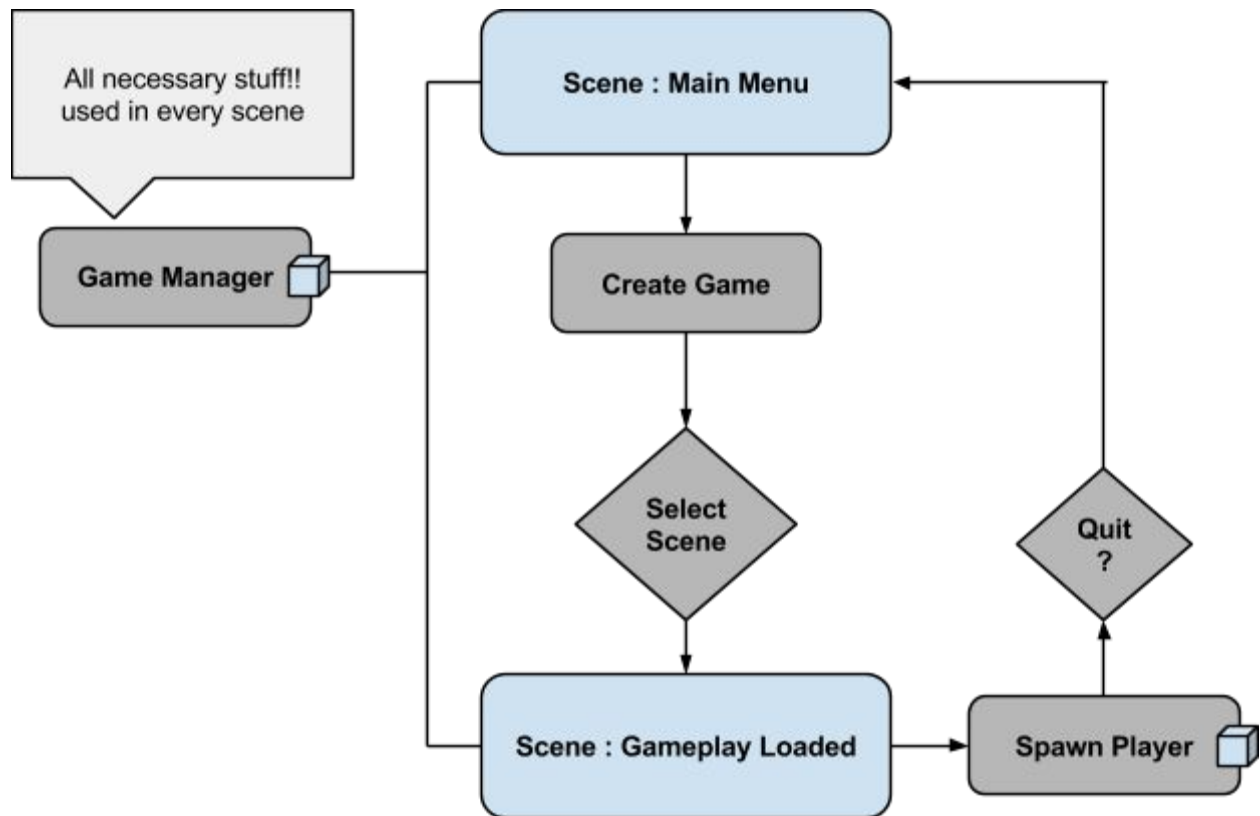


UNIT 2

FPS SANDBOX STARTER KIT

The FPS Multiplayer Sandbox Starter Kit. this kit will help you to create the open world multiplayer easily. this pack also come with several shooting gameplay such as Team / Death match , Co-op Survival Horror , Zombie Swarm , You can create your world, custom your rule and enjoy with your friends.



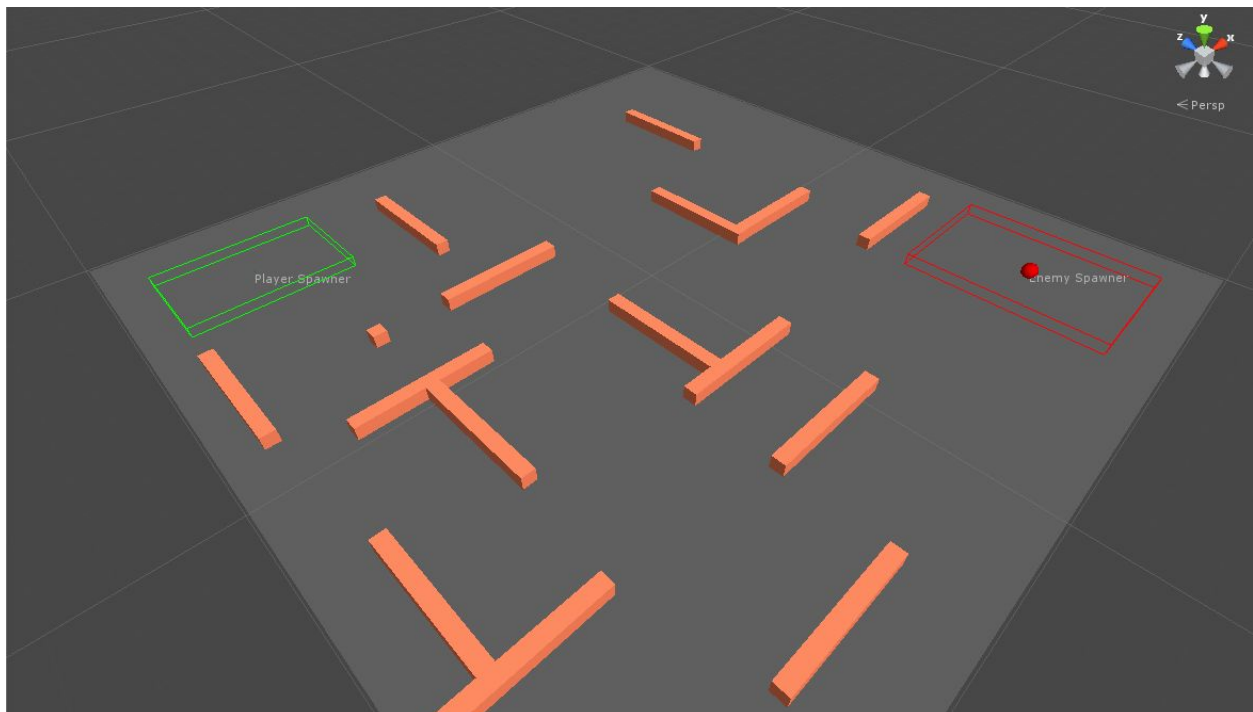


System Flowchart

Game Manager is the most importance object in the main system. there's contain with all necessary components that using in the game. such as Item Manager , Score Manager , Game System , Network , etc.. Game Manager is DontDestroy object.

How to setup new level

1. New Scene
2. You can use simple **Plane** as ground for a sample
3. Add some level detail. in this sample i add **Cube** as obstacles
4. Define Player Spawner by add **PlayerSpawner** from [Assets\UnitZ\Game\Sample](#) adjust some area size. the player can spawn in this area.
5. Define Enemy Spawner by add **ZombieSpawner** from [Assets\UnitZ\Game\Sample](#) adjust area size and parameters the enemy can spawn in this area

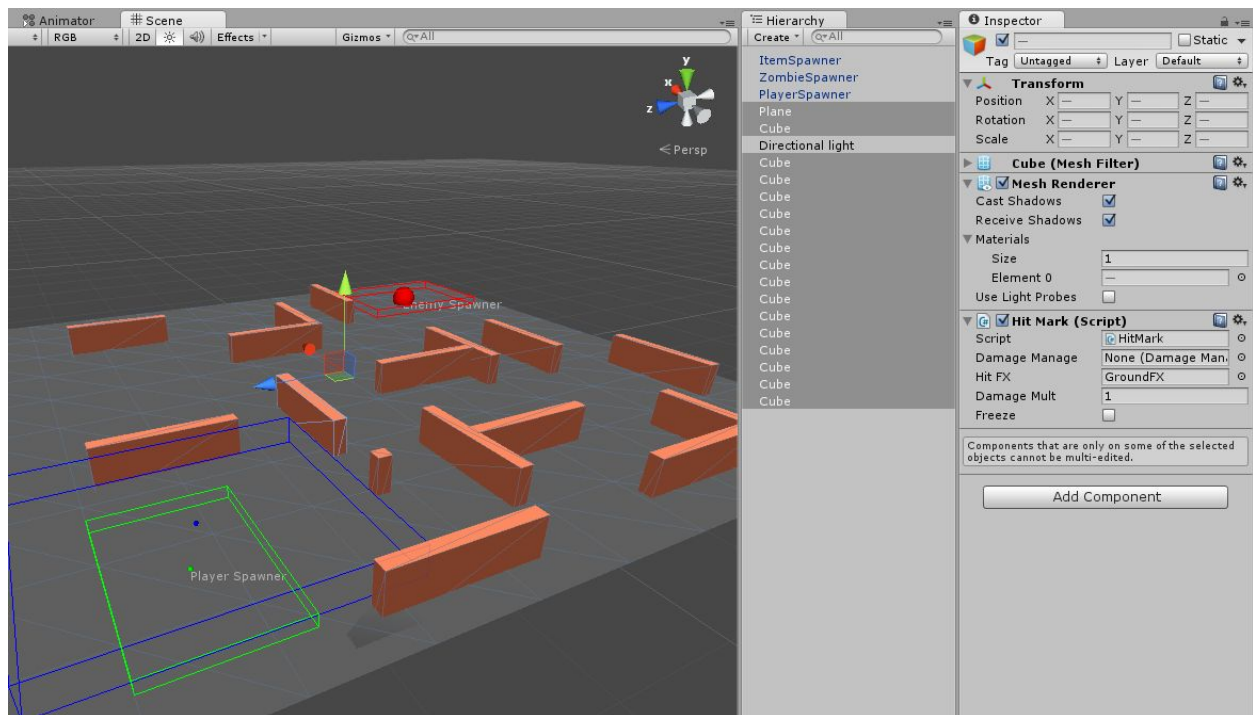


6. Save scene named **“sample”**
7. Add to build list [File > Build Setting > Click Add Current button.](#)
8. Open **mainmenu** scene add **“sample”** to **Leve presets** Element in **SceneManager** component under **GameManager** game object
9. Player Test

Ok we need some items spawn in this scene and particle effects too.

10. Add **ItemSpawner** from **Assets\UnitZ\Game\Sample** adjust area size and parameters, item will spawn in this area
11. Add some effect when bullet hit the wall and ground by select all obstacles and ground.
12. Add **Hit Mark** component on those objects.
13. Add **GroundFX** prefab to **Hit FX** parameter and don't forget to active **Freeze** parameter and **Tagged** to "**Scene**"

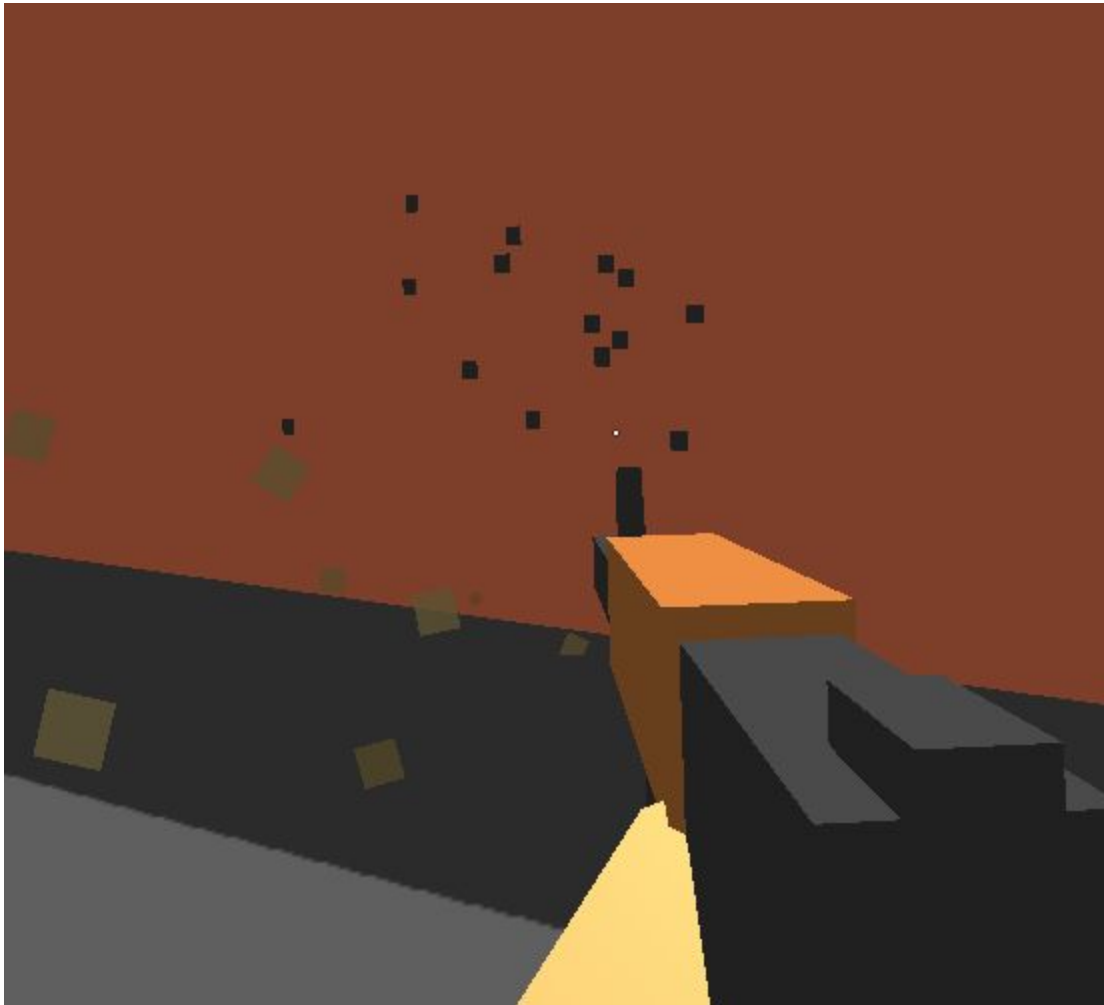
Note : Freeze paraber: make the object static, ignored all force from bullets



You can add more Items to spawn by open **Assets/UnitZ/Prefabs/Items** and select any prefabs with **ItemData** component attached, you can found it by named **_Drop** in after. and add it to **Item** parameter in **ItemSpawner**

So open **mainmenu** scene and play test again...

Now you can see **items** randoming placed around, and bullet hole in the wall and particle fx spawn out when you shooting on it.



All **obstacles** in the game should have **HitMark** component attached if you wanted to shoot them. and all obstacles must set **Tag** to “**Scene**” because of reason when the players using explosive weapon, the obstacles with “**Scene**” tagged can protect them from explosion damage.

Guns and Items

For the FPS game the guns / items are included with 3 part.

1. **Gun in FPS view.** you can see it in every FPS game, this part will included with hand animations and high-res models.
2. **Gun in Third view.** for the multiplayer game you will see it when other player handdle the gun.
3. **Gun in Drop view.** this part is used to drop to the scene for pick up.



How to Create new Pistol

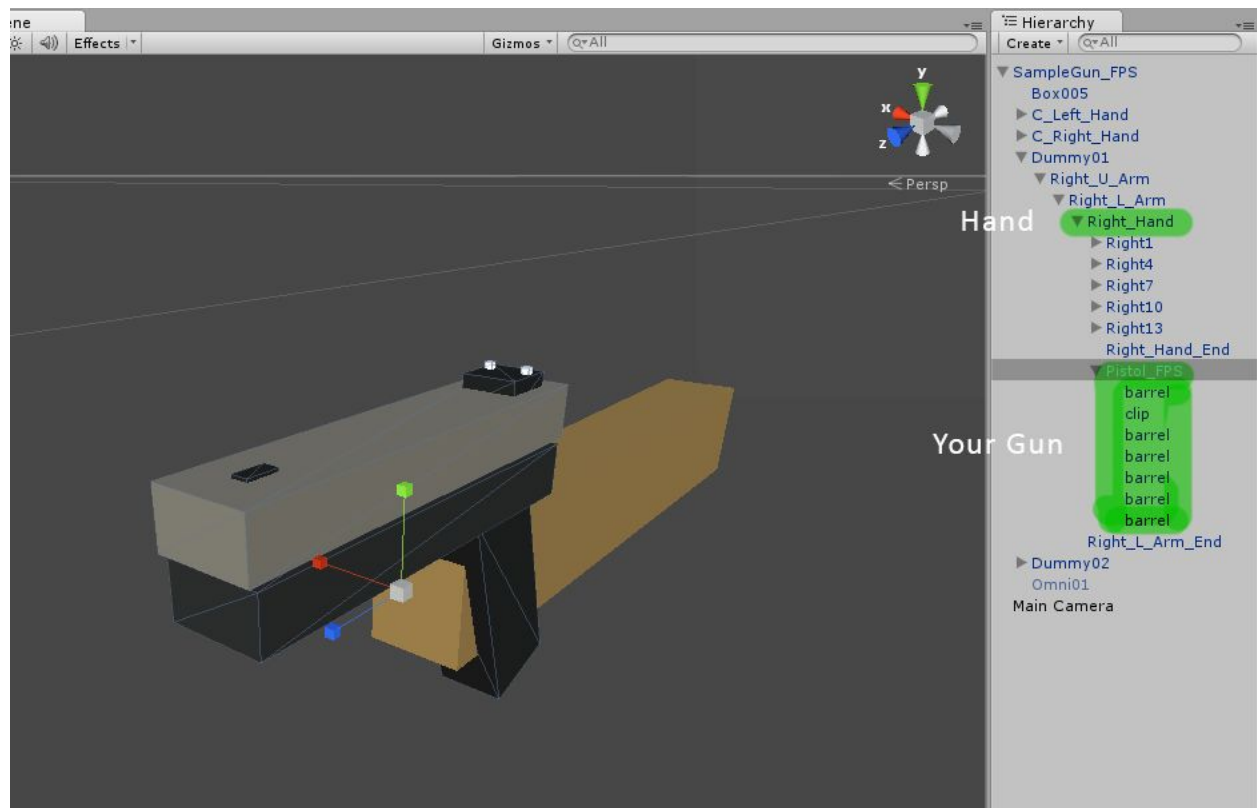
- *Create FPS view prefab*

1. **New Scene** to make sure everything is clear.
2. Open **Assets\UnitZ\Prefabs\Items\Template**
3. Drag **SampleGun_FPS** to the scene.
4. Repalcing **Gun** with your model or custom it, make sure it stick as child of **Right_Hand** hierarchy.
5. Select **SimpleGunFPS** you will see many parameters in **FPSWeaponEquipment** component, let's setting!

Hold Fire = false, **Damage** = 10, **Bullet Num** = 1, **Fire Rate** = 0.01,
Using Type = 1, **Ammo** = 12 , **Ammo Max** = 12, **Clip Size** = 12

Note. Using Type is a type of shooting animation

Note. Item Used is an Ammo Item. Assets\UnitZ\Prefabs\Items\Ammo



6. Re name it to “**MyPistol_FPS**” and **DO NOT Click Apply button!**
7. New folder named “**MyPistol**” **Assets\UnitZ\Prefabs\Items\MyPistol**
8. Drag your **MyPistol_FPS** to **Assets\UnitZ\Prefabs\Items\MyPistol** to save it as **Prefab**

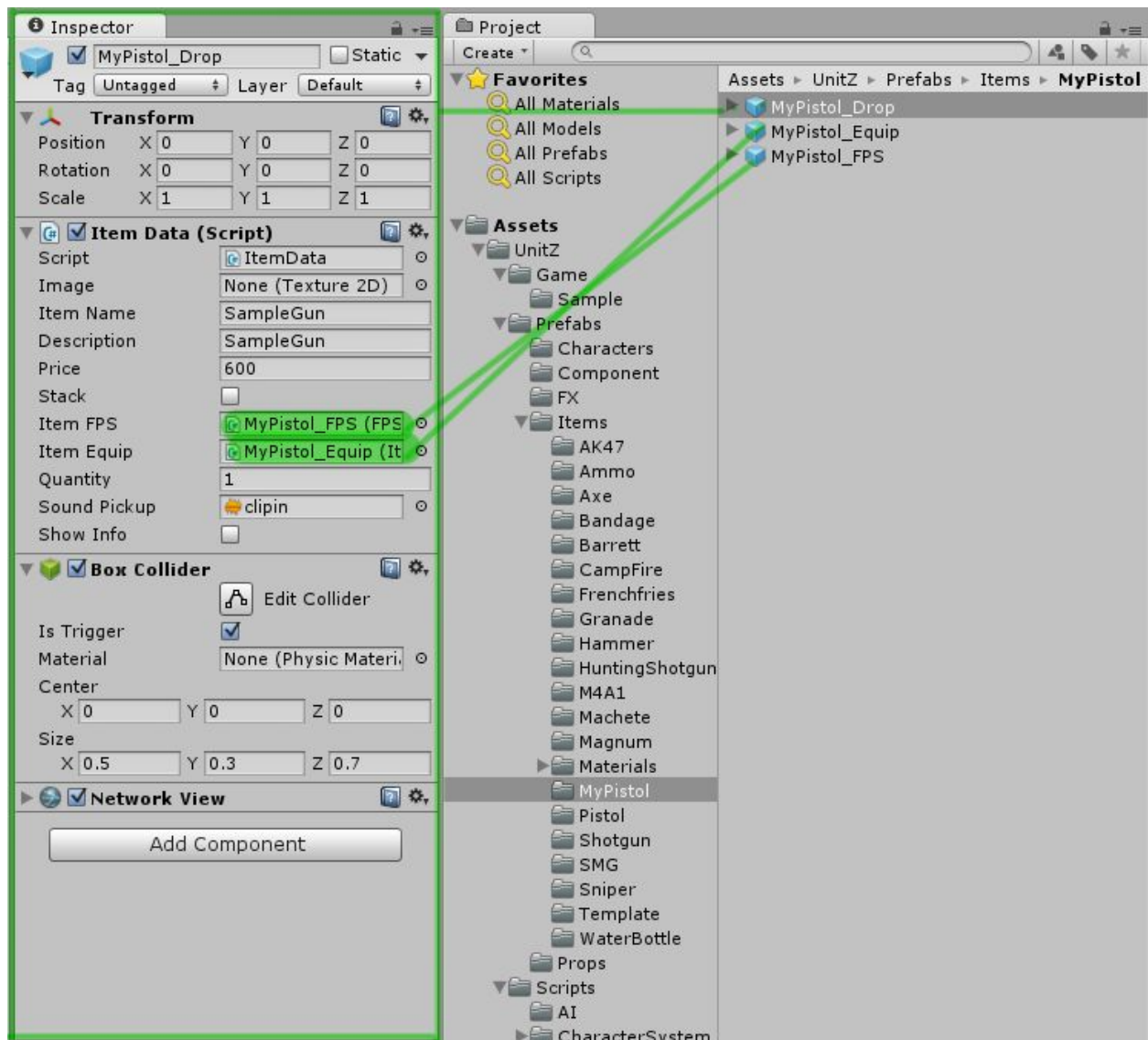
- *Create Third view prefab*

1. Open **Assets\UnitZ\Prefabs\Items\Template**
2. Drag **SampleGun_Equip** to the scene.
3. Repalcing **Gun** with your model or custom it.
4. Set Parameters on **ItemWeaponEquipment** Component
*Note. **Sound Fire** should the same as **Sound Fire** in FPS view*
5. Re name it to “**MyPistol_Equip**” and **DO NOT Click Apply button!**
6. Drag your **MyPistol_Equip** to **Assets\UnitZ\Prefabs\Items\MyPistol** to save it as **Prefab**

- *Create Drop view prefab*

1. Open **Assets\UnitZ\Prefabs\Items\Template**
2. Drag **SampleGun_Drop** to the scene.
3. Repalcing **Gun** with your model or custom it.
4. Set Parameters on **Item Data** Component,
Item Name must not be duplicated.
5. Add **MyPistol_FPS** to **Item FPS** parameter
6. Add **MyPistol_Equip** to **Item Equip** parameter
7. Re name it to “**MyPistol_Drop**” and **DO NOT Click Apply button!**
8. Drag your **MyPistol_Drop** to **Assets\UnitZ\Prefabs\Items\MyPistol** to save it as **Prefab** as same as FPS view and Third View

In this picture you can see **MyPistol_Drop** is contain **MyPistol_Equip** and **MyPistol_FPS** in **ItemData** Parameters. Now **MyPistol_Drop** is ready to the next step.



Register new gun

Importance as the other items, you have to registered it to **Item Manager** in **GameManager** before put it to Inventory and use.

1. Open “**mainmenu**” scene to find **GameManager** or find it in **Assets\UnitZ\Game**
2. You will see **GameManager** object, select it
3. Find **ItemManager** component under **GameManager**
4. Add **MyPistol_Drop** prefab from **Assets\UnitZ\Prefabs\Items\MyPistol** to **Items List** parameter
5. Click **Apply Button** on above of Inspector **MyPistol** already registered

Let's test your new gun.

You can add your new gun to your character by following this step

1. Open **Assets\UnitZ\Prefabs\Characters**
2. You will see **Character_Main** prefab, so click it
3. Find **Character Inventory** Component
4. See **Starter Items** parameter so add more size of array
5. You will see the new element show up
6. Click open and Drag your gun **MyPistol_Drop** from **Assets\UnitZ\Prefabs\Items\MyPistol** to **Item** parameter
7. set **Num** to 1
8. Open **mainmenu** scene, then Play Test!!
9. Press **I** you will see **MyPistol** in your inventory, so use it, shoot something.

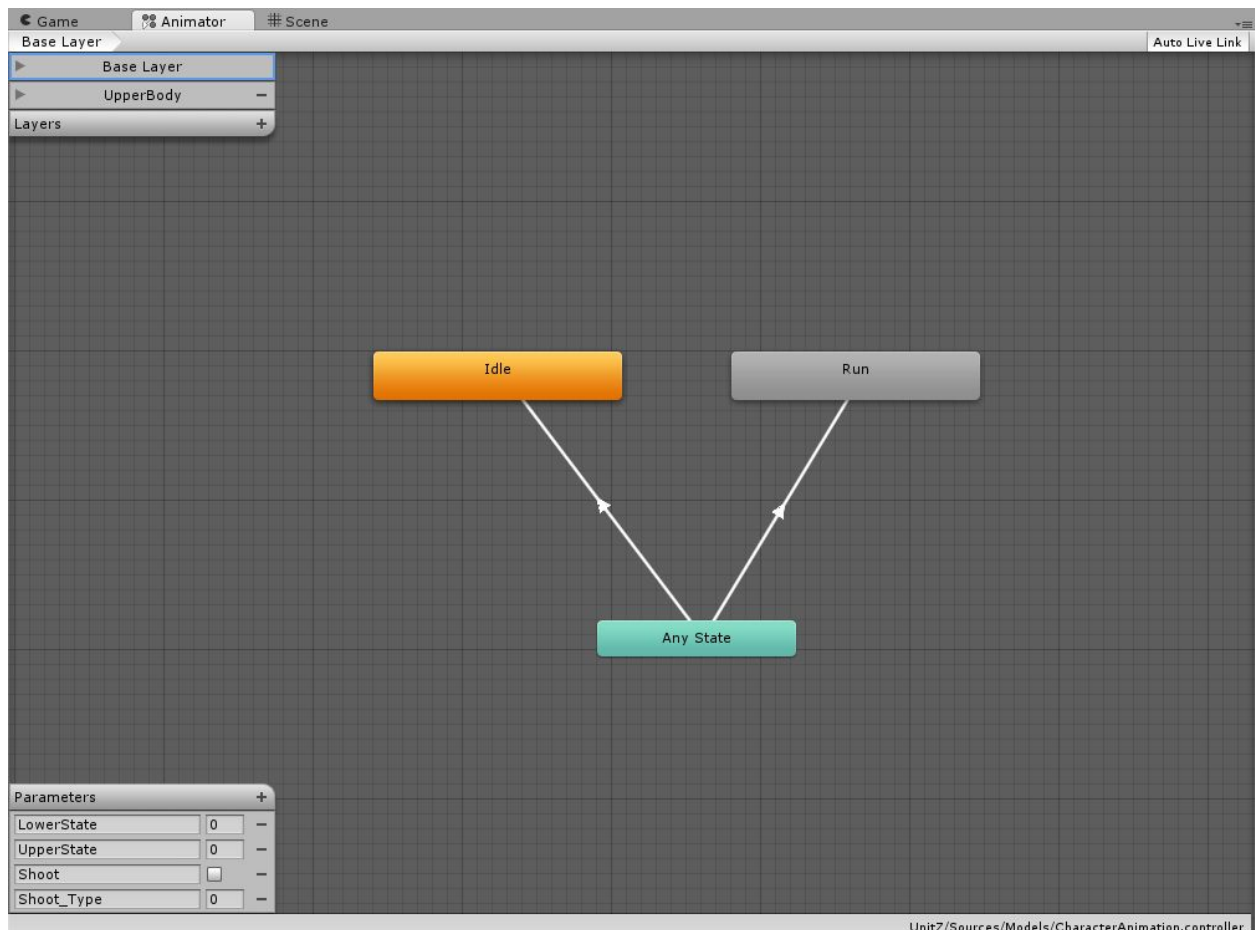
Create New Zombie! Part 1

If you have the new Zombie Model and wanted to use instead of older, Your model need **Animator Controller** setup.

1. Right click on anyplace in **Assets/ Create > Animator Controller** the Animator sheet has created and needs the following parameters.

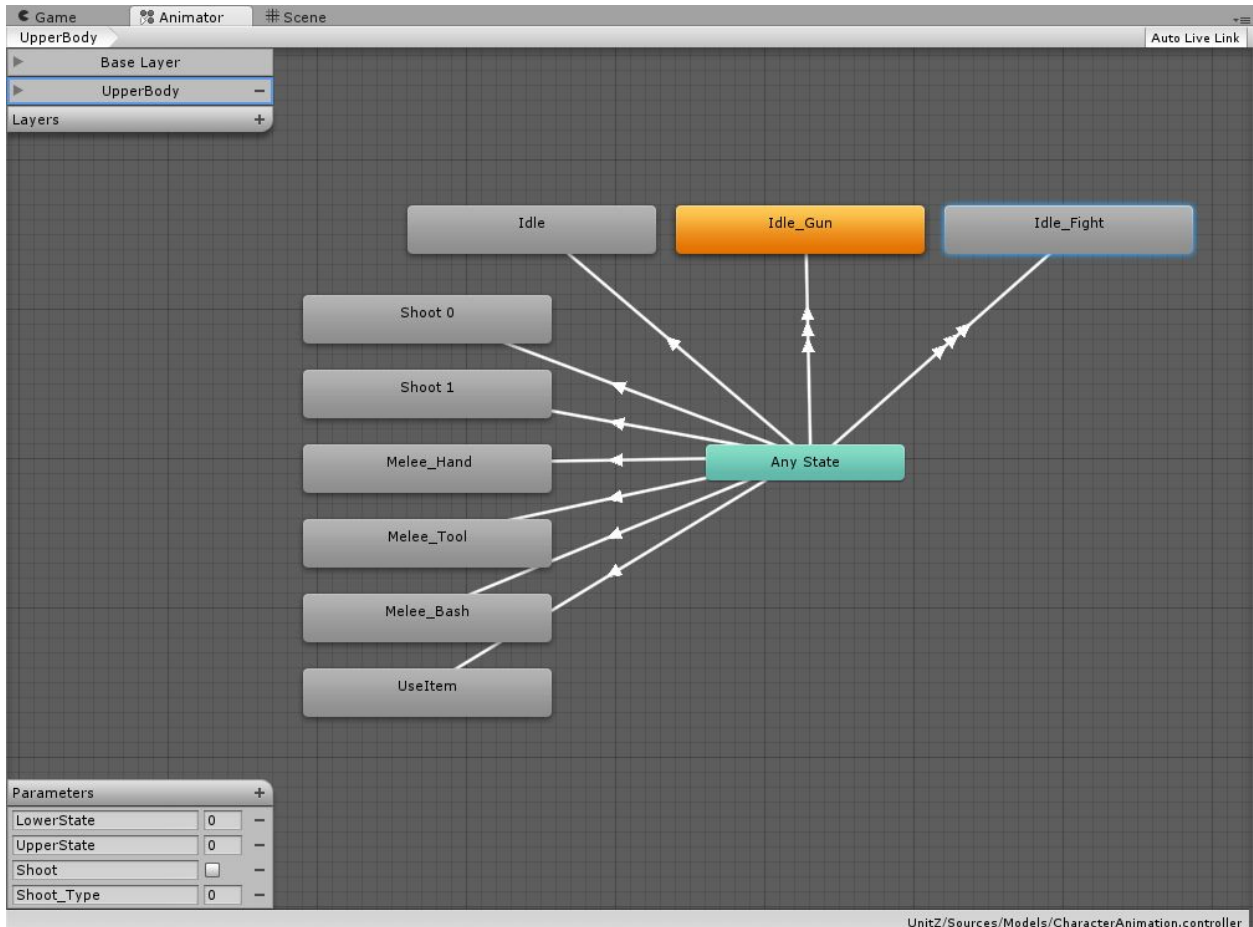
LowerState, UpereState, Shoot, Shoot_Type

2. The Animator must have 2 layer, **Base** and **UpperBody**



3. This is **Base Layer** When **LowerState** equals 1, playing = **Run animation**

4. When **Shoot** is trigger **On** , playing = **Attack** animation



5. Many Attack Animations must be separated by **Shoot_Type** if you can remember **Using Type** in **FPSWeaponEquipment** this parameter will be used as **Shoot_Type**

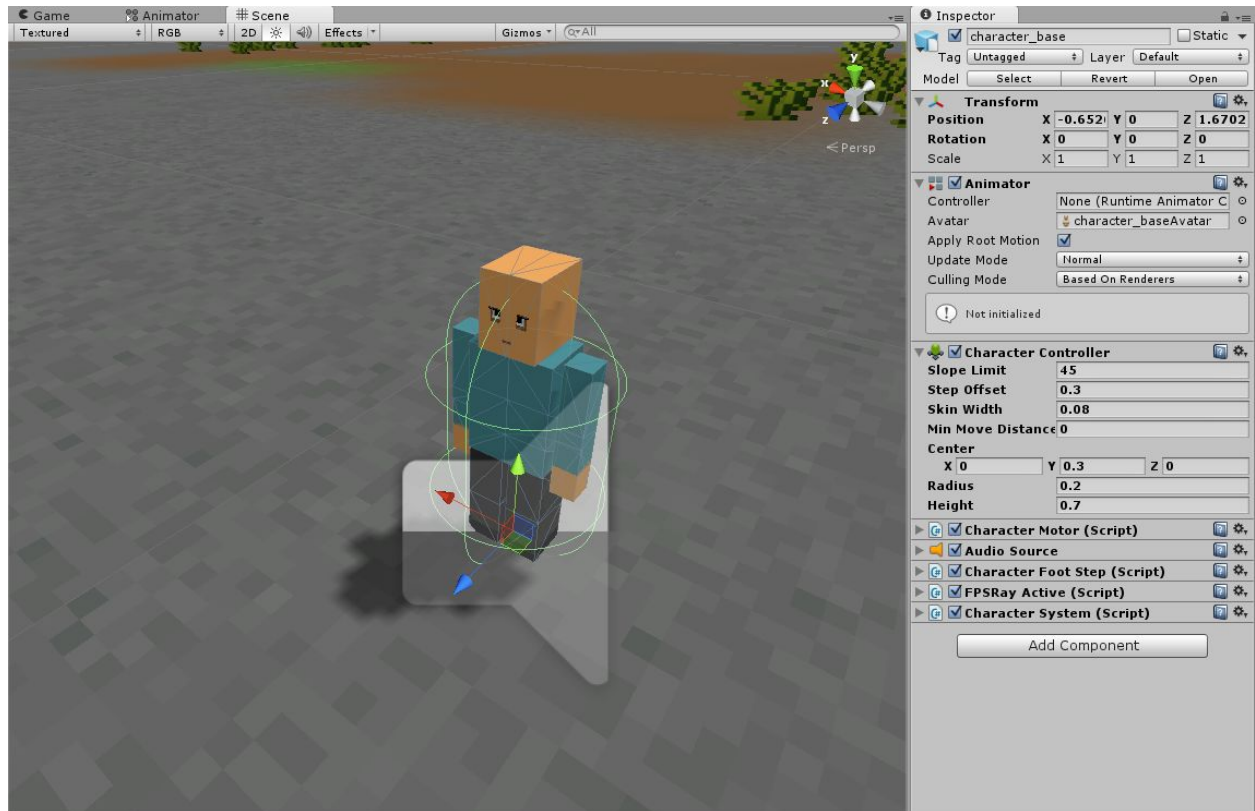
please see [Assets\UnitZ\Sources\Models\CharacterAnimation](#) for example. Actually you can create any animator sheet. But it just needs **LowerState**, **UpperState**, **Shoot**, **Shoot_Type** as parameters

LowerState = 0 is Idle, **LowerState** = 1 is Run

Shoot Trigger = on Attack, **Shoot_Type** = Attack animation type

Craete New Zombie! Part 2

After animator Controller has already setup, so your model ready to add a character system components.



1. Drag your model to the scene, make sure the Scale is properly
2. Add **CharacterSystem** to it. find **CharacterSystem.cs** here
[Assets\UnitZ\Scripts\CharacterSystem\CharacterSystem.cs](#)
3. set **Attack Type**, this variable use as **Using Type** in Animator sheet
4. Adjust Collision size, make sure it fit to your model
5. Add the new model **AnimationController** to **Animator** component
6. Add **AICharacterController** to it. fine **AICharacterController.cs** at
[Assets\UnitZ\Scripts\AI\AICharacterController.cs](#)
7. Re name it to "**MyZombie**" and drag it to
[Assets\UnitZ\Prefabs\Characters](#) to save as prefab.

Add Hitbox

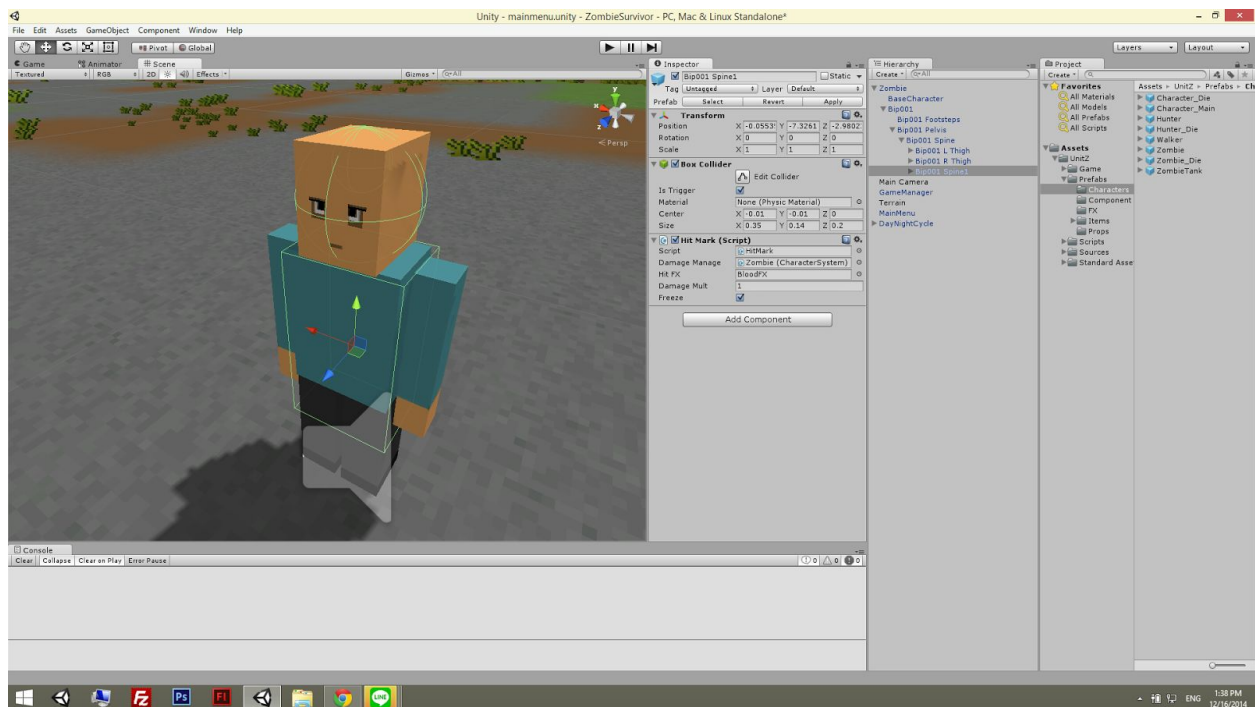
Now your zombie can walk and attack, but you cannot shoot him yet. next thing you have to do is adding hitbox to his bone. in this sample we need 2 attached in Head and Body.

1. Select Middle bone of your character
2. Add Box Collider, adjust the size and make it as Trigger.
3. Add **HitMark** Component, [Assets\UnitZ\Scripts\Damage\HitMark.cs](#) set a following parameters.

Hit Fx add particle fx from [Assets\UnitZ\Prefabs\FX\BloodFX](#)

Damage Mult = 1

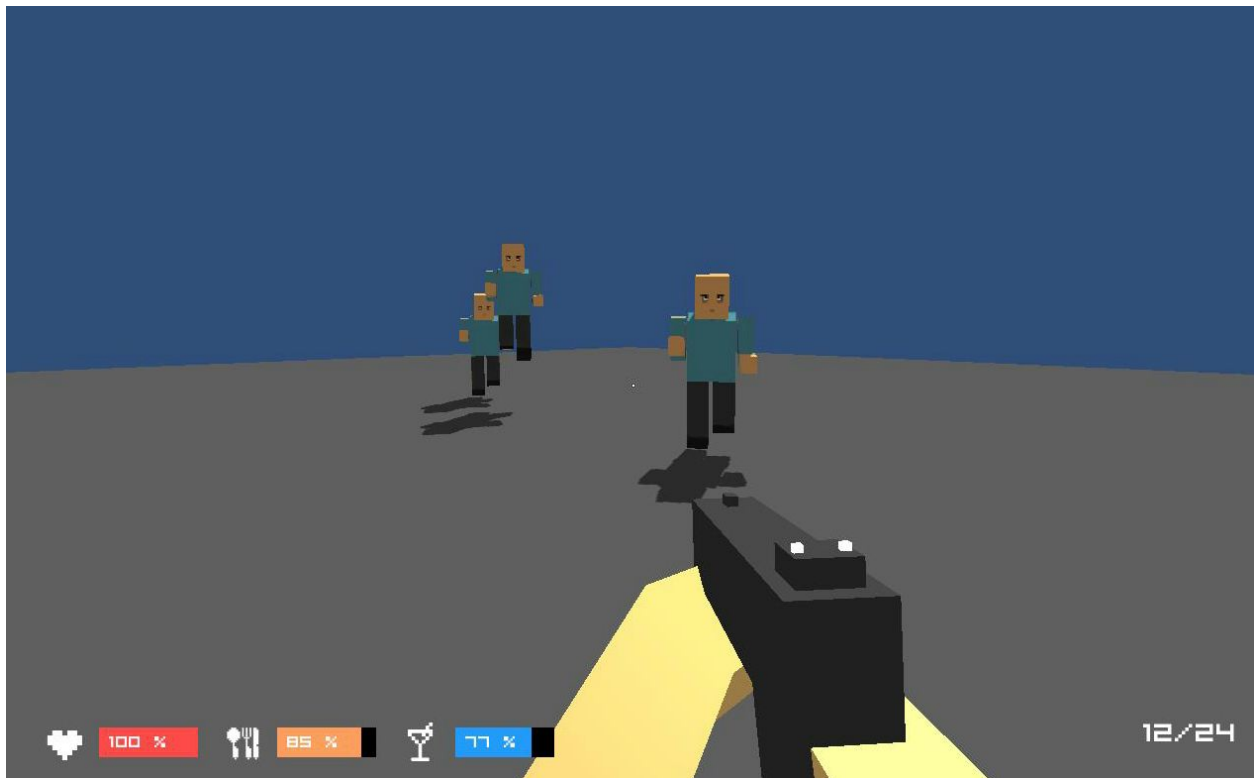
Freeze = true



4. Select Head bone of your character
5. Add Sphere Collider, adjust the size and make it as Trigger.
6. Add **HitMark** Component repeat as body steps, But Set **Damage Mult** = 2 because shoot to the Head will do a multiple damage.

Let's Test your zombie !

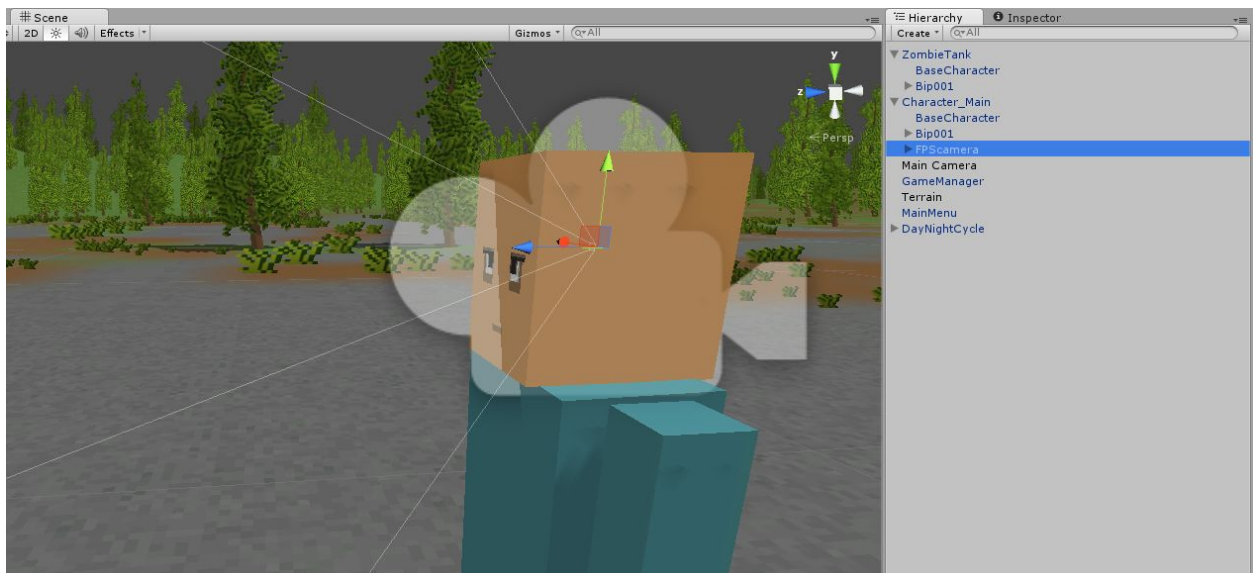
1. back to your level "**sample**"
2. select **ZombieSpawner** add your zombie to **Objectman** parameter
3. and open **mainmenu** scene to start playing test.



How to Create New Character

If you have the new Character Model and wanted to use instead of older, Your model also need **Animator Controller** setup as Zombie model, you can back to **Create Zombie Part1** to learn how to setup Animation Contoller.

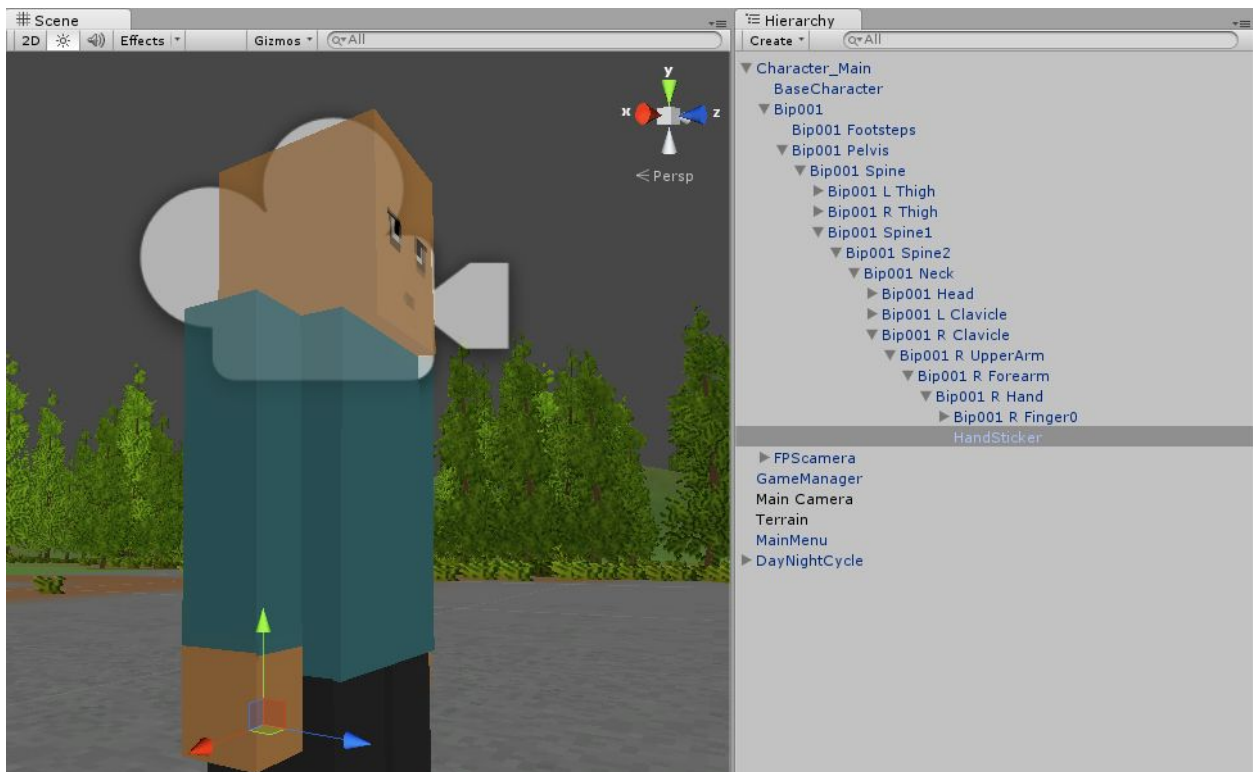
1. Drag your model to the scene, make sure the Scale is properly
2. Add **CharacterSystem** to it. find **CharacterSystem.cs** here
[Assets\UnitZ\Scripts\CharacterSystem\CharacterSystem.cs](#)
3. Adjust Collision size, make sure it fit to your model.
4. Add the new model **AnimationController** to **Animator** component
5. Add **FPSController** to it. fine **FPSController .cs** at
[UnitZ\Scripts\CharacterSystem\FPSController\FPSController .cs](#)
6. Add **FPSCamera** as child of your character like this image.
[UnitZ\Prefabs\Component\FPSCamera](#)



This is camera for FPS, view you have to move it closer the head.

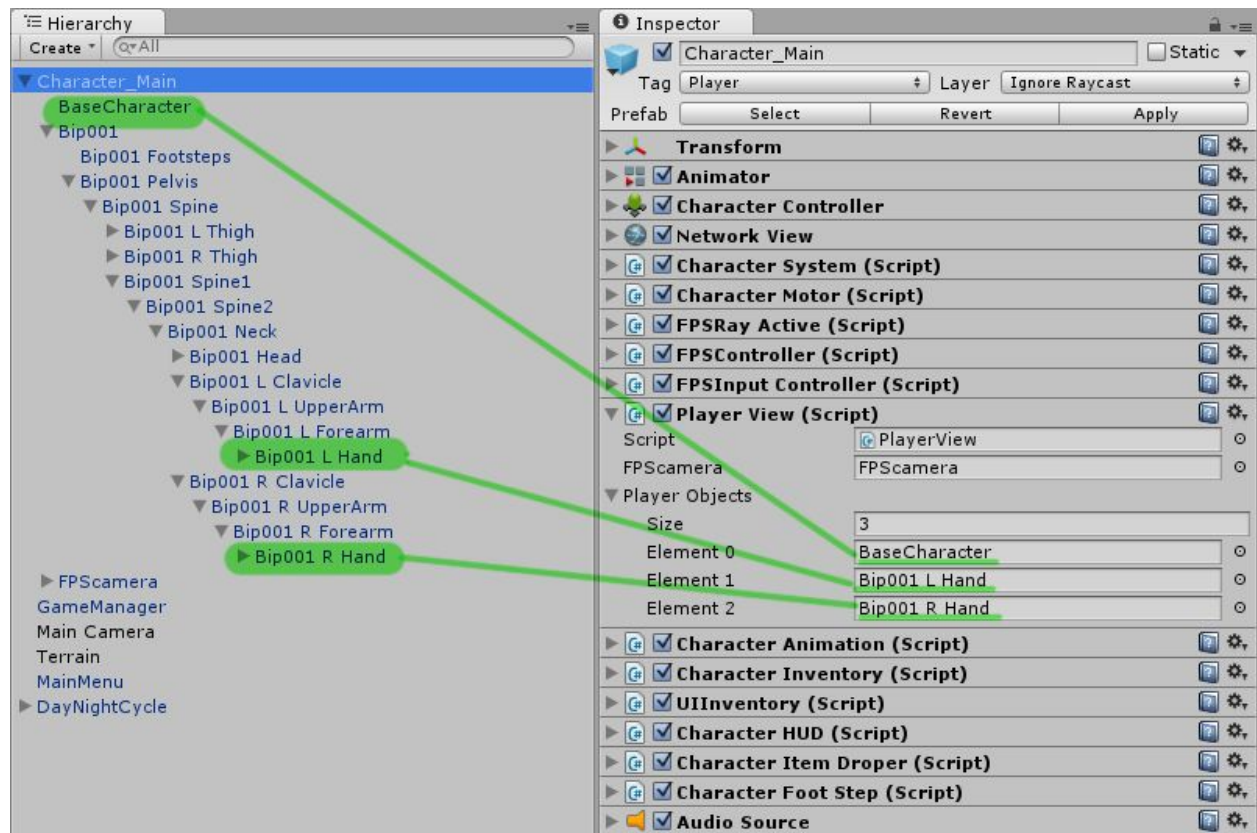
7. Add **HandSticker** `UnitZ\Prefabs\Component\HandSticker` as child of the Right hand, please see this image. in this sample **HandSticker** has stick as child under **Bip001 R Hand**, this object used to show a **Gun** in **Third view** and you will never see in FPS view, it only show to other player in multiplayer.

Note. HandSticker Rotation must set to the right diraction, imagine the gun must direction to front along with hand direction.



8. We have to hide this character and some elements in FPS view. so Let's see **Player View** Component, please add **Character Model** and both Hand **Bip001 R Hand** , **Bip001 L Hand** to **Player Objects** parameter this component used to hide all player part in Third person view when you playing. because character used to showing to other players only, that why you need to hide it from FPS view.

add 3 elements to **Player View** to hide it from FPS view,
for the good understanding you can ignore this step to see what happen
If you don't add 3 elements to **Player View**.



9. Don't forget to add HUD Textures in **Character HUD** Component
10. Re name it to "**MyCharacter**" and drag it to
[Assets\UnitZ\Prefabs\Characters](#) to save as prefab.

Let's Test your Character

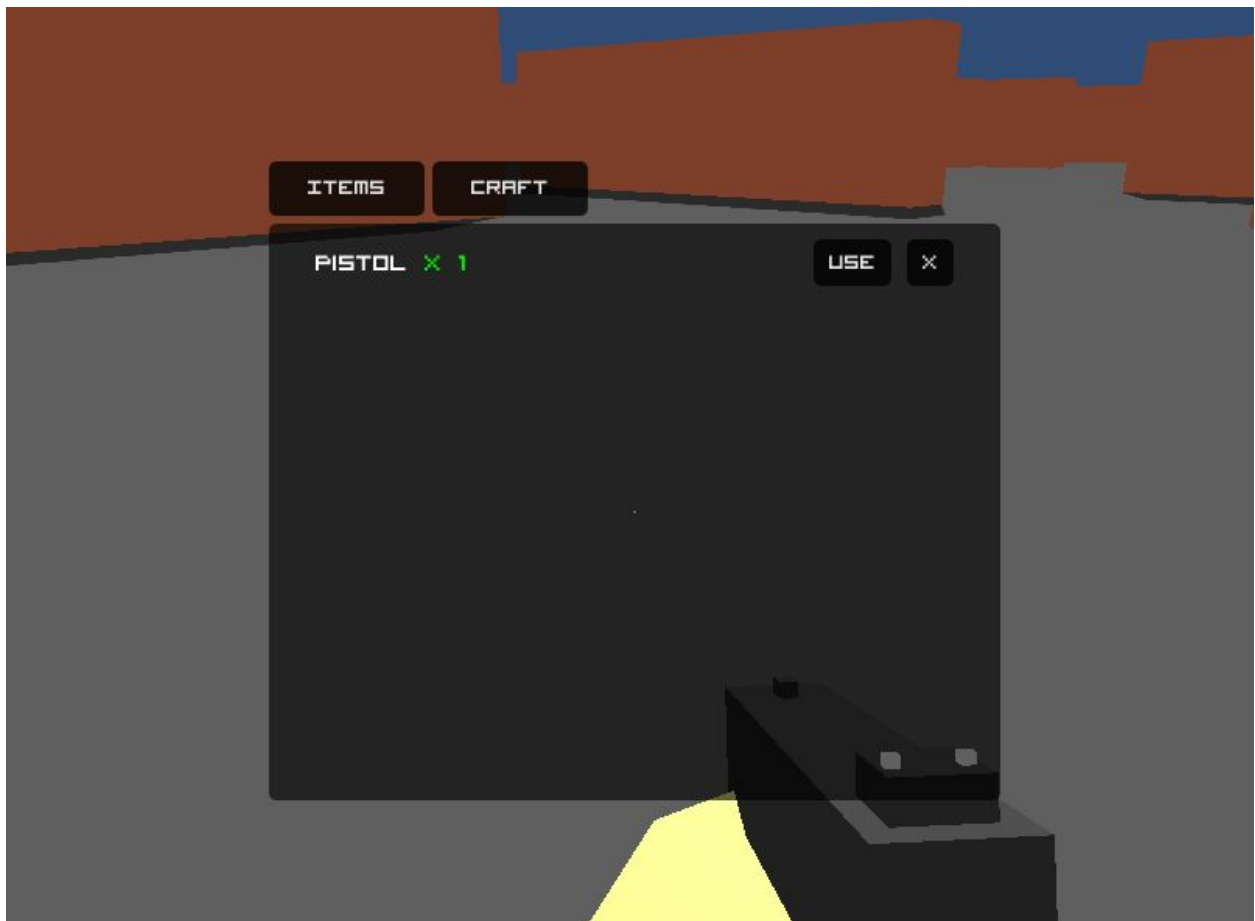
1. Find **GameManager** in **mainmenu** scene
2. add **MyCharacter** [Assets\UnitZ\Prefabs\Characters\MyCharacter](#) to **Character Presets** parameter in **Character Manager** component
3. Play Test!

Add Starter Items.

This step i will show you, how to add **Pistol** to your character inventory.

1. Select **MyCharacter** [Assets\UnitZ\Prefabs\Characters\MyCharacter](#)
2. you can see **Character Inventory** Component
3. add size of Item Starters to 1 you will see **Element0** show up
4. Open [Assets\UnitZ\Prefabs\Items](#) you can see all items here.
5. Open **Pistol** folder and Drag **Pistol_Drop** to **Element0.Item** and set **Num** to 1.

You can add more Items by open [Assets/UnitZ/Prefabs/Items](#) and select any prefabs with **ItemData** component attached, you can found it by named **_Drop** in after.



How to create Consumable item

This step will show you how to create consumable items like Food , Drink or Bandage. this instruction is similar to **How to create new Pistol** in page 7.

How to Create Pizza

- *Create FPS view prefab*

5. **New Scene** to make sure everything is clear.
6. Open **Assets\UnitZ\Prefabs\Items\Template**
7. Drag **Food_FPS** to the scene.
8. Repalcing **Food object** with your model or custom it, make sure it stick as child of **Right_Hand** hierarchy.
9. Re name it to "**Pizza_FPS**" and **DO NOT Click Apply button!**
10. New folder named "**Pizza**" **Assets\UnitZ\Prefabs\Items\Pizza**
11. Drag your **Pizza_FPS** to **Assets\UnitZ\Prefabs\Items\Pizza** to save it as **Prefab**

- *Create Third view prefab*

7. Open **Assets\UnitZ\Prefabs\Items\Template**
8. Drag **Food_Equip** to the scene.
9. Repalcing **Food object** with your model or custom it.
10. Re name it to "**Pizza_Equip**" and **DO NOT Click Apply button!**
11. Drag your **Pizza_Equip** to **Assets\UnitZ\Prefabs\Items\Pizza** to save it as **Prefab**

- *Create Drop view prefab*

1. Open **Assets\UnitZ\Prefabs\Items\Template**
2. Drag **Food_Drop** to the scene.
3. Repalcing **Food** with your model or custom it.
4. Set Parameters on **Item Data** Component, named "**Pizza**"
Item Name must not be duplicated.
5. Add **Pizza_FPS** to **Item FPS** parameter
6. Add **Pizza_Equip** to **Item Equip** parameter
7. Re name it to "**Pizza_Drop**" and **DO NOT Click Apply button!**
8. Drag your **Pizza_Drop** to **Assets\UnitZ\Prefabs\Items\Pizza** to save it as **Prefab** as same as FPS view and Third View

- *Create Apply Object*

1. Open **Assets\UnitZ\Prefabs\Items\Template**
2. Drag **Food_Apply** to the scene.
3. You can see 3 parameters in **Apply Food** Component
Food Plus
10 = Add 10 food point , -10 = Lose 10 food point
Drink Plus
10 = Add 10 drink point , -10 = Lose 10 drink point
Health Plus
10 = Add 10 Health point , -10 = Lose 10 Health point
You can set it as you wanted for this Pizza.
4. Re name it to "**Pizza_Apply**" and **DO NOT Click Apply Button!**
5. Drag your **Pizza_Apply** to **Assets\UnitZ\Prefabs\Items\Pizza** to save it as prefab.

- *Combine together.*

1. Select your **Pizza_FPS** in **Assets\UnitZ\Prefabs\Items\Pizza**
2. Add **Pizza_Apply** prefab to **Item** parameter in **FPSItem Using** component
3. Add **Pizza_Drop** prefab to **Item Used** parameter in **FPSItem Using** component

Let's eat your Pizza.

You can add pizza as starter item in Character inventory

1. Open **Assets\UnitZ\Prefabs\Characters**
2. You will see **Character_Main** prefab, so click it
3. Find **Character Inventory** Component
4. See **Starter Items** parameter so add more size of array
5. You will see the new element show up
6. Click open and Drag your gun **Pizza_Drop** from **Assets\UnitZ\Prefabs\Items\Pizza** to **Item** parameter
7. set **Num** to 1 or more
8. Open **mainmenu** scene, then Play Test!!
9. Press **I** you will see **Pizza** in your inventory, so eat it

How to create Placing item

This step will show you how to create placing items like Camp fire, Bunker or Tent. you can place it anywhere in the level and other player also see it, this instruction is similar to other items.

How to Create Your Statue

- *Create FPS view prefab*

1. **New Scene** to make sure everything is clear.
2. Open **Assets\UnitZ\Prefabs\Items\Template**
3. Drag **Statue_FPS** to the scene.
4. Repalcing **Cube object** with your model or custom it, make sure it stick as child of **Right_Hand** hierarchy.
5. Re name it to "**MyStatue_FPS**" and **DO NOT Click Apply!**
6. New folder named "**MyStatue**"
Assets\UnitZ\Prefabs\Items\MyStatue
7. Drag your **MyStatue_FPS** to **Assets\UnitZ\Prefabs\Items\MyStatue** to save it as **Prefab**

- *Create Third view prefab*

1. Open **Assets\UnitZ\Prefabs\Items\Template**
2. Drag **Statue_Equip** to the scene.
3. Repalcing **Cube object** with your model or custom it.
4. Re name it to "**MyStatue_Equip**" and **DO NOT Click Apply!**
5. Drag your **MyStatue_Equip** to **Assets\UnitZ\Prefabs\Items\MyStatue** to save it as **Prefab**

- *Create Drop view prefab*

1. Open **Assets\UnitZ\Prefabs\Items\Template**
2. Drag **Statue_Drop** to the scene.
3. Replacing **Cube** with your model or custom it.
4. Set Parameters on **Item Data** Component, named "**MyStatue**" *Item Name must not be duplicated.*
5. Add **MyStatue_FPS** to **Item FPS** parameter
6. Add **MyStatue_Equip** to **Item Equip** parameter
7. Re name it to "**MyStatue_Drop**" and **DO NOT Click Apply!**
8. Drag your **MyStatue_Drop** to **\UnitZ\Prefabs\Items\MyStatue** to save it as **Prefab** as same as FPS view and Third View

- *Create Placing Object*

1. Open **Assets\UnitZ\Prefabs\Items\Template**
2. Drag **Statue_Placing** to the scene.
3. Replacing **Cube** with your statue model.
4. Re name it to "**MyStatue_Placing**" and **DO NOT Click Apply!**
5. Drag your **MyStatue_Placing** to **\UnitZ\Prefabs\Items\MyStatue** to save it as prefab.

- *Create Spawner Object*

1. Open [Assets\UnitZ\Prefabs\Items\Template](#)
2. Drag **Statue_Spawner** to the scene.
3. Add **MyStatue_Placing** from [\UnitZ\Prefabs\Items\MyStatue](#) to **Item** parameter in **Object Spawn** Component.
4. Re name it to “**MyStatue_Spawner**” and **DO NOT Click Apply!**
5. Drag your **MyStatue_Spawner** to [\UnitZ\Prefabs\Items\MyStatue](#) to save it as prefab.

- *Combine together.*

1. Select your **MyStatue_FPS** in [\UnitZ\Prefabs\Items\MyStatue](#)
2. Add **MyStatue_Spawner** prefab to **Item** parameter in **FPSItem Placing** component
3. Add **MyStatue_Drop** prefab to **Item Used** parameter in **FPSItem Placing** component

- *Add Placeing Area component*

You have to add **PlacingArea** component to any place that you want to spawn a statue

you can found here [Assets\UnitZ\Scripts\Components\PlacingArea.cs](#)

Let's place your Statue.

You can add statue as starter item in Character inventory

10. Open **Assets\UnitZ\Prefabs\Characters**
11. You will see **Character_Main** prefab, so click it
12. Find **Character Inventory** Component
13. See **Starter Items** parameter so add more size of array
14. You will see the new element show up
15. Click open and Drag your gun **MyStatue_Drop** from **Assets\UnitZ\Prefabs\Items\MyStatue** to **Item** parameter
16. set **Num** to 1 or more
17. Open **mainmenu** scene, then Play Test!!
18. Press **I** you will see **MyStatue** in your inventory, so use it.



Crafting Items.

This step will show how to crafting items in the game. in this sample i will show you how to craft a **Pistol**.

1. Open “**mainmenu**” scene to find **GameManager** or find it in [Assets\UnitZ\Game](#)
2. Find **Item Crafter Manager** component under **GameManager**
3. Add size of **Item Craft Lists**, you will see new **Element** show up
4. Drag **Pistol_Drop** from to **Item Result** parameter
[Assets\UnitZ\Prefabs\Items\Pistol](#)
5. Add size of **Item Needs**, you will see new **Element** show up
6. Drag **MetalFragment_Drop** to **Item** parameter.
[Assets\UnitZ\Prefabs\Items\Materials\MetalFragment](#)
7. set **Num** to **3** ,set **Craft Time** to **10**, So you need 3 **MetalFragment** and **10** second to craft this **Pistol**.



Final setup before launch your game. (Importance)

- Don't forget to set **Game Key Version** in **UnitZ Manager** component in **GameManager** object to difference in every version of your game. this parameter will prevent a clients in another version to join the game and protect your game system from conflict.
- Dont' forget to set **Server Name** in **GameServer** component in **GameManager** object to unique this is prevent another clients from another **UnitZ** project to join your game.
- if you have VPN server. you can set your public **IP** to **IP Server** parameter in **GameServer** component in **GameManager** object.

Thank you

You can find more tutorials and news update in my dev blog

<http://www.hardworkerstudio.com/unitz/>

If you have any questions or need an assistance
please mail me: hwrstudio@gmail.com

Rachan Neamprasert

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