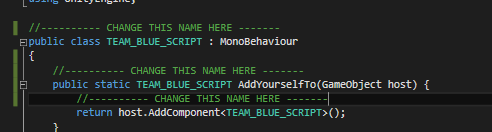
**Mechmania 2017 Basics**

Welcome to Mechamania 2017! This file will serve as basic instructions for which functions and files you should focus on.

First, the location where you will write your AI script is inside:

$YOURPATH$/Mechmania17/Assets/StreamingAssets

There you will find a blue and red script. You need only modify one of them, but make sure you change the names here: 

Everything that you write will be inside the Update function, which is called every frame of the engine and will control most of your AI. You can add more personal functions and variables in this file. Look at the given TEAM\_RED\_SCRIPT for an example of basic AI.

Next, the file you’ll spend most of your team going through is **CharacterScript.cs**

This file contains all of our given AI functionality such as moving, turning your character, setting its loadout, it’s firing priority and so on. All the functions in it are commented and explained, and we will be available throughout the event to answer any question.

Do note that not all of those functions are optimized or very clever, and for some of them you are encouraged to write your own implementations when possible (hint findcover hint).

**WARNING:** Those of you who are familiar with Unity, or who spend a little time, will soon figure out that there are ways to get information that you normally can’t access, such as enemy position. We are aware that there is some basic Unity functionality we could not properly hide from you, so we ask you to please not use it. Only use the functions we gave you and the information that is intended to be public (such as positions in the map in general, the positions of walls and your own characters). IF YOU USE THINGS THAT ARE NOT INTEDED YOU WILL BE DISQUALIFIED. IF YOU’RE NOT SURE, ASK.

General Info

In this year’s Mechmania, you will control a team of 3 soldiers competing for control over 3 objectives in the map. The objective’s locations are known and permanent. You goal is to reach 500 points in under 5 minutes. There are 3 ways to gain points:

Objective control – When one of your soldiers is standing on top of an objective (with no enemies on it), it will begin a short timer after which your team will gain control over the objective. Objectives give 1 point every second, and are yours until taken by the enemy team (you don’t have to keep standing on them).

Killing enemy soldiers – Killing an enemy soldier will net you 5 points per kill. Note that there are respawns, so the enemies will keep coming.

Score Item pickup – Throughout the game items will spawn in the map that are worth 10 points if one of your soldiers grabs them.

What Happens Every Frame

In every frame of the game the CharacterScript’s update loop will do the following things:

1. Check if you’re on your base/on objective.
2. Check check if the character is alive or respawning.
3. If alive, will create a cone of vision to check for enemies.
4. Fire at visible enemies given the priority fire of your choice.

So you don’t have to worry about firing as soon as possible, you already will. You just need to worry about who to fire, and how to position.

Your AI script will run alongside these events.

A Little Info About Your Soldiers

Your 3 tiny soldier friends have several properties. They each have 100 health points, and can have one of three loadouts:

Long Range – Long range loadout has the longest range of all three, but does the least amount of damage and has the narrowest cone of vision.

Medium Range - Medium Range gives you good balance of range, cone of vision and damage.

Short Range – Short Range has the shortest range of the three, but the widest cone of vision and highest damage.

Useful Things in CharacterScript

CharacterScript is a large file with a lot of functions. In general focus on the ones who are public, as those are the ones you will use. Important functions to note:

MoveChar- This is the function you call to move your characters to any position on the board that is accessible.

SetFacing- Your characters have a limited cone of vision. In order to rotate it towards a certain direction, use this function.

RotateAngle – Rotates your character’s vision by a certain angle (in degrees).

SetLock – Locks your character in a certain facing so that it stops turning.

FaceClosestWaypoint – Next to each wall are two “waypoints”, arbitrary points in space that are useful to face in order to not stare at walls. This function simply makes your character face the closest one

FaceClosestItem/Objective – Similar to waypoints, this function simply returns the location of the closest item or objective to the character. FaceClosestItem returns the instance of the item (so you can check which type it is).

setLoadout – Sets your character’s loadout. Can only be done when the character is in it’s spawning zone.