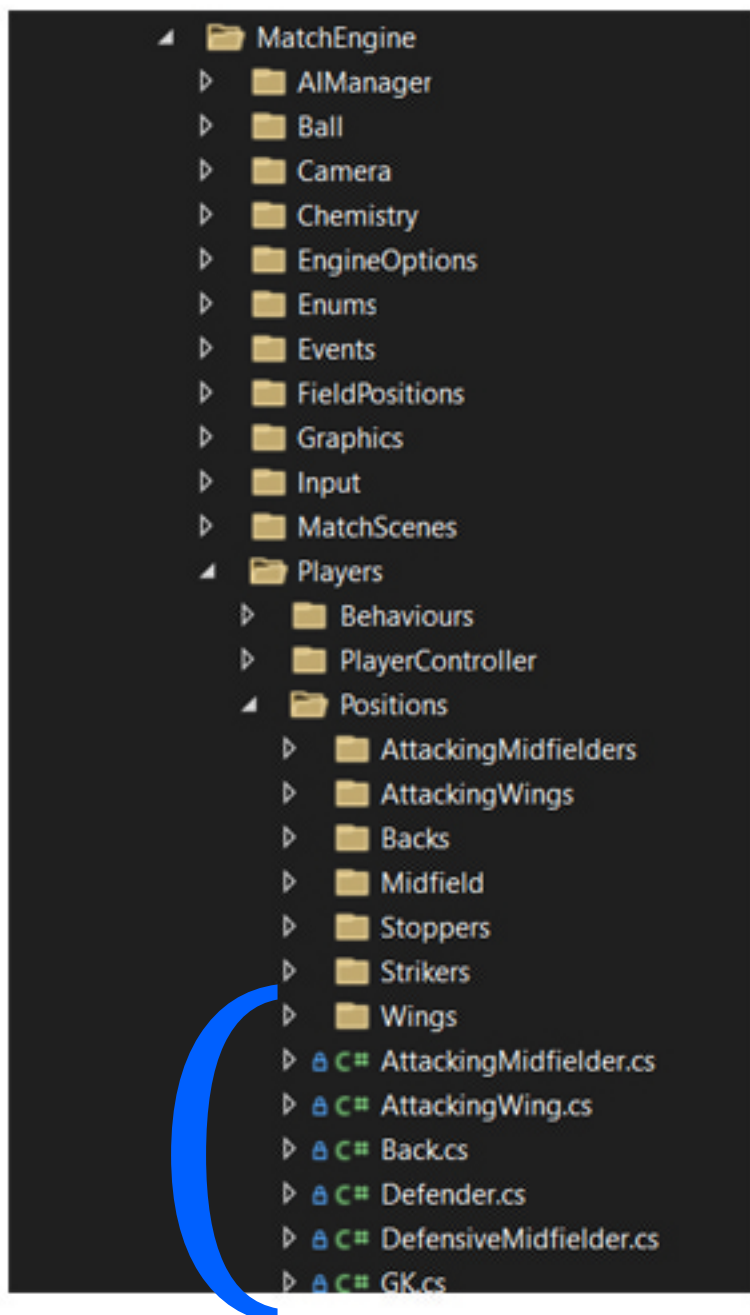
AI

Behaviour tree works from top to bottom.
In this case (Attacking Wing) , he will try to dribble with ball,
he will pass if there is an option front of us,
otherwise consider shooting, shooting has rolling chance
inside its behaviour, so it won't shoot right away. It will consider
shooting distance, angle and player skill.

```csharp
2 references
protected override IEnumerable<BaseBehaviour> PrivateBehaviours => new
    // Try to run straight (carefully)
    new RunForwardWithBallBehaviour(0.5f,
        RunForwardWithBallBehaviour.BewareMod.Careful,
        RunForwardWithBallBehaviour.ForwardCurve.MostlyStraight),

    // Try to run to if we are safe.
    new RunForwardWithBallBehaviour(1,
        RunForwardWithBallBehaviour.BewareMod.Careful,
        RunForwardWithBallBehaviour.ForwardCurve.EarlyToGoal),

    new PassingBehaviour (0f, true, 5), // Try to pass to front of us

    // try to shoot.
    new ShootingBehaviour (),

    new PassingBehaviour (0.8f, true), // Try to pass, only if target

    new CrossingBehaviour (),

    // Try to run to goal (carefully)
    new RunForwardWithBallBehaviour(1f,
        RunForwardWithBallBehaviour.BewareMod.Normal,
        RunForwardWithBallBehaviour.ForwardCurve.EarlyToGoal),

    // Pass anywhere.
    new PassingBehaviour (1),

    // Try to run like a wing man (normal)
    new RunForwardWithBallBehaviour(1,
        RunForwardWithBallBehaviour.BewareMod.Risky,
        RunForwardWithBallBehaviour.ForwardCurve.Wingman),

    // try to shoot wit a high roller
    new ShootingBehaviour (0, 2),
```
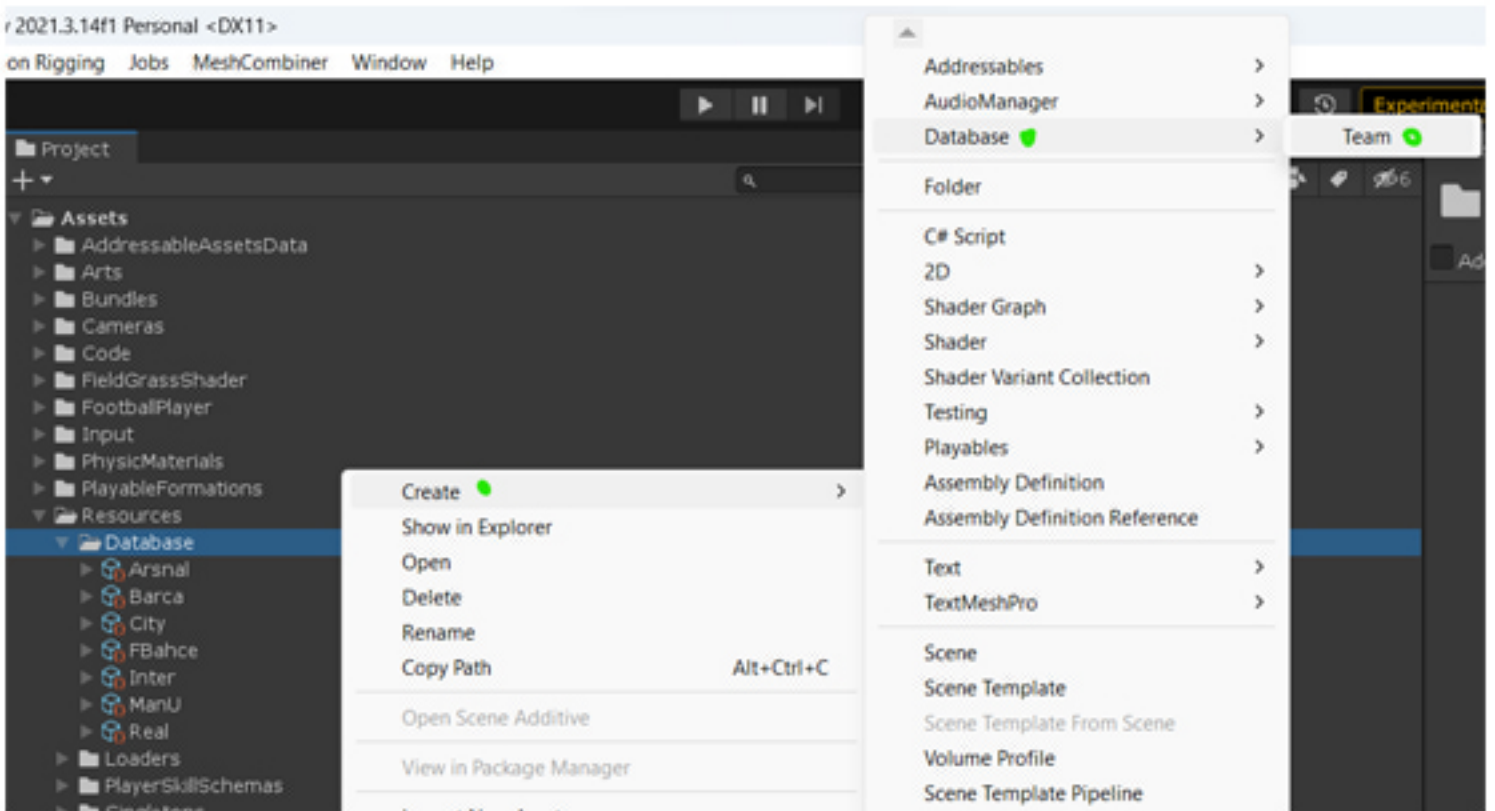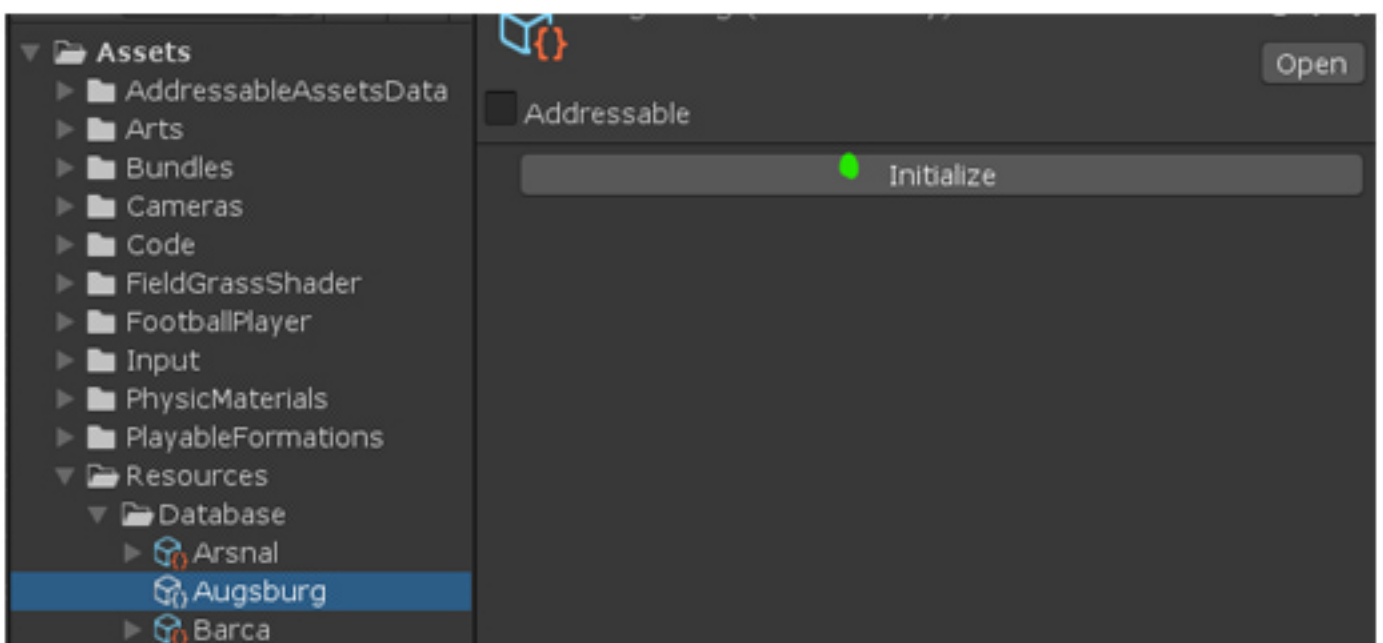
Database (Teams and Players)

Teams located in Resources/Database. They are nested scriptable objects so you will see the players, logo and kits inside of the teams.
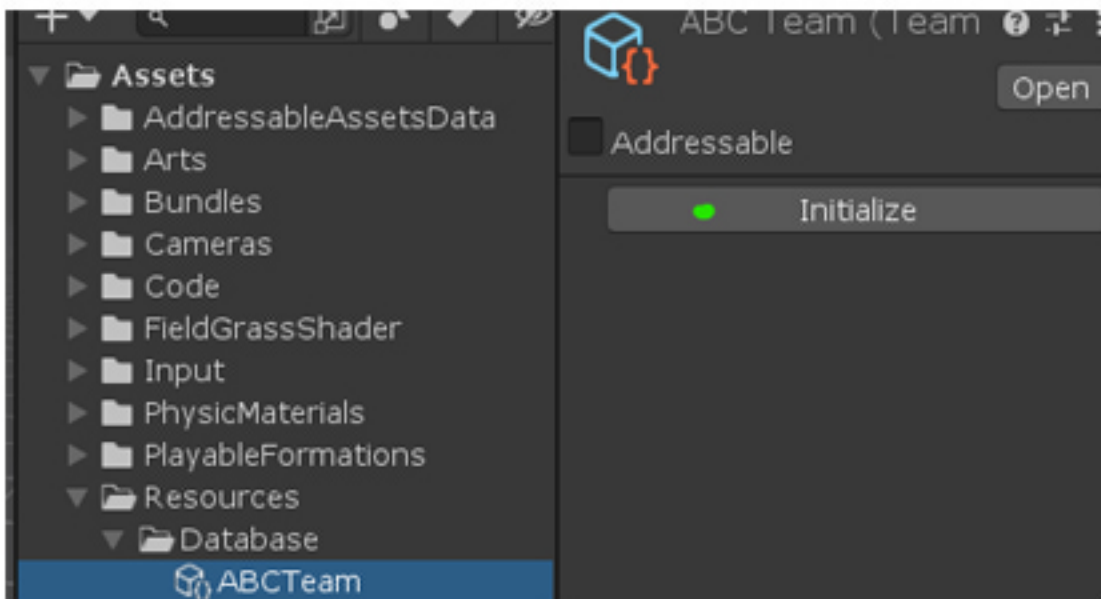
To create a new team, locate Resources/Database and right click

It will create an uninitialized team means, there are no players kits and logos inside. To initialize it click "Initialize" button.

Your team is now ready to initialize. Select the the asset you have created and click 'Initialize'.

Now you can modify your team logo, kits and players. The order of the players are not important for the formation, you can switch them by pressing the positioning button on formation (etc. ST_L).

Now you should be able to see your new team on team selection at main menu.

Loading Match Engine

The match engine is loaded by UpcomingMatchPanel.cs currently. If you want to load the match engine from somewhere else you can use this function.

```
1 reference
public async Task StartMatchEngine (
    UpcomingMatchEvent matchEvent,
    bool homeKit,
    bool awayKit) {
```

When this function is triggered, it will unload the menu and load the match engine.
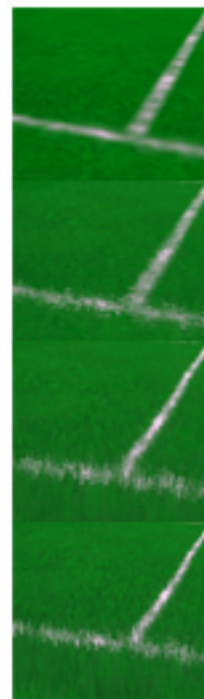
Grass Shader

Grass shader uses geometry shader technique to draw grass layers to create a photorealistic field grass.
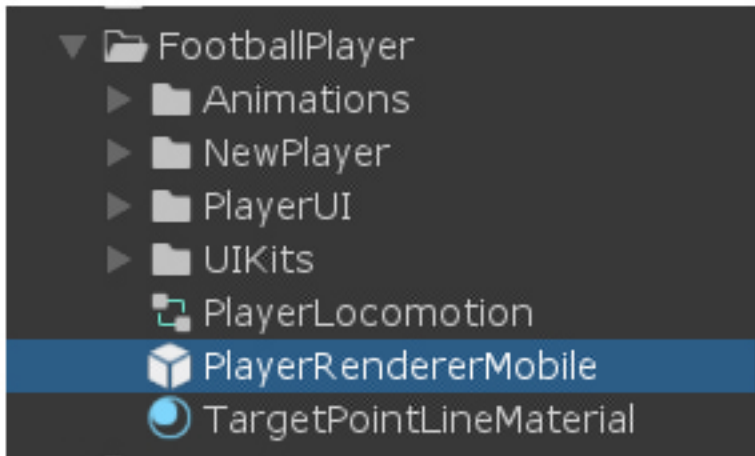

Layer count will cost more performance on grass shader. So the layer count will be changed by selected quality accordingly.

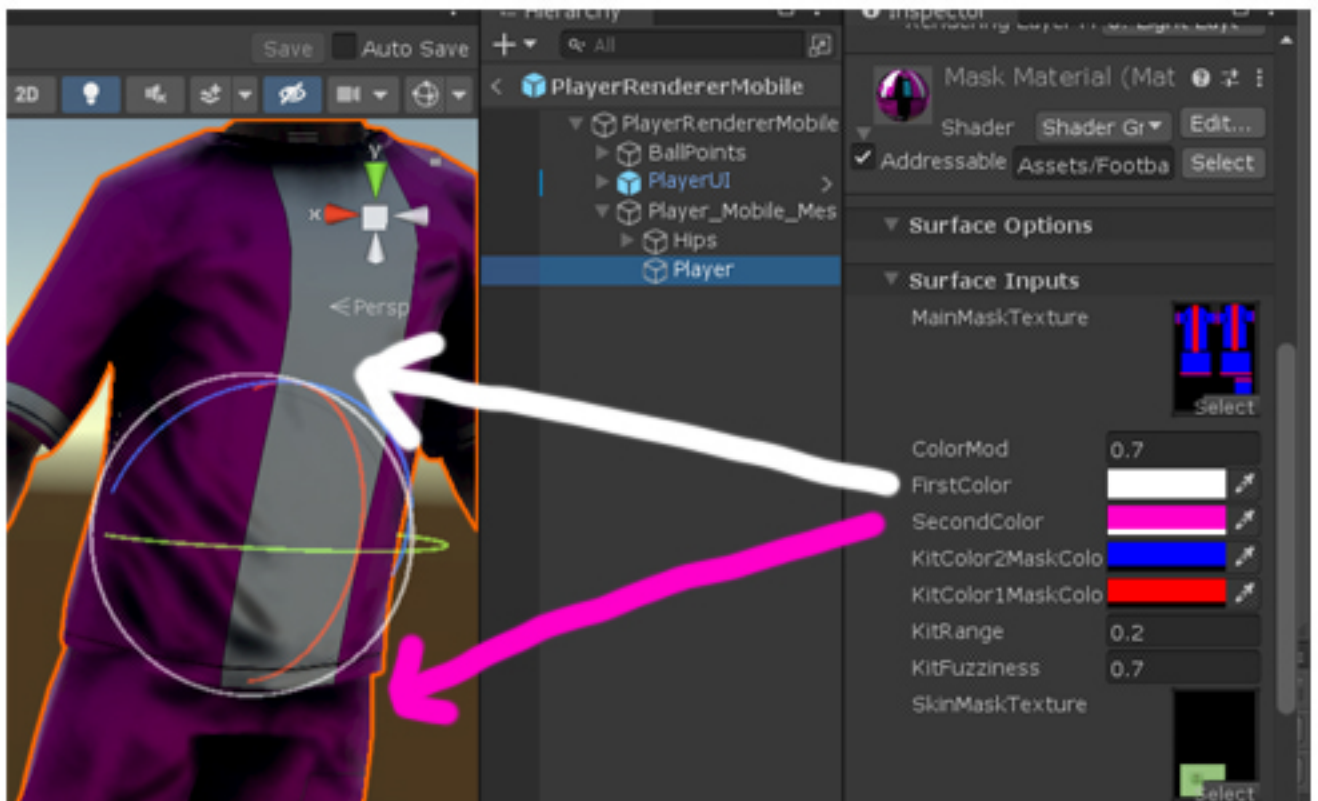| Quality	Layer Count
Low	2
Normal	6
Good	10
Console	14

Football Player

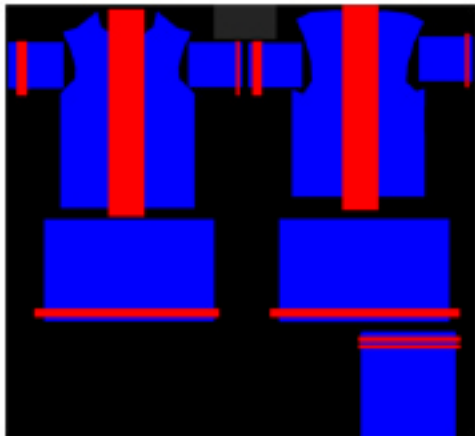Football player prefab uses a custom shader that uses different textures & shader for a complex purpose.

This is the prefab.

You can find the current kit maks in:
FootballPlayer/PlayerModel/KitSchemas/
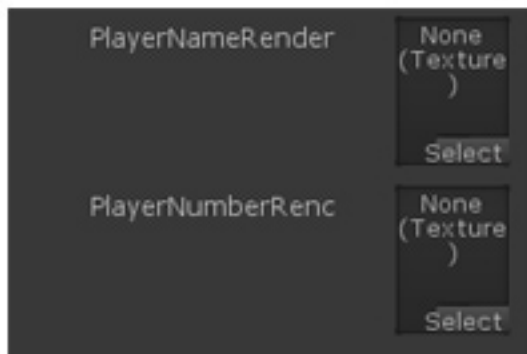Player Shader uses masking to colorize the shirt.

You can create your own kits by following that pattern.

Kit Pattern

Kit name and numbers will be generated by TextCreator and will assign on player mask materials on realtime.
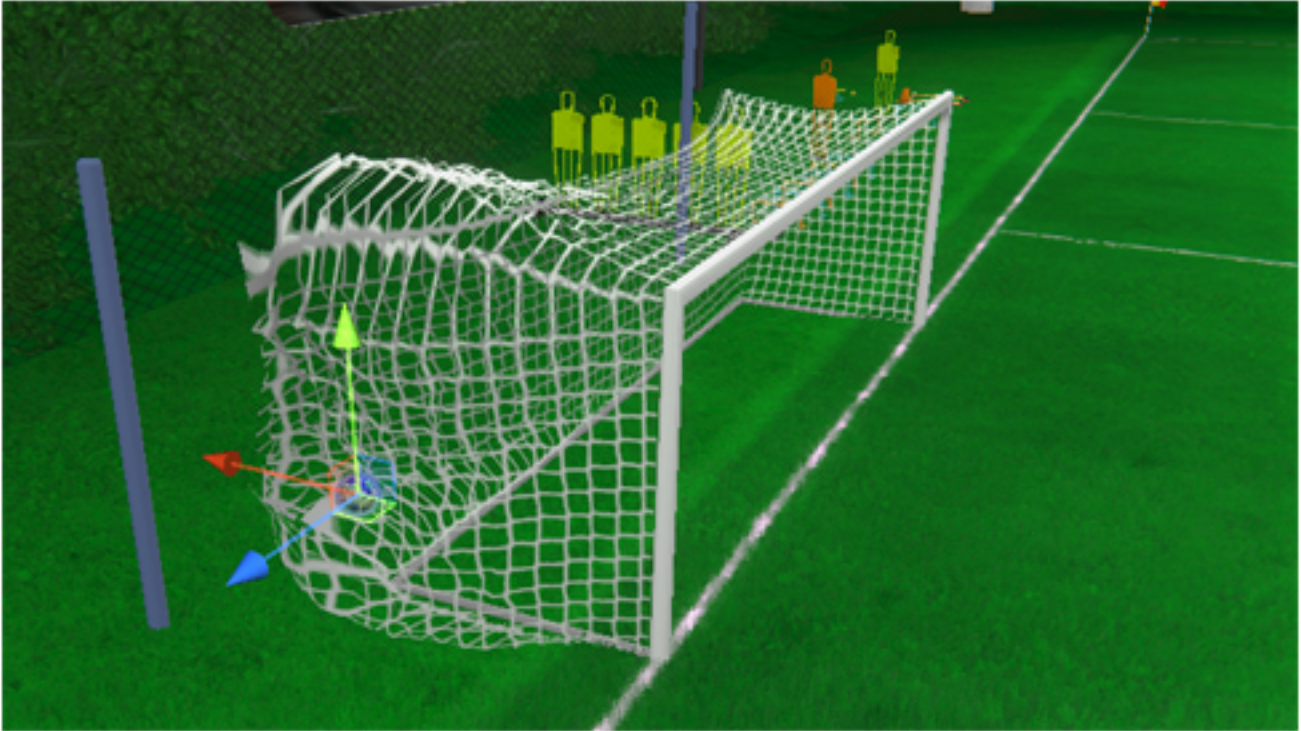

Will be assigned on realtime

Goalnet shader and environment assets

Goalnet shader uses world position of the ball to manipulate vertex positions & UV tiling to achieve a cheap & average goal effect.

All of the enviroment models in the stadium made by us, and it's free to use in commercial game projects.