

Side Scroller Shooter Kit - documentation

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1. Purpose of this document and general notes

This document serves as a help for Unreal Engine Marketplace item Side Scroller Shooter Kit. It contains general description about mechanics from that package. This is online document so it can be edited depending on changes in kit, feedback or general polish.

2. Controls

Below are list for default key bindings.

Action name	Keyboard/mouse	Gamepad
Jump	Arrow up/Space bar	Gamepad face button bottom
Crouch	S	Gamepad left thumbstick down/ Gamepad face button right
Shoot	Left mouse button	Gamepad right shoulder
Sprint	Left shift	Gamepad left shoulder Gamepad left thumbstick button
Previous Weapon	Q/Mouse wheel down	Gamepad D-pad left
Next Weapon	E/Mouse wheel up	Gamepad D-pad right
DepthAiming	Right mouse button	Gamepad left trigger
Use	F	Gamepad face button top
PauseGame	1	Gamepad special right
Slide	S	Gamepad left thumbstick

		down/Gamepad face button right
Melee Attack	Middle mouse button	Gamepad face button left/Gamepad right thumbstick button
Kick	Tab	Gamepad right trigger
Toggle Camera	Tab	Gamepad right thumbstick button
Move Right	D/Arrow right	Gamepad left thumbstick right
Move Left	A/Arrow left	Gamepad left thumbstick left
Aiming	Mouse X and Y	Gamepad right thumbstick
Ladder move up	W	Gamepad left thumbstick up
Ladder move down	S	Gamepad left thumbstick down

3.Main features description - based on features level

ID's are taken from features level stands.

1.C Character crouch

Use S on keyboard to crouch. On gamepad - B or left thumbstick down. You can walk while crouching. Crouch walk speed is determined by variable "Crouch walk speed". Stand up is blocked when character is under obstacle and has not enough room to stand.

1.D Character sprint

Use left shift on keyboard to sprint. On gamepad - press left thumbstick or left shoulder button. You can set speed of sprint by changing variable "Sprint speed". Speed is also increased while jump. To set it, look for "Sprint fly speed". Sprint can only be activated when player is running forward.

2.A Aiming

Use right mouse to aim or right thumbstick on gamepad. When you move mouse cursor behind player, he will turn around. Crosshair points bullet target.

Crosshair (BP_Crosshair_3D) changes size depending on distance from camera. It's driven by float curve "FC_Crosshair_Size_by_Distance".

2.B Depth aiming

Hold right mouse button or left trigger on gamepad. to enable "in depth" aiming. In this mode you can fully aim like in fps game and run, crouch and jump. Camera angle can be change using "Toggle camera" key. By default it's tab on keyboard and right thumbstick button on gamepad.



2.C Gamepad aiming types

Gamepad aiming control type can be set (in both aiming modes) to procedurally aiming (like in fps game) or "move back to center" like in Shadow Complex game. Look for variables "Hit back in depth aiming?" and "Hit back in normal aiming?" in character blueprint.

3.A Shooting

To shoot press left mouse button. On gamepad - right shoulder button. You can cycle weapons using Q and E keys and D-pad left/right on gamepad. In character blueprint you can set various settings related to weapons, like max ammo, shot delay etc.

3.A Weapons properties

You can set weapons properties like damage or recoil scale in data table named "DT_Weapons_Player" for player and "DT_Weapons_AI" for AI

4.A Enemy component

Enemy component lets you turn any object into destroyable object with health.

4.B Enemy component settings

Every enemy component can have different settings, like death FX or health amount.

4.C Enemy component - weapon vulnerability

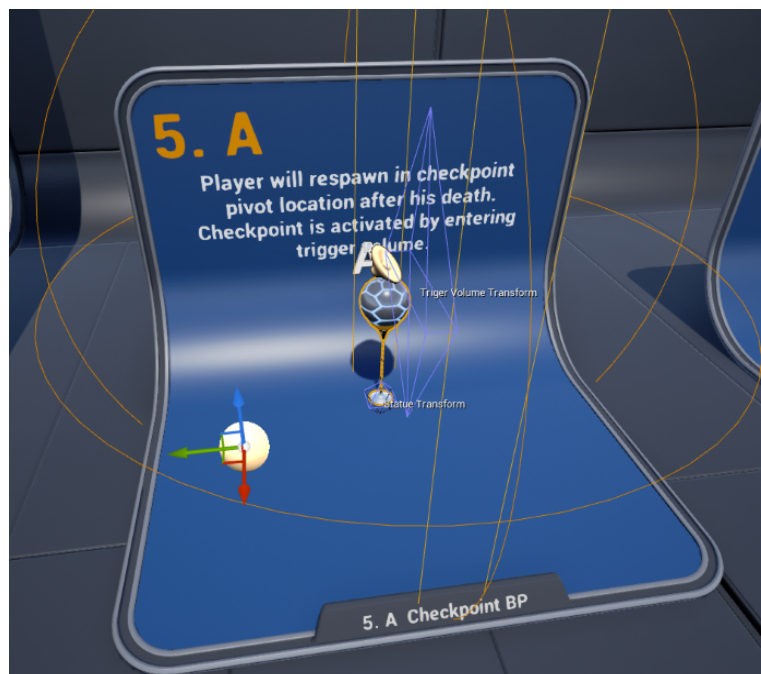
Enemy component can restrict reaction to certain weapon types.

4.D Enemy component - movement

To enemy component object, you can easily add interpolation to component or rotating movement component.

5.A Checkpoint

Player will respawn in checkpoint pivot location after his death. Checkpoint is activated by entering trigger volume. Bear in mind that checkpoint pivot shouldn't be in geometry and to change change "Trigger volume transform" variable, not a whole blueprint. You can also set statue whenever you want by editing "Statue transform" variable.



5.B Damage area blueprint

Player takes damage over time while standing on red capsule. Damage values and interval time can be set per object instance (BP_Damage_Area_Blueprint). After death, player respawning on latest enabled checkpoint.

6.A Pickups

Pickups use only one blueprint - BP_Pickable_Object. Parameters for all type of pickups can be set per object.



7.A Turret - no rotation

Turrets detecting player by lasers, starts shooting and keep looking at player, until he hides. Shooting (alarm mode) is indicated with red (by default) lasers and red cylinder. Turrets has enemy component by default, so they can be shot down. Turrets can also be alarmed by other enemy and/or when player shoot them.



7.B Turret - full yaw rotation

Turrets can also patrol while rotating 360 degrees in yaw axis.

7.C Turret - yaw clamped rotation

Turrets can also patrol while rotating clamp degrees in yaw axis. By default it is clamped between 45 and -45 degrees.

7.D Turret - pitch clamped rotation

Turrets can patrol while rotating clamped degrees in pitch axis. "Pitch clamped - rotate angle" variable adjust angle range.

7.E Turret - dummy shooting

Turrets can shoot in loop without player detection. They have various properties like start shooting delay or shooting intervals, which can greatly increase variety of gameplay.

8.A Damage obstacles - fire trap

Damage blueprints can be parents of various obstacles. Damage area can have various shapes and sizes per object. It's alternative for damage component.

8.B Damage obstacles - spikes trap

Traps can also kill instantly.

8.C Damage obstacles - rotating spikes trap

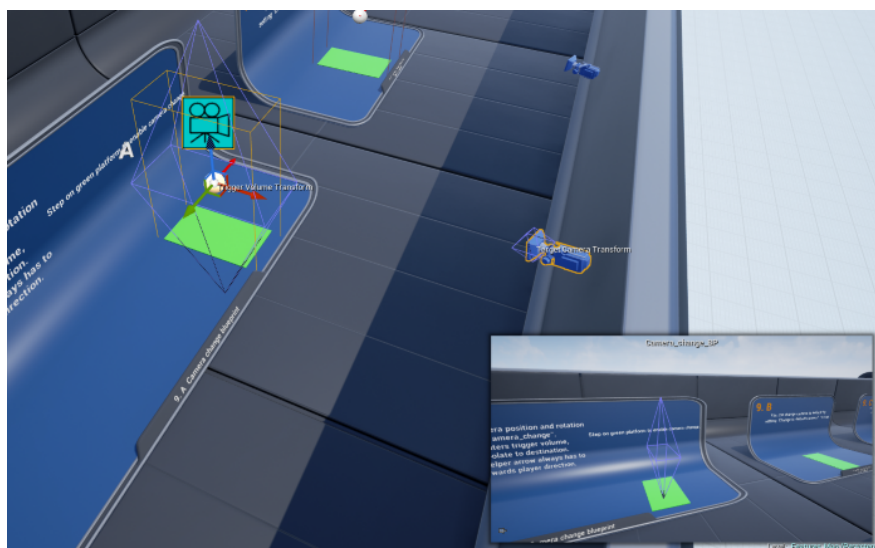
You can easily add rotation component to add more variety.

8.D Damage obstacles - floating spikes trap

You can easily add "interp to" component to add more variety to obstacle.

9.A Camera change blueprint

You can change camera position and rotation using "BP_Camera_change". When player enters trigger volume, camera interpolate to destination. Please note red helper arrow always has to be pointed towards player direction. When player will trigger change during "in depth aiming mode", it will be disabled and camera will change to desired location.



9.B Camera change blueprint - back to default location

You can change camera to default by setting "Change to default camera?" to true. Icon will change color to yellow.

9.C Camera change blueprint - changing camera on respawn

In checkpoint blueprint you can define should camera go back to default position after death, or leave in current location.

9.D Camera change blueprint - two at the same time

If player enters camera change BP before previous interpolation finished, it will override it, and interpolate accordingly. You can't use "in depth" aiming during interpolation.

10.A Launchpad

Launchpads can launch player into desired direction and velocity. Arrow helper indicate direction. There are 2 version for launchpad.



11.A Elevator

Elevator triggered on "use" input. Destination points can be adjusted per instance, so elevator can go in any direction.

12.A Ladder

You can climb ladders by approaching them in air or while running. To stop climbing press jump button. Ladders can set on left side and on right side from camera. Back wall mesh height defines how high and how low can player climb.

12.B Ladder left

To set ladder to left side, rotate it by accordingly angle (usually 180 degrees) and set "ladder direction" enum variable to "left".

12.C Leaving ladder on top

Player can leave ladder when reached top section. To enable set "Can leave ladder from top" to true.

12.D Ladder jump

You can jump from ladder to ladder. Velocity of jump can be set with variables "Jump off launch direction" and "Jump off launch power".

12.E Modified ladders

You can combine multiple ladders, or make smaller/longer ones. Make sure that back wall (green mesh) has no break. In example on your left, you can see two ladders combined.

13.A Climber

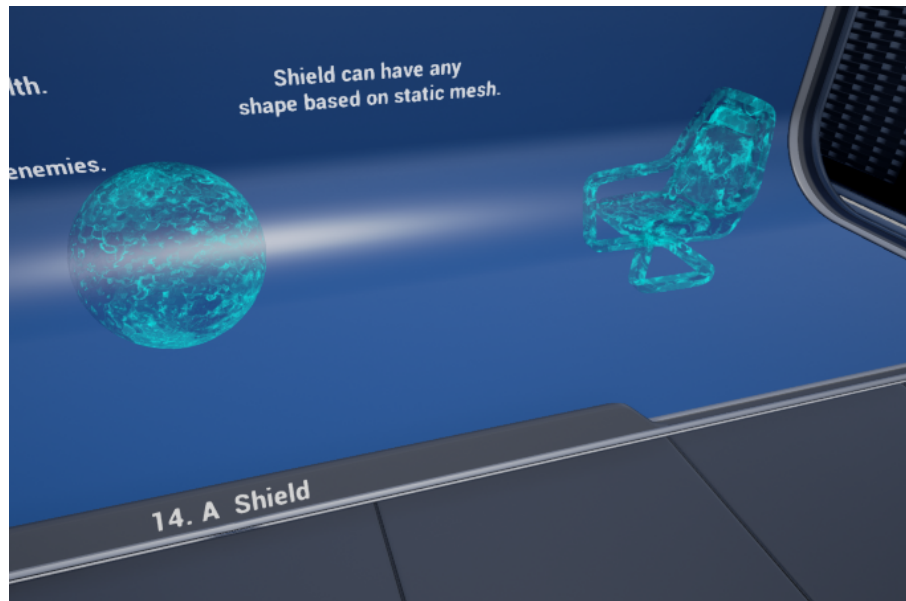
Players can climb on ledges by using blueprint "BP_Ledge_Climber". Mesh helper indicates where the character will grab a ledge. Climber has to have set the correct direction (right/left).

13.B Climber - straight into crouching

Player can go straight into crouching from ledge climb. Set "Force crouch after climb" to make effect.

14.A Shield

Shields are obstacles with auto regenerated health. Health is regenerated after each "Regenerate Invoke Interval Time" cycle. Shield can also damage player and be added to enemies. Shield can have any shape based on static mesh.



15.A Vault

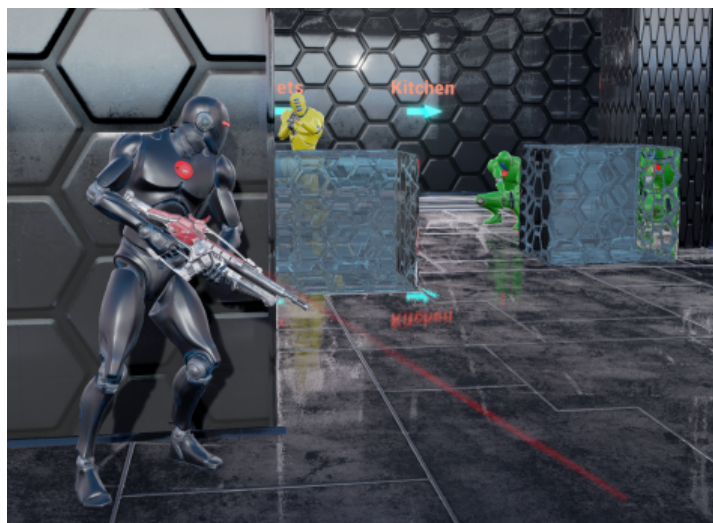
Vault triggers are used to jump over obstacles. They can also be used by AI. To start vault, sprint towards obstacles. When you place vault trigger in 2D space, remember to rotate it in correct orientation - red arrow means forward, green backward.

16.A Cover system - general info

Cover can be used when player is in trigger volume. To enter/exit cover press "use" button. By default it's F key on keyboard and Y button on gamepad. Green mesh (back wall) indicated target plane where player will move to with offset ("cover wall offset" in BP_SideScrollerCharacter. By default it's 40 cm).

16.B Cover system - standing cover

Cover blueprint can be scaled easily. Just remember that peaking trigger has to be on main trigger edges or bit out of it. They indicated point where player can start peaking.



16.C Cover system - crouching cover

Cover can also force crouching. In that kind of cover, player can peak forward when he's not near and rotated to cover edge (in peaking trigger). Yellow arrow indicated player forward direction. Cover has to be set always in this direction like in these examples. When player is in peaking area, he can blind shoot by pressing shooting key.

16.D Cover system - static covers

In static cover points, player can't move sideways. Player is aligned to cover point middle point. To enable static cover, set "Static cover point" to true in cover point blueprint settings. Static covers should be pretty narrow, like examples below. Bear in mind that in crouching static cover point, player can't use front aiming. But it can be achieved by disabling side peaking, like in next example. Camera angle in front aiming can be change using "Toggle camera" key. By default it's tab on keyboard and right thumbstick button on gamepad.

16.E Cover system - obstacles and camera

When there is obstacle between player exit target location, player can't leave cover. Cover can also keep default camera location. Set "Leave default camera" to make effect. Each individual camera location, can be set by changing location of camera helpers. Look in BP_SideScrollerCharacter for section camera visibility.

16.F 2D cover - general info

2D covers are used for player plane cover, so player can aim forwards/backwards within plane. Remember to set up correct direction (Cover orientation). Yellow arrow indicated forward plane direction. Player can't move in 2D cover. It is treated like in front aiming. Skeletal mesh helper indicates target location for cover.

16.F 2D cover - camera and custom location

2D covers can have custom target location (Cover location) so cover itself don't have to be on player's plane. Covers can have default or custom cameras.



17.A Sliding

Player can slide under obstacles. To start sliding, use crouch key while sprinting. Sliding makes damage to enemies and obstacles.

18.A Melee attacks

Player can use melee attacks to damage enemies. There are 2 types of melee attacks: weapon attack and kick attack. Kick can be trigger by default with "tab" key on keyboard and right trigger on gamepad. For weapon attack it's middle mouse button and X/right thumbstick button on gamepad.

19.A Human AI - general info

Human AI (BP_SideScrollerAI) can be used in 2D space (player space) or in depth in 3D space. It's driven by variable "AI Is 2D Plane". AI has two major states - patrolling and combat. AI starts patrol if "Initial Pathnode" (BP_Pathnode) is set. AI switch to combat when saw/heard player, heard shot or it's alarmed by other enemy. When AI is shot into head, he dies instantly.

19.B Human AI - 2D space - patrolling

For 2D space - AI actor should be aligned to players movement plane. Best approach is to make level aligned to some axis (like this level), take "depth" location from player and set to AI. In this level for example, movement is aligned to Y axis, player and AI should have the space location in X axis. Setting pathnodes and cover point for 2D AI's works the same way.

19.D Human AI - 2D space - combat

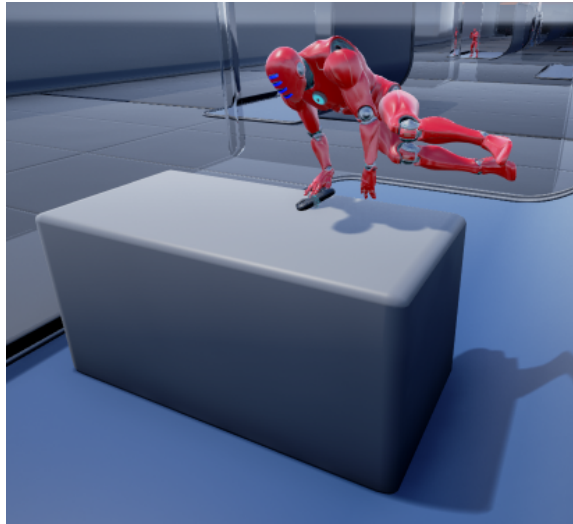
For 2D space - AI have to combat modes - keeping distance to player or random fight. By default AI is using keeping distance to player. Both modes can be adjusted with variables which are in sections with the same name. Random fight: AI will be moving left/right, wait idle, crouch based on set probability. Keeping distance to player: AI will run towards or away from player character based on set distances. When AI lose sight on player, he will go back to patrol to next pathnode.

19.E Human AI - 3D space - combat

For 3D space - AI has one combat mode: random fight - AI will be moving left/right, wait idle, crouch based on set probability.

19.F Human AI - vault

Vault triggers can be used by AI for as well. When you place vault trigger in 2D space, remember to rotate it in correct orientation - red arrow means forward, green backward. To connect nav mesh between obstacle, use nav link proxy actor (from "modes" tab).



19.G Human AI - pathnodes

Pathnodes indicates AI's patrol route. Each pathnode can have multiple connected pathnodes (Next pathnode array). AI will choose next pathnode by random. If chosen pathnode is taken by other AI, he will take another one. If AI can't find any available pathnode, he will wait 3 seconds and start search again. AI can stay in pathnode forever. AI can play multiple animations while being in pathnode, in order or random. Each animation have multiple settings. For example animation can be played only on upper body, or/and with different arms poses.

19.H Human AI - stealth kill

Player can perform stealth kill (only for 2D AI's) when AI is not in alarm mode. To enable stealth kill, player has to be in AI's "Stealth kill volume". It's hidden by default. Player can't use stealth kill when jumping, sprinting, vaulting, melee attacking and depth aiming. Stealth kill by default is triggered with middle mouse button or X (face button left) on gamepad.



19.I Human AI - jumping

AI can jump when using "BP_AI_Jump_Invoker". AI can make normal jump limited by jump Z velocity or he can be launch to any direction which overriding normal jumping height. To use it properly, add nav link proxy before jump invoker, like in example nearby. It can be used for 2D and 3D AI's as well.

19.I Human AI - covering

AI can go to cover point during alarmed mode. Each cover point can be use as crouching or standing cover. If AI is in 2D space, variable "Cover for 2D plane" has to be set to true. AI is going to nearest available cover point. There is a lot of variations how AI should use cover point. Look for "Covering settings" section in BP_SideScrollerAI for more info.

19.K Human AI - noise material

Shooting to wall with physical material "PM_Bullet_Hit_Noise_Surface" will make noise (same like gunshot) and alarm AI. "Material M_Noisy_Wall" which is applied nearby has already this physical material. Hit noise range is defined in "BP_Bullet" with variable "Bullet Hit Noise Max Range". Bear in mind the gunshot makes noise faster then bullet hitting the wall.

19.L Human AI - destructible cover

AI Covers and vault triggers can be connected to "BP_Cracked_Wall". It destructible mesh which can be destroyed by player or/and AI. You can connect AI's covers and vault triggers, so when wall is destroyed, cover and vault will also be destroyed. In that case AI will notice that immediately and change cover/go to fight mode. Notice that radial force actor (which destroys mesh) change location when BP is rescaled. Radial force should be near mesh but it can't be inside mesh.

19.M Human AI - melee attacks

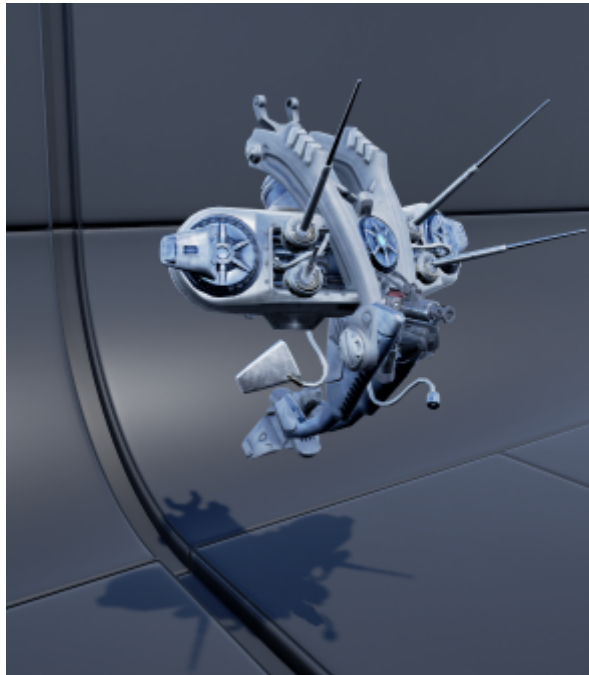
When player in near AI, he will attack with melee attacks, randomly with side kick and weapon attack. AI starts attacking when distance between player and AI less then "Melee attack detection distance" which 20 cm by default. Melee attacks are used only by 2D AI's.

20.A Spawn drop component

When BP_Spawn_Drop_Component is added to actor, it will spawn loot (BP_Pickable_Object) when actor is destroyed. It is driven by BP_Enemy_Component with dispatcher "component destroyed". For human AI and any other actor without enemy component, it can be called with function "Spawn pick up". By default every enemy has spawn drop component. Example actors as non-enemies are "BP_Loot_Chest" and "BP_Loot_Ball" which serves only as loot spawners.

21.A Flying bot enemy

Flying bots (BP_Flying_Bot_Enemy) are robots driven by spline movement. On alarmed they start shooting but they don't rotate towards player. Spline movement has multiple parameters which are located in "Spline movement settings" section.

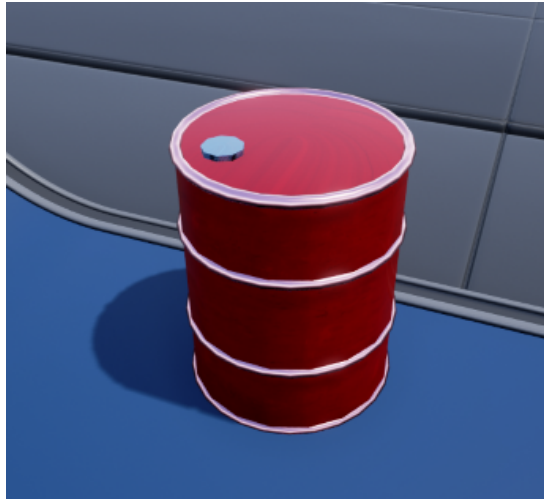


22.A Plasma enemy

Plasma enemy (BP_Flying_Plasma_Enemy) it's a flying pulsing sphere which indicates damage to player on overlap. It's driven by spline movement same like flying bots. They can't be destroyed.

23.A Exploding barrels

Exploding barrels damage player and/or enemies within radius upon destruction. They can be destroyed by player and/or enemy. Actor with enemy component - to set how much damage they should receive, adjust variable "Explosion receive damage" in enemy component. Barrels can also destroy each other.



24.A Quick time events (QTE) - general info

Quick time events are implemented with button panel which is base blueprint for any similar interactions. QTE can be activated with "use" key when player is in volume. QTE can be interrupted when player receives damage.

There are 4 types of QTE:

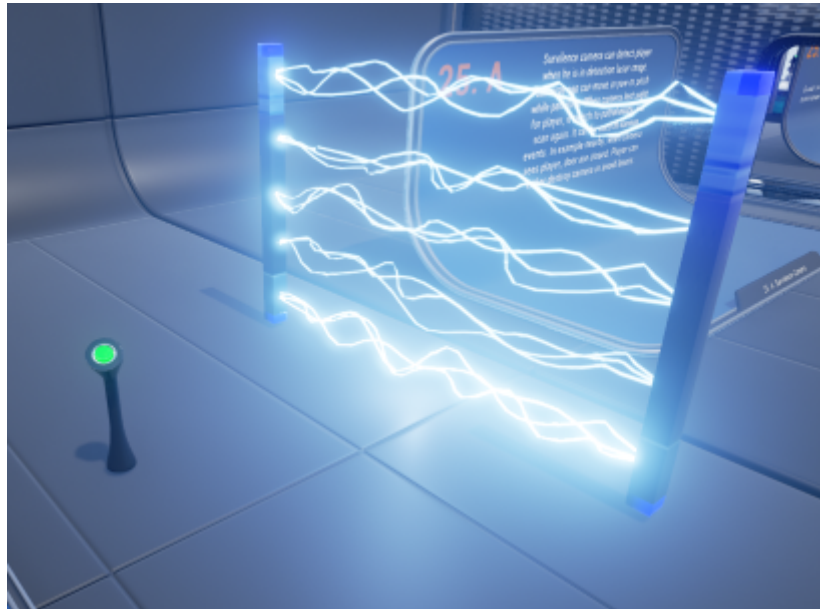
- single input - just pressing a button
- hold button - player has to hold key for certain amount of time
- press in order - player has to press keys in correct order for limited time
- press repeatedly - player has to press one key number of times in limited time

Player's character is moving hand and upper body towards IK target (Button IK target point). Panel meh itself can be set to invisible so other mesh can be use as interactable. Key icon changes dynamically when player start using gamepad/keyboard.



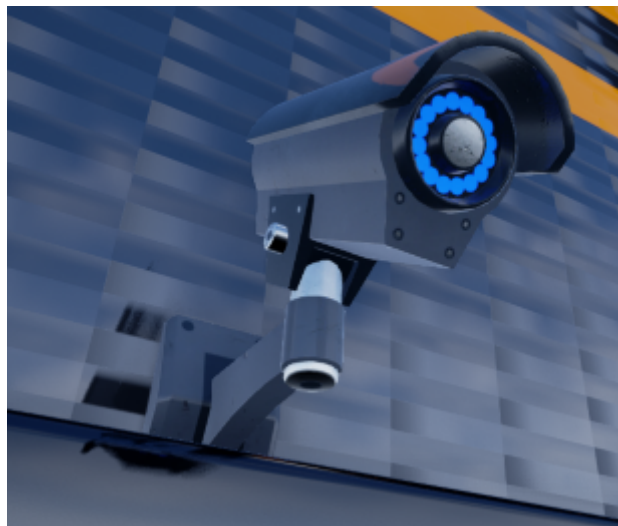
24.B QTE example - trap

Button panel can be used also to activate/deactivate traps for example.



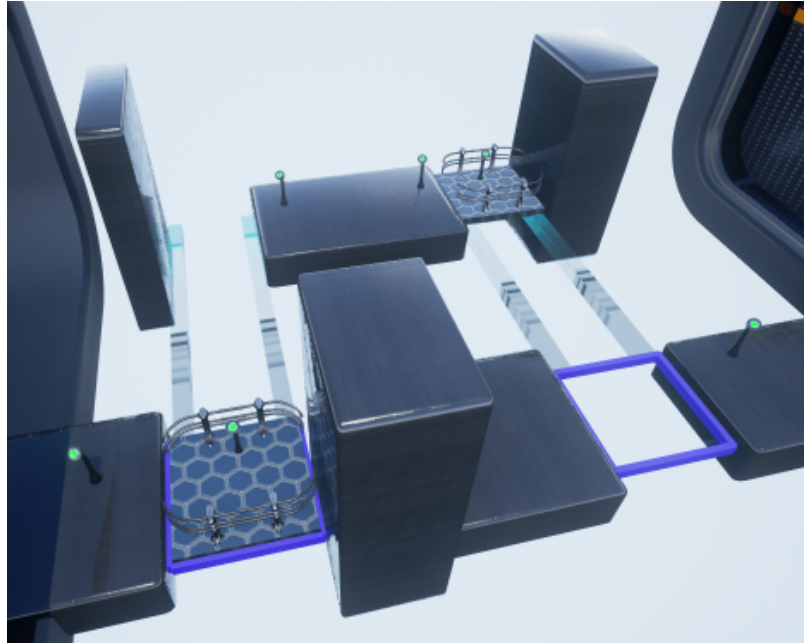
25.A Surveillance camera

Surveillance camera can detect player when he is in detection laser range. Cameras can move in yaw or pitch while patrolling. When camera lost sight for player, it switch to patrol mode and scan again. It can be used in various events. In example nearby, when camera sees player, door are closed. Player can either destroy camera or avoid lasers.



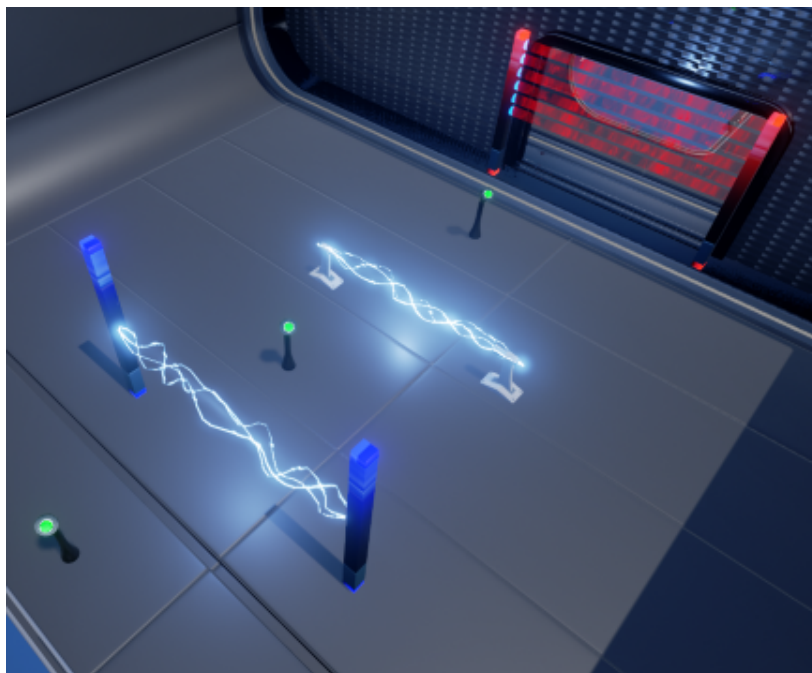
26.A Elevator - custom location

Elevator can be used to transfer player to any location. In this example, elevator takes player to different plane.



27.A Traps example

These are traps couple of example traps which can be deactivated with button panel or other actor/script. You can "BP_Panel_And_Damage_Area_Base" to make any type of trap or interaction.



28.A Enemies interactions

Enemies can alarm each other. See section "Alarm enemies" in each enemy or keyword "alarm". For example, when camera see player, it alarm connected turret which starts to shoot.

29.A Level finish

To finish level with "finish menu" use "BP_Finish_level". Remember to set proper level name in "Additional settings/current level". To add/remove levels from list, edit enum "E_Level_list". Names on the list should be same as level map, so buttons in finish level menu could work correctly. Step on green area to finish this level.

4.Blueprints editable variables

1. BP_SideScrollerCharacter

General player settings

Variable name	Type	Default value	Description
Invincible Time	Float	0.4	Amount of time (in seconds) of mesh blinking when player gets damage. Player is invincible in that time.
Damage Blinking Indication Speed Scale	Float	3	How fast mesh should blink when gets damage.
Hit Reactions Enabled	Bool	True	Is player should react to damage with animation (Interrupting aiming)
Hit React Scale	Float	0.2	How strong character should react after getting hit
Respawn Time	Float	3	How long player have to wait until respawn
Sprint speed	Float	800	How fast character should run during sprint
Sprint fly speed	Float	800	How fast character should moving during sprint and jump
Mouse sensitivity	Int	8	Sensitivity of mouse during aiming.

Hit back in depth aiming?	Bool	False	Gamepad - should aiming during "in depth mode" move back to center point or should it works like in FPS game/mouse mode. True = aiming back to center, false = aiming like in FPS game/mouse mode
Gamepad - right stick sensitivity	Int	8	Sensitivity of aiming for game pad during "in depth" aiming. Works only if "Hit back in depth aiming?" is false
Hit back in normal aiming?	Bool	True	Gamepad - should aiming during "normal mode" move back to center point or should it works like in FPS game/mouse mode. True = aiming back to center, false = aiming like in FPS game/mouse mode
Switch to in depth cam - interp speed	Float	9	How fast should camera move during transition from normal cam to in depth cam
In depth aim - interpolation speed	Float	1.5	How fast player's mesh upper body should rotate, while transition between "in depth" aim mode and normal aim mode.
Switch to normal cam - interp speed	Float	9	How fast should camera move during transition from in depth cam to normal cam
Crouch walk speed	Float	350	How fast should player walk while crouching.
Load progress?	Bool	False	True = ammo amount loaded on level start from players progress save BP, false = loads defaults.
Aim trace length	Float	25000	How far player can aim. In other words, distance (in cm)between muzzle flash socket and crosshair.
Debug - draw aiming trace	EDraw DebugTrace Enum	None	Enabling visibility of line trace for aiming.
Debug - draw stand up check trace	EDraw DebugTrace Enum	None	Enabling visibility of line trace for stand up available check.
Damage indicated with dissolve effect	Bool	True	Should damage be indicated with "energy flow" effect or with standard "blinking material" effect. True = energy flow enabled, False = disabled
Run Max Walk Speed	Float	600	How fast should player run.

Debug - draw ladder availability trace	EDraw DebugTrace Enum	None	Enabling visibility of line trace for ladder climb availability.
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Noise settings

Variable name	Type	Default value	Description
Jump Land Make Noise	Bool	True	When player lands, he's making noise attracting AI's
Run Step Make Noise	Bool	True	When player make run step, he's making noise attracting AI's
Sprint Step Make Noise	Bool	True	When player make sprint step, he's making noise attracting AI's
Crouch Walk Step Make Noise	Bool	True	When player make crouching walk step, he's making noise attracting AI's
Jump Land Noise Range	Float	290	Noise range when player lands.
Run Step Noise Range	Float	230	Noise range when player runs.
Sprint Step Noise Range	Float	360	Noise range when player sprints.
Crouch Walk Noise Range	Float	30	Noise range when player crouch walks.

Camera visibility - editor only

Variable name	Type	Default value	Description
Side View Camera (main) - Visibility	Bool	True	In editor visibility of: side view camera
Depth Aim Mode Right Helper Cam - Visibility	Bool	False	In editor visibility of: Depth Aim Mode Right Helper Cam
Stealth Camera Right - Visibility	Bool	False	In editor visibility of: Stealth Camera Right
In Cover Facing Right Cam - Visibility	Bool	False	In editor visibility of: In Cover Facing Right Cam

In Cover Facing Left Cam - Visibility	Bool	False	In editor visibility of: In Cover Facing Left Cam
Peak Aiming Right Cam - Visibility	Bool	False	In editor visibility of: Peak Aiming Right Cam
Peak Aiming Left Cam - Visibility	Bool	False	In editor visibility of: Peak Aiming Left Cam
Depth Aim Mode Left Helper Cam - Visibility	Bool	False	In editor visibility of:Depth Aim Mode Left Helper Cam
In Cover Facing Left Crouch Cam - Visibility	Bool	False	In editor visibility of: In Cover Facing Left Crouch Cam
In Cover Facing Right Crouch Cam - Visibility	Bool	False	In editor visibility of: In Cover Facing Right Crouch Cam
Front Aim Mode Right Helper Cam - Visibility	Bool	False	In editor visibility of: Front Aim Mode Right Helper Cam
Front Aim Mode Left Helper Cam - Visibility	Bool	False	In editor visibility of: side view camera
In 2D Cover Idle Right Cam - Visibility	Bool	False	In editor visibility of: In 2D Cover Idle Right Cam
In 2D Cover Aiming Right Cam - Visibility	Bool	False	In editor visibility of: In 2D Cover Aiming Right Cam
In 2D Cover Idle Left Cam - Visibility	Bool	False	In editor visibility of: sIn 2D Cover Idle Left Cam
In 2D Cover Aiming Left Cam - Visibility	Bool	False	In editor visibility of: In 2D Cover Aiming Left Cam
Stealth Camera Left - Visibility	Bool	False	In editor visibility of: Stealth Camera Left

Cover settings

Variable name	Type	Default value	Description
In Cover Max Walk Speed	Float	300	How fast player can walk while being in cover mode.
In Cover Max Crouched Walk Speed	Float	200	How fast player can walk while being in cover mode and crouching.

In Cover Camera Transition Speed	Float	8	How fast should camera move during transition in cover mode.
Cover - Blind Shooting - Show Crosshair	Bool	False	Should crosshair be visible while player is blind shooting in cover mode.
Cover - Blind - Save Last Aim Pitch And Yaw	Bool	True	Cover - blind shooting - Should aim pitch and yaw be saved every time when player exits from aiming. Setting false mean that every time when player starts to aim, he will point in the same "center" direction.
Cover - Peaking - Save Last Aim Pitch And Yaw	Bool	True	Cover - peaking - Should aim pitch and yaw be saved every time when player exits from aiming. Setting false mean that every time when player starts to aim, he will point in the same "center" direction.
Cover - Front Peaking - Save Last Aim Pitch And Yaw	Bool	True	Cover - front peaking - Should aim pitch and yaw be saved every time when player exits from aiming. Setting false mean that every time when player starts to aim, he will point in the same "center" direction.
Cover - Front Peaking 2D - Save Last Aim Pitch And Yaw	Bool	True	Cover 2D - front peaking - Should aim pitch and yaw be saved every time when player exits from aiming. Setting false mean that every time when player starts to aim, he will point in the same "center" direction.
Cover Wall Offset	Float	40	Distance between cover wall and player.
Cover - Peak Transition Speed	Float	2.8	How fast player should transition to peak from cover.
Debug - Cover Boundries Check Trace Line	EDraw DebugTrace Enum	None	Enabling visibility of line trace for cover boundaries check.
Cover - Peak Offset Distance	Float	100	Offset distance for player during cover peak aiming. Setting for example 100 - player will move out by 100 units when starts peaking.

Cover - Blind Offset Distance	Float	15	Offset distance for player during cover blind shooting. Setting for example 100 - player will move out by 100 units when starts blind shooting.
Cover 2D Wall Offset	Float	10	Distance between cover wall and player. Used in 2D cover.
Debug - Cover Exit Check Trace Box	EDraw DebugTrace Enum	None	Enabling visibility of box trace for cover exit check.

Health variables

Variable name	Type	Default value	Description
Player's health	Int	100	Amount of player's health on spawn
Player's Health Max	Int	100	Maximum amount of player's health

Asset variables

Variable name	Type	Default value	Description
Normal Crosshair Color	Linear color		Color of crosshair when player not aiming at enemy.
Locked Crosshair Color	Linear color		Color of crosshair when player aiming at enemy.
Recieve area dmg particle	Particle system reference	P_body_bullet_impact	Particle spawned when player recieve area damage.
Receive melee dmg particle	Particle system reference	P_body_bullet_impact	Particle spawned when player receive melee damage from human AI.
Receive bullet dmg particle	Particle system reference	P_body_bullet_impact	Particle spawned when player receive damage from bullet.
Recieve area dmg sound	Sound base reference	SC_FoleyFlesh_Impact	Sound spawned when player recieve area damage.
Receive melee dmg sound	Sound base reference	SC_FoleyFlesh_Impact	Sound spawned when player recieve melee damage from human AI.

Receive bullet dmg sound	Sound base reference	SC_FoleyFlesh_Impact	Sound spawned when player receive damage from bullet.
Item taken - energy flow color	Linear color		Color of dissolve effect when player take a pickup.
Damaged - flow energy color	Linear color		Color of energy flow indicating player damage.
Blinking dmg. indicator - body color	Linear color		When player mesh get damage, it will blink with this color. "Damage indicated with dissolve effect" has to be set to "false" to enable this effect.
Disappear sound	Sound base reference	SC_teleport_01	Sound played when player died and disappear with dissolve effect.

Weapons settings

Variable name	Type	Default value	Description
Default Weapon	E Weapon Type	Pistol	Player will start game with this weapon selected
Shotgun - Number Of Bullets	Int	5	Number of bullets spawned at single shot
Pistol General Settings	S Weapon Properties		Main settings for pistol.
Pistol Silenced General Settings	S Weapon Properties		Main settings for pistol silenced.
Assault Rifle General Settings	S Weapon Properties		Main settings for assault rifle.
Shotgun General Settings	S Weapon Properties		Main settings for shotgun.
Pistol shot delay	Float	0.1	Input interval (in seconds) between shots. In other words, how fast can you shoot.
Pistol silenced shot delay	Float	0.1	Input interval (in seconds) between shots. In other words, how fast can you shoot.

Melee attacks settings

Variable name	Type	Default value	Description
Pistol Melee Dmg Min	Int	20	Minimum damage value for pistol melee type attack.
Pistol Melee Dmg Max	Int	30	Maximum damage value for pistol melee type attack.
Rifle Melee Dmg Min	Int	20	Minimum damage value for rifle melee type attack.
Rifle Melee Dmg Max	Int	30	Maximum damage value for rifle melee type attack.
Side Kick Melee Dmg Min	Int	20	Minimum damage value for side kick melee type attack.
Side Kick Melee Dmg Max	Int	30	Maximum damage value for side kick melee type attack.
Slide Kick Melee Dmg Min	Int	20	Minimum damage value for slide kick melee type attack.
Slide Kick Melee Dmg Max	Int	30	Maximum damage value for slide kick melee type attack.
Pistol Melee Dmg Interval Time	Float	0.5	Delay for pistol melee damage repetition. For example setting to 0.5 - object will receive damage every 0.5 seconds during melee attack.
Rifle Melee Dmg Interval Time	Float	0.5	Delay for rifle melee damage repetition. For example setting to 0.5 - object will receive damage every 0.5 seconds during melee attack.
Side Kick Dmg Interval Time	Float	0.4	Delay for side kick damage repetition. For example setting to 0.5 - object will receive damage every 0.5 seconds during melee attack.
Slide Kick Dmg Interval Time	Float	0.3	Delay for slide kick damage repetition. For example setting to 0.5 - object will receive damage every 0.5 seconds during melee attack.
Debug - draw melee trace	EDraw Debug Trace Enum	None	Enabling visibility of sphere trace for melee attacks.

2. BP_AI_Jump_Invoker

Settings

Variable name	Type	Default value	Description
Launch Character	Bool	True	If set to true, AI will be launched with given velocity. If set to false, AI will trigger normal jump.
Launch Direction	Rotator	Pitch=90, Yaw=0, Roll=0	Launch direction when AI approach trigger. Applied only when "Launch Character" is set to true.
Launch Power	Float	1200	Power of launch.
XY Override	Bool	True	If true replace the XY part of Character's velocity instead of adding to it. (Launch only)
Z Override	Bool	True	If true replace the Z component of the Character's velocity instead of adding to it. (Launch only)

2. BP_AI_vision_blocker

Settings

Variable name	Type	Default value	Description
Collision Hidden in game	Bool	True	Should collision be visible during gameplay. Useful for debug purposes.

3. BP_Automatic_Door

General blueprint settings

Variable name	Type	Default value	Description
Start Door Closed	Bool	True	Should doors be closed at level start.
Door A Close Location	Vector	(X=0,Y=0,Z=0)	Location where door A will close to.
Door A Open Location	Vector	(X=0.,Y=256.670563,Z=-12.442413)	Location where door A will open to.
Door B Close Location	Vector	(X=0,Y=0,Z=0)	Location where door will close to.
Door B Open Location	Vector	(X=0,Y=-286.963013,Z=-12.442413)	Location where door B will open to.
Movement Ease In	Bool	True	Should movement ease the start.
Movement Ease Out	Bool	True	Should movement ease the end.
Doors Movement Duration	Float	0.6	How long doors should open/close.
Show Wall	Bool	True	Should wall be used in this blueprint.
AI Can Open Doors	Bool	True	If set to true, AI can also open this doors on trigger enter.

4. BP_Button_Panel

Assets variables

Variable name	Type	Default value	Description
Single Button Push Sound Asset	Sound base	SW_Text_Pop	Push button sound.
Button Hold Sound Asset	Sound base	SW_Blueprints_Scanner17	Sound when player is holding button.

QTE Wrong Button Sound Asset	Sound base	SW_Door_Beep01	Sound when player failed QTE.
QTE Good Button Sound Asset	Sound base	SW_Blueprints_TextPop03	Sound when player win QTE.

QTE press repeatedly settings

Variable name	Type	Default value	Description
QTE - Press Repeatedly - Time Limit	Float	5	Time limit for QTE - if this time elapse player will fail QTE. Works only if "Panel Action Type" is set to "QTE - Press Repeatedly"

QTE in order settings

Variable name	Type	Default value	Description
QTE - Press In Order Text	Text	To Start Hacking	Hud text for QTE press in order action type.
QTE In Order - Time Limit	Float	5	Time limit for QTE - if this time elapse player will fail QTE. Works only if "Panel Action Type" is set to "QTE - Press in Order"
QTE In Order Keys - Keyboard	S QTE Keys		List of keyboard keys to put during QTE "in order".
QTE In Order Keys - Gamepad	S QTE Keys		List of gamepad keys to put during QTE "in order".

Button hold settings

Variable name	Type	Default value	Description
Button Hold - Execution time	Float	1	How long player should hold button to successfully push button. Works only if "Panel Action Type" is set to "Hold Action Button"

Single input settings

Variable name	Type	Default value	Description
Single Input Text	Text	To Use	Hud text for single input action type.

Panel settings

Variable name	Type	Default value	Description
Panel Action Type	E Button Panel	Single input	What action player has to perform to open doors.
Use Only Once	Bool	False	Should this panel be used only once by player.
Start Deactivated Button Color	Bool	True	Button color has "off" color from the start.
Update HUD Slider Interval	Float	0.01	How frequent horizontal slider should update.
Action Can Be Interrupted By Hit	Bool	True	Whether using this panel can be interrupted by when player gets damage.

5. BP_Camera_change

Settings

Variable name	Type	Default value	Description
Trigger volume transform	Transform	(Rotation=(X=0,Y=0,Z=0,W=1, Translation=(X=0,Y=0,Z=0), Scale3D=(X=5,Y=1,Z=8))	Transform of trigger volume.
Target camera transform	Transform	(Rotation=(X=0,Y=-0,Z=-1,W=0), Translation=(X=300,Y=0,Z=300), Scale3D=(X=1,Y=1,Z=1))	Transform of target camera
Interpolation speed	Float	0.2	Speed of camera transition.
Change to default camera?	Bool	False	Change to camera transform from game start?

6. BP_Checkpoint

Controls

Variable name	Type	Default value	Description
Triger volume transform	Transform	(Rotation=(X=0,Y=0,Z=0,W=1), Translation=(X=0,Y=0,Z=120), Scale3D=(X=1,Y=6,Z=4))	Transform of trigger which activates checkpoint
Statue transform	Transform	(Rotation=(X=0,Y=1,Z=0,W=0), Translation=(X=0,Y=-200,Z=0), Scale3D=(X=1,Y=1,Z=1))	Transform of checkpoint statue
Set default camera after death?	Bool	False	Set to default or set to changed by "Camera change BP"?

7. BP_Cracked_Wall

Settings

Variable name	Type	Default value	Description
Damage To Break	Int	5	How much damage wall has to receive to break.
Can Receive Machine Bullet	Bool	True	Can this barrel be destroyed by bullet from machine for example turret.
Can Receive Human AI Bullet	Bool	True	Can this barrel be destroyed by bullet from human AI.
Enemy Hit Damage Value	Int	5	If enemy hit wall, how much damage it should make.
Connected Cover Points	BP AI Cover Points reference (array)		Connected cover points will be destroyed when this wall will be destroyed.
Connected Vault Triggers	BP Vault Trigger reference (array)		Connected vault triggers will be destroyed when this wall will be destroyed.
Reset Actor Scale On Destroy	Bool	True	Should reset scale to 1 on destroy.

8. BP_Damage_Area_Blueprint

Additional properties

Variable name	Type	Default value	Description
Damage Type	E Damage Type	Bullet	Type of damage for this object. Area - spawning blood on spine bone. Bullet - spawning blood on hit location.
Volume_Shape	E Volume Shape	Sphere	Shape of damage volume
Minimum Damage Value	Int	3	Minimum amount of damage point applied per one use
Maximum Damage Value	Int	8	Maximum amount of damage point applied per one use
Damage Apply Interval	Float	0.8	How often should damage be applied in seconds
Debug - Volume hidden in game	Bool	True	Should volume be hidden during gameplay.
Damage Area Is Active	Bool	True	Damage area is enabled.

9. BP_Damage_Component

Settings

Variable name	Type	Default value	Description
Damage Area Is Active	Bool	True	Damage area is enabled.
Damage Apply Interval	Float	0.8	How often should damage be applied in seconds
Should Damage Player	Bool	True	Should this damage area damage player's character.
Minimum Player Damage Value	Int	3	Minimum amount of damage point applied per one use for player.
Maximum Player Damage Value	Int	8	Maximum amount of damage point applied per one use

Should Damage AI	Bool	True	Should this damage area damage AI
Minimum AI Damage Value	Int	3	Minimum amount of damage point applied per one use for AI.
Maximum AI Damage Value	Int	7	Maximum amount of damage point applied per one use for AI.
Should Damage AI's Shield	Bool	True	Should this damage area damage AI's shield. "Should Damage AI" has to be set to true to effect.
Minimum Shield AI Damage Value	Int	3	Minimum amount of damage point applied per one use for AI' shield
Maximum Shield AI Damage Value	Int	10	Maximum amount of damage point applied per one use for AI' shield

10. BP_Door_With_Surveillance_Camera

General blueprint settings

Variable name	Type	Default value	Description
Start Door Closed	Bool	True	Should doors be closed at level start.
Door A Close Location	Vector	(X=-51,Y=0,Z=-369.453308)	Location where door A will close to.
Door A Open Location	Vector	(X=-51,Y=283,Z=-369.453308)	Location where door A will open to.
Door B Close Location	Vector	(X=-51,Y=0,Z=-369.449829)	Location where door will close to.
Door B Open Location	Vector	(X=-51,Y=-283,Z=-369.453308)	Location where door B will open to.
Movement Ease In	Bool	True	Should movement ease the start.
Movement Ease Out	Bool	True	Should movement ease the end.

Doors Movement Duration	Float	0.6	How long doors should open/close.
Show Wall	Bool	True	Should wall be used in this blueprint.
AI Can Open Doors	Bool	True	If set to true, AI can also open this doors on trigger enter.

11. BP_Elevator_platform

Settings

Variable name	Type	Default value	Description
Elevator Up Location	Vector	(X=0,Y=0,Z=700)	Target location (Up) for elevator.
Elevator Down Location	Vector	(X=0,Y=0,Z=0)	Initial location (down) from elevator.
Start from top?	Bool	False	Should elevator be on top on level start? If false, it will start start on bottom and move up normally.
Movement Ease Out	Bool	True	Should movement ease the end.
Movement Ease In	Bool	True	Should movement ease the start.
Movement Duration	Float	1	Time of elevator movement.
Elevator Is Active	Bool	True	Should this elevator be active. If set to false, no logic will work.

Panel settings

Variable name	Type	Default value	Description
Low Panel Mesh Transform	Transform	(Rotation=(X=0,Y=0,Z=0.258819,W=0.965926), Translation=(X=25.511843,Y=-4.558081,Z=0), Scale3D=(X=1,Y=1,Z=0.884305))	Transform for panel mesh. (low)
Low Trigger Box Extents	Vector	(X=20.085999,Y=91.542473,Z=59.984196)	Extents from trigger volume from button panel. (low)
Low Panel Actor Transform	Transform	(Rotation=(X=-0,Y=0,Z=-0.707106,W=0.707108), Translation=(X=-74.055756,Y=316.541565,Z=0) Scale3D=(X=1,Y=1,Z=1))	Transform for panel actor (low)

Up Panel Mesh Transform	Transform	(Rotation=(X=0,Y=0,Z=0.258819,W=0.965926), Translation=(X=25.511843,Y=-4.558081,Z=0), Scale3D=(X=1,Y=1,Z=0.884305))	Transform for panel mesh. (up)
Up Panel Actor Transform	Transform	(Rotation=(X=0,Y=-0,Z=-0.707107,W=0.707107), Translation=(X=-74.053818,Y=-255.181305,Z=650.940552), Scale3D=(X=1,Y=1,Z=1))	Transform for panel actor (up)
Up Trigger Box Extents	Vector	(X=20.085999,Y=91.542473,Z=59.984196)	Extents from trigger volume from button panel. (up)
Inside Panel Mesh Transform	Vector	(Rotation=(X=0,Y=0,Z=0.046790,W=0.998905), Translation=(X=3.696963,Y=11.028569,Z=0), Scale3D=(X=1,Y=1,Z=0.884305))	Transform for panel mesh. (inside)
Inside Trigger Box Extents	Vector	(X=32.606644,Y=75.188484,Z=57.074673)	Extents from trigger volume from button panel. (inside)

12. BP_Energy_Component

Settings

Variable name	Type	Default value	Description
Health	Int	100	Object health value
Receive Pistol Damage?	Bool	True	Should object be vulnerable for pistol bullets?
Receive Assault Rifle Damage?	Bool	True	Should object be vulnerable for assault rifle bullets?
Receive Shotgun Damage?	Bool	True	Should object be vulnerable for shotgun bullets?
Receive Pistol Silenced Damage?	Bool	True	Should object be vulnerable for pistol silenced bullets?
Receive Pistol Melee Damage?	Bool	True	Should object be vulnerable for pistol melee attack?
Receive Rifle Melee Damage?	Bool	True	Should object be vulnerable for rifle melee attack?

Recieve Side Kick Damage?	Bool	True	Should object be vulnerable for side kick attack?
Recieve Slide Kick Damage?	Bool	True	Should object be vulnerable for slide kick attack?
Destroy particle	Particle system reference	P_Explosion	Particle spawned when object is destroyed.
Destroy sound	Sound base	SC_Explosion	Sound spawned when object is destroyed.
Use Default Destroy	Bool	True	Should parent actor be destroy with default effect (explosion particle and destroy actor) or has own logic for that. True = default, False = custom logic.
Explosion Recieved Damage	Int	100	How much damage should parent receive on explosion damage.

Noise settings

Variable name	Type	Default value	Description
Make Noise On Hit?	Bool	False	Should hit make noise? Noise alarm enemies.
Make Noise On Actor Destroy?	Bool	True	Should destroyed actor make noise? Noise alarm enemies.
Hit Noise Max Range	Float	0	Max range at which noise can be heard on bullet hit. 0 = no limit.
Destroy Noise Max Range	Float	0	Max range at which noise can be heard on actor destroy. 0 = no limit.

13. BP_Exploding_Barrel

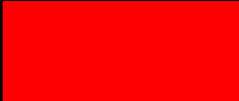
Settings

Variable name	Type	Default value	Description
Explosion Radius	Float	500	Actors within this radius (and with enemy component or AI class) will be affected by

			explosion.
Player Damage Value	Int	80	How much damage player should receive when explosion reached him.
Human AI Damage Value	Int	140	How much damage human AI should receive when explosion reached him.
Should Damage Player	Bool	True	Should this barrel damage player.
Should Damage Human AI	Bool	True	Should this barrel damage human AI.
Damage To Explode	Int	15	How much damage barrel has to receive to explode.
Can Receive Machine Bullet	Bool	True	Can this barrel be destroyed by bullet from machine for example turret.
Can Receive Human AI Bullet	Bool	True	Can this barrel be destroyed by bullet from human AI.
Enemy Hit Damage Value	Int	5	If enemy hit barrel, how much damage it should make.

14. BP_Flying_Bot_Enemy

Assets settings

Variable name	Type	Default value	Description
Patrol mode beam color	Linear color		Color of laser beam in patrol mode
Alarm mode beam color	Linear color		Color of laser beam in alarm mode
Muzzle flash effect	Particle system reference	P_Turret_MF	Particle effect for muzzle flash
Shot sound	Sound base	SC_AssaultRifle	Sound for single bot's shot
Shot Sound Volume Multiplier	Float	0.5	Shot sound volume scale.
Destroy Particle	Particle system reference	P_Explosion	Particle spawned when object is destroyed.

Shooting settings

Variable name	Type	Default value	Description
Shooting delay	Float	0.2	How fast bot should shoot bullets. For example: 1 - every one second, 0.1 - every 0.1 second and so on.
Maximum damage value	Int	8	Maximum amount of damage point applied per one bullet.
Minimum damage value	Int	3	Minimum amount of damage point applied per one bullet.
Bullet max speed	Float	3500	Limit on speed of projectile. 0 means no limit.
Bullet initial speed	Float	3000	Initial speed of projectile.

Trace settings

Variable name	Type	Default value	Description
Trace length	Float	2000	Length of bot's detection lasers
Trace cone angle scale	Float	4	Radius of trace cone
Lost trace time	Float	0.05	Bot stops shooting when lost sight and this period of time elapse. For example - setting 0.5 - when bot won't see you it will stop shoot after 0.5 seconds.
Single trace?	Bool	False	Spawn only one straight trace starting from muzzle flash? If false - spawning cone trace.
Debug - draw trace debug type	EDraw DebugTrace Enum	None	Should draw debug traces

General settings

Variable name	Type	Default value	Description
Range Activation Enabled	Bool	True	Should this flying bot be activated/deactivated when player is within range(Activate Range). If not, it will be always activated.

Activate Range	Float	7000	How close player should be to activate this flying bot.
Bot's health	Int	230	Health amount of this bot.
Health critical percentage	Float	35	Below this percentage of health, bot will start burn.
Return to patrol time	Float	3	How long bot should look for player after stop seeing him. After this time bot will stop looking at player and go from stand by mode to patrol mode.
Keep Alarm Mode Based On AI State	Bool	False	Should this flying bot keep alarm mode state until connected AI's are in alarm mode.
Bot Can See Player When He's Covered	Bool	False	Can this bot see player at all when he's in cover. For example, bot can see only player's head and we don't want to bot to react for that.
Should Alarm AI's On Alarm	Bool	False	Should this bot alarm other AI's when is in alarmed mode. AI's has to be connected to array "Connected AI's"
Connected AI's	BP Side Scroller AI reference (array)		Referenced AI's to call alarm mode.
Connected Turrets	BP Turret Enemy reference (array)		Referenced turrets to alarm. In short, when this bot will be alarm, it will instantly alarm connected turrets.
Connected Cameras	BP Surveillance Camera reference (array)		Referenced cameras to alarm. In short, when this camera will be alarm, it will instantly alarm other connected cameras.
Connected Flying Bots	BP Flying Bot Enemy reference (array)		Referenced flying bots to alarm. In short, when this camera will be alarm, it will instantly alarm other flying bots.
Alarm on Damage Received	Bool	True	Should bot alarm on bullet hit.
Laser Beams Scale Multiplier	Float	1	Scale of laser beams.

Spline movement settings

Variable name	Type	Default value	Description
Auto Activate	Bool	True	Should this actor move from begin play or it has to be started by external event.
StartPointIndex	Int	0	From which spline point actor should start moving.
CloseSpline?	Bool	False	Should spline be looped.
StopDuration	Float	1	How long actor should remain when reaching spline point.
UseSplineRotation	Bool	True	Should use rotation from spline point.
Start Delay	Float	0	How much time actor should wait before start moving.
TravelDuration	Float	1	Complete travel time for actor. Setting for example 5 - travel from first to next point take 5 seconds.
CustomStartEndStop?	Bool	False	Should actor wait specific amount of time while being in first and last spline point. Duration is driven by "Start End Stop Duration".
Ease?	Bool	True	Should movement be eased when actor reaching spline point. If set to false - using linear movement.
StartEndStopDuration	Float	2	How much time actor should wait while being in fist and last point. "Custom Start End Stop" has to be set to true to make it work.
Show Direction Arrows	Bool	True	Render in editor spline movement direction arrows.

Shield settings

Variable name	Type	Default value	Description
Bot Has Shield	Bool	False	Should bot have shield.
Shields Health	Int	30	Shields health.
Damage Per Shot	Int	3	Single bullet damage amount.
Player Damage Value	Int	20	How much player should be damage while being in shield volume. "Damage Player On Shield Overlap" has to be set to true to effect.

Damage Player Interval Time	Float	0.3	Interval time between damaging player when he is in sphere volume. "Damage Player On Shield Overlap" has to be set to true to effect.
Damage Player On Shield Overlap	Bool	True	Should player get damage when overlapping shield sphere.
Should Regenerate Health	Bool	True	Should health be automatically regenerated.
Regenerate Invoke Interval Time	Float	0.3	Interval between regenerate health invokes.
Regeneration % Per Invoke	Float	7	How % of health should be regenerated per one health regeneration invoke.

Spawn drop settings

Variable name	Type	Default value	Description
Spawn Drop Item Spawn Probability (%)	Int	50	Probability on spawning item after actor destroy.
Spawn Drop Item List	S_Item_Probability_Spawn		Item list to spawn with their probabilities.

15. BP_Flying_Plasma_Enemy

Plasma settings

Variable name	Type	Default value	Description
Player Damage Value	Int	80	How much player should be damage while being in shield volume. "Damage Player On Shield Overlap" has to be set to true to effect.
Damage Player Interval Time	Float	0.1	Interval time between damaging player when he is in sphere volume. "Damage Player On Shield Overlap" has to be set to true to effect.
Pulsing Scale Multiplier	Float	1	How strong should plasma pulse.
Pulsing Enabled	Bool	True	Should plasma change scale during runtime.

Pulsing Speed	Float	2	How fast plasma should pulse.
Pulsing Start Delay	Float	0	Time before pulsing start.

Spline movement settings

Variable name	Type	Default value	Description
Movement Auto Activate	Bool	True	Should this actor move from begin play or it has to be started by external event.
StartPointIndex	Int	0	From which spline point actor should start moving.
CloseSpline?	Bool	False	Should spline be looped.
StopDuration	Float	1	How long actor should remain when reaching spline point.
UseSplineRotation	Bool	True	Should use rotation from spline point.
Start Delay	Float	0	How much time actor should wait before start moving.
TravelDuration	Float	1	Complete travel time for actor. Setting for example 5 - travel from first to next point take 5 seconds.
CustomStartEndStop?	Bool	False	Should actor wait specific amount of time while being in first and last spline point. Duration is driven by "Start End Stop Duration".
Ease?	Bool	True	Should movement be eased when actor reaching spline point. If set to false - using linear movement.
StartEndStopDuration	Float	2	How much time actor should wait while being in first and last point. "Custom Start End Stop" has to be set to true to make it work.
Show Direction Arrows	Bool	True	Render in editor spline movement direction arrows.

16. BP_Ladder

Settings

Variable name	Type	Default value	Description
Trigger location	Vector	(X=-0.001377, Y=55.437828, Z=269.666016)	Location of trigger volume.
Trigger extents	Vector	(X=55.071098, Y=21.899050, Z=210)	Size of trigger volume.
Ladder direction	E_Right_Left	Right	Direction of ladder according to camera view.
Jump Off Launch Direction	Rotator	(Pitch=60, Yaw=-90, Roll=0)	Launch direction when player jump off from ladder.
Jump Off Launch Power	Float	700	Power of launch when player jump off from ladder.
Can Leave Ladder From Top	Bool	False	Can player leave ladder by climbing up to the top.

17. BP_Launchpad

Settings

Variable name	Type	Default value	Description
Launch Direction	Rotator	(Pitch=90, Yaw=0, Roll=0)	Launch direction when player bounce from pad.
Launch Power	Float	1200	Power of launch when player bounce off.

18. BP_Ledge_Climber

Settings

Variable name	Type	Default value	Description
Force Crouch After Climb	Bool	False	Should character be forced to crouch right after climbing finished. It's useful when player enters some low area, for example ventilation shaft.
Direction	E_Right_Left	Right	Direction of climber.
Fall Threshold	Float	-100	Velocity of how much player can fall and still climb this ledge. For example - setting -200: if player's velocity will be below -200 on Z axis, he won't climb.

19. BP_Pickable_Object

Properties

Variable name	Type	Default value	Description
Pickable type	E_Pickable_Type	Health	Type of object to pick up by player
Trigger sphere radius	Float	32	Size of trigger area
Health Amount	Int	30	How much health will be added
Full text display time	Float	2	For how long should be displayed info about full ammo/health
Pistol Amount	Int	20	How much ammo for pistol will be added
Assault Rifle Amount	Int	30	How much ammo for assault rifle will be added
Pistol Silenced Amount	Int	5	How much ammo for pistol silenced will be added
Shotgun Amount	Int	5	How much ammo for shotgun will be added
Text color (Deprecated)	Linear color		Color of "Ammo/Health full" text message.
Health taken - enable	Bool	True	Show enable energy flow effect when

energy flow?			player takes health pickup.
Assault Rifle Ammo taken - enable energy flow?	Bool	True	Show enable energy flow effect when player takes assault rifle ammo pickup.
Shotgun Ammo taken - enable energy flow?	Bool	True	Show enable energy flow effect when player takes shotgun ammo pickup.
Pistol Ammo taken - enable energy flow?	Bool	True	Show enable energy flow effect when player takes pistol ammo pickup.
Pistol Silenced Ammo taken - enable energy flow?	Bool	True	Show enable energy flow effect when player takes pistol silenced ammo pickup.

20. BP_Player_Cover_Point

Settings

Variable name	Type	Default value	Description
Default Cover Pose	E_Stand_Crouch	Standing	Should player crouch or stand while starting using this cover actor.
Static Cover Point	Bool	False	Should walk movement be disabled in this cover point. Set this to true if cover point is narrow for example a column. Player will be attached to center of back wall mesh.
Peak Left Trigger Location	Vector	(X=-185.697525, Y=-100.692879, Z=71.518097)	Location for left peak trigger area.
Peak Right Trigger Location	Vector	(X=182.671661, Y=-100.730881, Z=71.512283)	Location for left peak trigger area.
Leave Default Camera	Bool	False	Should camera switch to cover mode while player is not peaking. True = camera will remain the same, false = camera will get close to player during cover mode.

Can Use Front Aiming	Bool	True	Can player use front aiming while using this cover. Default cover pose has to be set to crouching to make use of it. It helps when player is in low area (vent shaft, low ceiling corridor) and can only aim sideways. To make effect, cover point can't be static (Static Cover Point = true)
Left Peaking Enabled	Bool	True	Can player peak left in this cover. Not effecting when cover point is static.
Right Peaking Enabled	Bool	True	Can player peak right in this cover. Not effecting when cover point is static.

21. BP_Player_Cover_Point_2D

Settings

Variable name	Type	Default value	Description
Cover Orientation	E_Right_Left	Right	Should cover be used on right side or left side from player. Look on skeletal mesh helper and arrow helper for reference.
Cover Location	Vector	(X=18.258812, Y=0, Z=-0.000046)	Location where player's character will cover.
Keep Default Camera	Bool	False	If set to true, camera won't change while using this cover. No applicable when player is aiming. "Use Custom Camera" has to be set to false to make effect.
Use Custom Camera	Bool	False	If set to true, camera will change to custom camera from this blueprint while using this cover. No applicable when player is aiming.

Custom Camera Transform	Transform	(Rotation=(X=-0.,Y=0.,Z=-0.707107, W=0.707107), Translation=(X=0,Y=73.416405,Z=133.736328), Scale3D=(X=1,Y=1,Z=1))	Transform for custom camera.
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22. BP_Shield

Settings

Variable name	Type	Default value	Description
Shield Mesh	Static Mesh	Sphere	Static mesh for shield.
Health	Int	50	Shields health.
Damage Per Shot	Int	3	Single bullet damage amount.
Regeneration % Per Invoke	Float	3	How % of health should be regenerated per one health regeneration invoke.
Should Regenerate Health	Bool	True	Should health be automatically regenerated.
Regenerate Invoke Interval Time	Float	0.4	Interval between regenerate health invokes.
Damage Player Interval Time	Float	0.3	Interval time between damaging player when he is in sphere volume. "Damage Player On Shield Overlap" has to be set to true to effect.
Damage Player On Shield Overlap	Bool	True	Should player get damage when overlapping shield sphere.
Player Damage Value	Int	20	How much player should be damage while being in shield volume. "Damage Player On Shield Overlap" has to be set to true to effect.

23. BP_Surveillance_Camera

General settings

Variable name	Type	Default value	Description
Use Panel Button	Bool	False	Should this camera has connected panel button. Panel will activate/deactivate camera.
Button Push Deactivates Camera	Bool	True	If set to true, button push will deactivate camera. If set to false, button will activate camera.
Active On Start	Bool	True	Should this camera be active on level start.
Camera Patrol Type	E_Turret_patrol_type	Pitch rotation clamped	What type of patrol should camera perform
Range Activation Enabled	Bool	True	Should this camera be activated/deactivated when player is within range(Activate Range). If not, it will be always activated.
Activate Range	Float	12000	How close player should be to activate this camera.
Camera's health	Int	50	Health amount of this camera.
Return to patrol time	Float	2	How long camera should look for player after stop seeing him. After this time camera will stop looking at player and go from standby mode to patrol mode.
Player tracking during alarm	Bool	True	Should camera targeting player during alarm mode. Not applicable when dummy shooting enabled.
Look At Player Rotation Speed	Float	2	How fast camera should rotate to look at player.
Camera Can See Player When He's Covered	Bool	False	Can this camera see player at all when he's in cover. For example, camera can see only player's head and we don't want to camera to react for that.
Keep Alarm Mode Based On AI State	Bool	True	Should this camera keep alarm mode state until connected AI's are in alarm mode.

Should Alarm AI's On Alarm	Bool	False	Should this camera alarm other AI's when is in alarmed mode. AI's has to be connected to array "Connected AI's"
Connected AI's	BP Side Scroller AI reference (array)		Referenced AI's to call alarm mode.
Connected Turrets	BP Turret Enemy reference (array)		Referenced turrets to alarm. In short, when this bot will be alarm, it will instantly alarm connected turrets.
Connected Cameras	BP Surveillance Camera reference (array)		Referenced cameras to alarm. In short, when this camera will be alarm, it will instantly alarm other connected cameras.
Connected Flying Bots	BP Flying Bot Enemy reference (array)		Referenced flying bots to alarm. In short, when this camera will be alarm, it will instantly alarm other flying bots.
Alarm on Damage Received	Bool	True	Should camera alarm on bullet hit.
Camera Alarmed Yaw Range	Float	80	Maximum yaw angle for camera when it's in alarmed mode.
Camera Alarmed Pitch Range	Float	90	Maximum pitch angle for camera when it's in alarmed mode.

Yaw full rotation settings

Variable name	Type	Default value	Description
Yaw Full Rotation Speed	Float	1	How fast camera should rotate horizontally in full rotation patrol mode.
Yaw Full Rotation Static Pitch Angle	Float	-30	Pitch angle when during full yaw rotation.

Trace settings

Variable name	Type	Default value	Description
Trace lenght	Float	2000	Length of camera's detection lasers

Trace cone angle scale	Float	5	Radius of trace cone
Lost trace time	Float	0.05	Camera stops following player when lost sight and this period of time elapse. For example - setting 0.5 - when camera won't see you it will stop shoot after 0.5 seconds.
Single trace?	Bool	False	Spawn only one straight trace starting from muzzle flash? If false - spawning cone trace.
Debug - draw trace debug type	EDraw DebugTrace Enum	None	Should draw debug traces

Pitch clamped mode settings

Variable name	Type	Default value	Description
Pitch Rotation - Direction	E_Turret_pitch_rotation_dir	Forward	Should camera rotate clockwise or counterclockwise during patrol mode. In clamp mode - it will start with this direction.
Pitch Clamped Rot. Restart Delay	Float	1	Pitch rotation - delay for restarting rotation. Setting for example 3 - camera will rotate, wait 3 seconds and rotate again and so on.
Minimum Pitch Angle	Float	-70	Minimum angle to rotate in pitch.
Maximum Pitch Angle	Float	70	Maximum angle to rotate in pitch.
Pitch Rotation Speed	Float	1	How fast camera should rotate in pitch.

Yaw clamped mode settings

Variable name	Type	Default value	Description
Yaw Rotation - Direction	E_Turret_yaw_rotation_dir	Rotate clockwise	Should camera rotate clockwise or counterclockwise during patrol mode. In clamp mode - it will start with this direction.
Yaw Clamped Rot. Restart Delay	Float	1	Yaw rotation - delay for restarting rotation. Setting for example 3 - camera will rotate, wait 3 seconds and rotate again and so on.
Minimum Yaw Angle	Float	-70	Minimum angle to rotate in yaw.
Maximum Yaw Angle	Float	70	Maximum angle to rotate in yaw.
Yaw Rotation Speed	Float	1	How fast camera should rotate in yaw.
Yaw Rotation Static Pitch Angle	Float	-30	Pitch angle when during yaw rotation.

Assets settings

Variable name	Type	Default value	Description
Patrol mode beam color	Linear color		Color of laser beam in patrol mode
Alarm mode beam color	Linear color		Color of laser beam in alarm mode
Destroy Particle	Particle system reference	P_Explosion	Particle spawned when object is destroyed.
Camera Deactivated Beam Color	Linear color		Color of laser beam when camera is deactivated.

24. BP_Turret_enemy

General settings

Variable name	Type	Default value	Description
Turret patrol type	E_Turret_patrol_type	Yaw rotation clamped	What type of patrol should turret perform
Range Activation Enabled	Bool	True	Should this turret be activated/deactivated when player is within range(Activate Range). If not, it will be always activated.
Activate Range	Float	7000	How close player should be to activate this turret.
Turret's health	Int	230	Health amount of this turret.
Health critical percentage	Float	35	Below this percentage of health, turret will start burn.
Return to patrol time	Float	2	How long turret should look for player after stop seeing him. After this time turret will stop looking at player and go from standby mode to patrol mode.
Yaw full rotation speed	Float	1	How fast turret should rotate horizontally in full rotation patrol mode.
Player tracking during alarm	Bool	True	Should turret targeting player during alarm mode. Not applicable when dummy shooting enabled.
Dummy shooting enabled?	Bool	False	Shooting without break, without player detection. No player tracking. In other words, constant alarm mode.
Dummy shooting - start delay	Float	0	Shooting will start after this period counting from begin play. It's useful to de synchronise turrets shooting.
Look At Player Rotation Speed	Float	2	How fast turret should rotate to look at player.r.
Turret Can See Player When He's Covered	Bool	False	Can this turret see player at all when he's in cover. For example, turret can see only player's head and we don't want to turret to react for that.

Keep Alarm Mode Based On AI State	Bool	False	Should this turret keep alarm mode state until connected AI's are in alarm mode.
Should Alarm AI's On Alarm	Bool	False	Should this turret alarm other AI's when is in alarmed mode. AI's has to be connected to array "Connected AI's"
Connected AI's	BP Side Scroller AI reference (array)		Referenced AI's to call alarm mode.
Connected Turrets	BP Turret Enemy reference (array)		Referenced turrets to alarm. In short, when this bot will be alarm, it will instantly alarm connected turrets.
Connected Cameras	BP Surveillance Camera reference (array)		Referenced cameras to alarm. In short, when this camera will be alarm, it will instantly alarm other connected cameras.
Connected Flying Bots	BP Flying Bot Enemy reference (array)		Referenced flying bots to alarm. In short, when this camera will be alarm, it will instantly alarm other flying bots.
Alarm on Damage Received	Bool	True	Should turret alarm on bullet hit.

Assets settings

Variable name	Type	Default value	Description
Patrol mode beam color	Linear color		Color of laser beam in patrol mode
Alarm mode beam color	Linear color		Color of laser beam in alarm mode
Muzzle flash effect	Particle system reference	P_Turret_MF	Particle effect for muzzle flash
Shot sound	Sound base	SC_Assault Rifle	Sound for single bot's shot
Shot Sound Volume Multiplier	Float	0.5	Shot sound volume scale.
Destroy Particle	Particle system reference	P_Explosion	Particle spawned when object is destroyed.

Yaw clamped mode settings

Variable name	Type	Default value	Description
Yaw Rotation - Direction	E_Turret_yaw_rotation_dir	Rotate clockwise	Should turret rotate clockwise or counterclockwise during patrol mode. In clamp mode - it will start with this direction.
Yaw clamped - min angle	Float	-45	Minimum angle which turret can reach in yaw clamped patrol mode.
Yaw clamped - max angle	Float	45	Maximum angle which turret can reach in yaw clamped patrol mode.
Yaw clamped rotation speed	Float	1	How fast turret should rotate horizontally in full rotation patrol mode.

Shooting settings

Variable name	Type	Default value	Description
Shooting delay	Float	0.2	How fast turret should shoot bullets. For example: 1 - every one second, 0.1 - every 0.1 second and so on.
Maximum damage value	Int	8	Maximum amount of damage point applied per one bullet.
Minimum damage value	Int	3	Minimum amount of damage point applied per one bullet.
Bullet max speed	Float	3500	Limit on speed of projectile. 0 means no limit.
Bullet initial speed	Float	3000	Initial speed of projectile.

Pitch clamped mode settings

Variable name	Type	Default value	Description
Pitch Clamped - rotation range	Float	120	Maximum angle which turret can reach in pitch clamped patrol mode.
Pitch clamped rotation speed	Float	1	How fast turret should rotate vertically in full rotation patrol mode.

Trace settings

Variable name	Type	Default value	Description
Trace length	Float	2000	Length of bot's detection lasers
Trace cone angle scale	Float	4	Radius of trace cone
Lost trace time	Float	0.05	Turret stops shooting when lost sight and this period of time elapse. For example - setting 0.5 - when turret won't see you it will stop shoot after 0.5 seconds.
Single trace?	Bool	False	Spawn only one straight trace starting from muzzle flash? If false - spawning cone trace.
Debug - draw trace debug type	EDraw DebugTrace Enum	None	Should draw debug traces

Shield settings

Variable name	Type	Default value	Description
Turret Has Shield	Bool	False	Should turret have shield.
Shields Health	Int	30	Shields health.
Damage Per Shot	Int	3	Single bullet damage amount.

Player Damage Value	Int	20	How much player should be damage while being in shield volume. "Damage Player On Shield Overlap" has to be set to true to effect.
Damage Player Interval Time	Float	0.3	Interval time between damaging player when he is in sphere volume. "Damage Player On Shield Overlap" has to be set to true to effect.
Damage Player On Shield Overlap	Bool	True	Should player get damage when overlapping shield sphere.
Should Regenerate Health	Bool	True	Should health be automatically regenerated.
Regenerate Invoke Interval Time	Float	0.3	Interval between regenerate health invokes.
Regeneration % Per Invoke	Float	7	How % of health should be regenerated per one health regeneration invoke.

Spawn drop settings

Variable name	Type	Default value	Description
Spawn Drop Item Spawn Probability (%)	Int	50	Probability on spawning item after actor destroy.
Spawn Drop Item List	S_Item_Probability_Spawn		Item list to spawn with their probabilities.

25. BP_Vault_trigger

Settings

Variable name	Type	Default value	Description
Left Trigger Transform	Transform	(Rotation=(X=0,Y=0,Z=0.707105,W=0.707108), Translation=(X=-78.852821,Y=0.001225,Z=39.476051), Scale3D=(X=1,Y=1,Z=1))	Transform of left trigger.
Right Trigger Transform	Transform	(Rotation=(X=000000,Y=-0,Z=0.707107,W=0.707107), Translation=(X=75.163826,Y=-1.161931,Z=37.796177), Scale3D=(X=1,Y=1,Z=1))	Transform of right trigger.
Nav Mesh Excluder Transform (Deprecated)	Transform	(Rotation=(X=0,Y=0,Z=0.707107,W=0.707107), Translation=(X=0,Y=0,Z=0), Scale3D=(X=1,Y=1,Z=1))	Transform of nav mesh excluder - area which cut out nav mesh.
Show helper box	Bool	True	Show helper box? Helper box it's a reference for correct obstacle set up.
Enabled for AI?	Bool	True	Should AI be able to use this vault blueprint? Remember to build navmesh after change.
Left trigger yaw angle tolerance	Float	45	AI - Allowed angle difference between AI character and vault trigger. For example - if set to 45 - AI can approach trigger with up to 45 angle turn in booth directions. Applied only for AI in 3D space.
Right trigger yaw angle tolerance	Float	45	AI - Allowed angle difference between AI character and vault trigger. For example - if set to 45 - AI can approach trigger with up to 45 angle turn in booth directions. Applied only for AI in 3D space.

Useable for AI and Player	Bool	False	Is this trigger can be used by AI and player at the same time. Set true when for example this trigger can reach by player and 3D AI (AI moving in 3D space, in depth).
AI has to sprint to start vault?	Bool	False	AI - has to be in sprint mode to start vaulting? If not, he will start vault from normal run mode.

Debug

Variable name	Type	Default value	Description
Show Free Space Trace - gameplay	EDraw DebugTrace Enum	None	Show debug trace line from tracing for free space to vault during gameplay.
Show Free Space Trace - editor	EDraw DebugTrace Enum	None	Show debug trace line from tracing for free space to vault within editor

25. BP_SideScrollerAI

AI character settings

Variable name	Type	Default value	Description
Auto Activate AI	Bool	True	Should this AI be activated on level start.
Range Activation Enabled	Bool	True	Should this AI be activated/deactivated when player is within range(Activate Range). If not, it will be always activated.
Activate Range	Float	7000	How close player should be to activate this AI.
Hide AI On Out Of Range	Bool	True	Should this AI be hidden when is out of player range (Activate Range). "Range activation enabled" has to be set to true to make effect.

Hide AI On Out Of Range - Use Dissolve	Bool	False	Should this AI use dissolve effect to hide when is out of player's range (Activate Range). "Range activation enabled" and "Hide On Out Of Range" both has to be set to true to make effect.
AI is 2D plane	Bool	False	Is AI moving only in 2D plane. If value is true - adding trace behind AI while he is in alarm mode. Look for "Player behind AI check" event for more info.
Invincible Time	Float	0.1	Amount of time (in seconds) of mesh blinking when AI gets damage. AI is invincible in that time.
Damage Blinking Indication Speed Scale	Float	3	How fast mesh should blink when gets damage.
Hit Reactions Enabled	Bool	True	AI should react to damage with animation (Interrupting aiming)
Hit React Scale	Float	0.7	How strong character should react after getting hit
Sprint speed	Float	800	How fast character should run during sprint
Sprint fly speed	Float	800	How fast character should moving during sprint and jump
Crouch walk speed	Float	350	How fast should AI walk while crouching.
Patrol Walk Speed	Float	200	How fast AI will walk during patrol mode.
Debug - draw line of sight trace	EDraw DebugTrace Enum	None	Should draw debug traces
Crouch hiding - lean scale	Float	30	When AI is crouching and hiding behind cover, he will lean his spine down, so he won't get headshot or be shoot so easily. It's driven by "Crouch_Aim_Hide_Blend" curve in "crouch_idle" animation. Scale is expressed with angle degrees.
Debug - draw trace box behind AI	EDraw DebugTrace Enum	None	Should draw debug box traces located behind AI
Play Animation On Death	Bool	True	Should AI player death animation when died. If set to false, AI will always use ragdoll.

Enable plane constrain	Bool	True	AI will move only in 2D space based on player rotation. "AI is 2D plane" must be set to true to make effect. Best practice is to set to false only when AI characters can run into each other - when they will have constrain enable, they won't be able to walk around each other. Or when AI has to walk away from 2D space to go cover point.
Debug - sight sensing cone	Bool	False	Draw AI sight cone during gameplay. It works only when AI can see Pawn.
Debug - Editor - Show Stealth Kill Volume	Bool	False	Should stealth kill area be visible in editor. Applied only for AI moving in 2D plane (AI Is 2D Place = true)
Debug - Editor - Show Detect Volume	Bool	False	Should player detect area be visible in editor.

Melee attacks settings

Variable name	Type	Default value	Description
Pistol Melee Dmg Min	Int	20	Minimum damage value for pistol melee type attack.
Pistol Melee Dmg Max	Int	30	Maximum damage value for pistol melee type attack.
Rifle Melee Dmg Min	Int	20	Minimum damage value for rifle melee type attack.
Rifle Melee Dmg Max	Int	30	Maximum damage value for rifle melee type attack.
Side Kick Melee Dmg Min	Int	20	Minimum damage value for side kick melee type attack.
Side Kick Melee Dmg Max	Int	30	Maximum damage value for side kick melee type attack.
Pistol Melee Dmg Interval Time	Float	0.5	Delay for pistol melee damage repetition. For example setting to 0.5 - object will receive damage every 0.5 seconds during melee attack.
Rifle Melee Dmg Interval Time	Float	0.5	Delay for rifle melee damage repetition. For example setting to 0.5 - object will receive damage every 0.5 seconds during melee attack.

Side Kick Dmg Interval Time	Float	0.4	Delay for side kick damage repetition. For example setting to 0.5 - object will receive damage every 0.5 seconds during melee attack.
Debug - draw melee trace	EDraw DebugTrace Enum	None	Enabling visibility of sphere trace for melee attacks.
Melee Attack Detection Distance	Float	20	How player has to be for AI to start melee attack. For example, if set it to 20 - when distance between player and AI is less than 20 cm, AI will attack player with melee attack. It's applied only to 2D mode AI's. Look for service "BTService_Player_in_melee_range" for further reference and info.
Melee Attack Detection - Debug Lines	EDraw DebugTrace Enum	None	Enabling visibility of trace to detect if player is in AI area to melee attack. It's applied only to 2D mode AI's. Look for service "BTService_Player_in_melee_range" for further reference and info.

Weapons settings

Variable name	Type	Default value	Description
Default Weapon	E Weapon Type	Pistol	AI will start game with this weapon selected
Shotgun - Number Of Bullets	Int	5	Number of bullets spawned at single shot
Pistol General Settings	S Weapon Properties		Main settings for pistol.
Pistol Silenced General Settings	S Weapon Properties		Main settings for pistol silenced.
Assault Rifle General Settings	S Weapon Properties		Main settings for assault rifle.
Shotgun General Settings	S Weapon Properties		Main settings for shotgun.
Pistol shot delay	Float	0.1	Input interval (in seconds) between shots. In other words, how fast can AI shoot using pistol.
Pistol silenced shot delay	Float	0.1	Input interval (in seconds) between shots. In other words, how fast can AI shoot using pistol silenced.

Asset variables

Variable name	Type	Default value	Description
Recieve area dmg particle	Particle system reference	P_body_bullet_impact	Particle spawned when AI receive area damage.
Receive melee dmg particle	Particle system reference	P_body_bullet_impact	Particle spawned when AI receive melee damage from player.
Receive bullet dmg particle	Particle system reference	P_body_bullet_impact	Particle spawned when AI receives damage from bullet.
Recieve area dmg sound	Sound base reference	SC_FoleyFlesh_Impact	Sound spawned when AI receive area damage.
Receive melee dmg sound	Sound base reference	SC_FoleyFlesh_Impact	Sound spawned when AI receive melee damage from player.
Receive bullet dmg sound	Sound base reference	SC_Bullet_MetalImpact	Sound spawned when AI receives damage from bullet.
Damaged - flow energy color	Linear color		Color of energy flow indicating AI damage.
Blinking dmg. indicator - body color	Linear color		When AI mesh get damage, it will blink with this color. "Damage indicated with dissolve effect" has to be set to "false" to enable this effect.
Disappear sound	Sound base reference	SC_teleport_01	Sound played when AI died and disappear with dissolve effect.
Damage indicated with dissolve effect	Bool	True	Should damage be indicated with "energy flow" effect or with standard "blinking material" effect. True = energy flow enabled, False = disabled

Health variables

Variable name	Type	Default value	Description
Health	Int	100	Amount of AI's health on spawn
AI's Health Max	Int	100	Maximum amount of AI's health
Receive Pistol Damage?	Bool	True	Should AI be vulnerable for pistol bullets?
Receive Assault Rifle Damage?	Bool	True	Should AI be vulnerable for rifle bullets?
Receive Shotgun Damage?	Bool	True	Should AI be vulnerable for shotgun bullets?
Receive Pistol Silenced Damage?	Bool	True	Should AI be vulnerable for Pistol Silenced bullets?
Receive Pistol Melee Damage?	Bool	True	Should AI be vulnerable for pistol melee attack?
Receive Rifle Melee Damage?	Bool	True	Should AI be vulnerable for rifle melee attack?
Receive Side Kick Damage?	Bool	True	Should AI be vulnerable for side kick attack?
Receive Slide Kick Damage?	Bool	True	Should AI be vulnerable for slide kick attack?

Pawn sensing settings

Variable name	Type	Default value	Description
Sight Radius	Float	2000	Maximum sight distance.
Sensing Interval	Float	0.05	Amount of time between sensing updates.
Vision Angle	Float	50	How far pawn can see in degrees.
Debug - sight sensing visibility time	Float	0	Pawn sensing - sight - debug lines - How long they should render while running construction script.

AI behavior settings

Variable name	Type	Default value	Description
Combat Type	E_Combat_Types	Keep Distance To Player	Type of combat mode when AI is in alarmed mode. If set to "Random combat", AI will behave randomly during alarm mode, based on values from "Random Fight - AI In 2D" section. Look for "random combat" nodes in behavior tree for reference. If set to "Keeping Distance To Player", he will try to reach player get close to player or move away from player based on values from "Keeping Distance Fight - AI In 2D" section. Works only for 2D AI's.
Line of sight check interval	Float	0.05	Interval between each trace fire for line of sight.
Can AI Hear Gunshot?	Bool	True	Whether AI should react on player's gunshots sound.
Line Of Sight Error Scale	Float	0	Scale of how much AI should miss his line of sight trace. Setting high value for example 5 - AI almost don't shoot the player. Setting low value for example 1, AI will shoot player moderately often. To visualise line of sight, look for variable "Debug - draw line of sight trace" (editable).
Lost Sight Time Min	Float	0.5	AI stops shooting when lost sight and this minimum period of time elapse. For example - setting 0.5 - when AI won't see you it will stop shoot after at least 0.5 seconds.
Lost Sight Time Max	Float	1.5	AI stops shooting when lost sight and this maximum period of time elapse. For example - setting 0.5 - when AI won't see you it will stop shoot after at most 0.5 seconds.
Player Near AI Detection Distance	Float	280	How player has to be for AI to move away from cover point. For example, if set it to 300 - when AI is in cover and distance between player and AI is less then 300 cm, AI will move away from cover. It's applied only to 2D mode AI's. Look for service "BTService_Player_is_near_AI" for further reference and info.
Player Near AI Detection - Debug Lines	EDraw DebugTrace Enum	None	Enabling visibility of trace to detect if player is in AI area. It's applied only to 2D mode AI's. Look for service "BTService_Player_is_near_AI" for further reference and info.

Shield settings

Variable name	Type	Default value	Description
AI Has Shield	Bool	False	Should AI have shield.
Shields Health	Int	30	Shields health.
Damage Per Shot	Int	3	Single bullet damage amount.
Player Damage Value	Int	20	How much player should be damage while being in shield volume. "Damage Player On Shield Overlap" has to be set to true to effect.
Damage Player Interval Time	Float	0.3	Interval time between damaging player when he is in sphere volume. "Damage Player On Shield Overlap" has to be set to true to effect.
Damage Player On Shield Overlap	Bool	True	Should player get damage when overlapping shield sphere.
Should Regenerate Health	Bool	True	Should health be automatically regenerated.
Regenerate Invoke Interval Time	Float	0.3	Interval between regenerate health invokes.
Regeneration % Per Invoke	Float	7	How % of health should be regenerated per one health regeneration invoke.

Spawn drop settings

Variable name	Type	Default value	Description
Spawn Drop Item Spawn Probability (%)	Int	50	Probability on spawning item after actor destroy.
Spawn Drop Item List	S_Item_Probability_Spawn		Item list to spawn with their probabilities.

Player in cover detection settings

Variable name	Type	Default value	Description
AI Can See Player When He's Covered	Bool	True	Can this AI see player at all when he's in cover.
Player In Cover Detection Range	Float	460	If player is in cover in within this range, AI will treat him as seen, thus will stay in alarmed mode. Used only when AI is in alarmed mode and "Detect Player In Cover Within Range" is set to true.
Detect Player In Cover Within Range	Bool	True	Should AI detect player when he is in cover and within range ("Player In Cover Detection Range"). Used In BYService_Distance_To_Player.
AI Can Detect Fraction Of Player	Bool	False	When player is in cover, should AI detect player if AI see any part of AI's mesh. If this is set to false, AI will trace between head bone and players spine (by default) bone, if something hits, this means AI won't see player. "AI Can See Player When He's Cover' has to be set to true. Look into "combat/initial sight logic" for reference.
Detection Target Bone	Name	spine_01	Target player's bone which AI will trace to if player is in cover. Look into "Combat/Initial Sight Logic" graph for reference.
Player In Cover Trace To Target Bone - Debug Line	EDraw Debug Trace Enum	None	Enabling visibility of trace to detect player if he is in cover and seen by AI.
Can Look At Player On Cover	Bool	True	Should AI look at player when he is in cover and AI is in alarmed mode.

Random fight - AI in 3D

Variable name	Type	Default value	Description
3D Fight - Strafe Left Distance Min	Float	100	Minimum distance AI should move to while strafing left.
3D Fight - Strafe Left Distance Max	Float	300	Maximum distance AI should move to while strafing left.

3D Fight - Strafe Right Distance Min	Float	100	Minimum distance AI should move to while strafing right.
3D Fight - Strafe Right Distance Max	Float	300	Maximum distance AI should move to while strafing right.
3D Fight - Strafe Left Execution Probability	Int	100	What's the probability of this task to happen. 0 = never happen, 100 = always happen
3D Fight - Strafe Right Execution Probability	Int	100	What's the probability of this task to happen. 0 = never happen, 100 = always happen
3D Fight - Start Crouch Execution Probability	Int	100	What's the probability of this task to happen. 0 = never happen, 100 = always happen
3D Fight - Stand up Execution Probability	Int	100	What's the probability of this task to happen. 0 = never happen, 100 = always happen
3D Fight - Idle Execution Probability	Int	100	What's the probability of this task to happen. 0 = never happen, 100 = always happen
3D Fight - Go To Cover Point Execution Probability	Int	100	What's the probability of this task to happen. 0 = never happen, 100 = always happen
3D Fight - Idle Time Min	Float	2	Minimum amount of time (in seconds) that AI will wait in.
3D Fight - Idle Time Max	Float	3	Maximum amount of time (in seconds) that AI will wait in.

Random fight - AI in 2D

Variable name	Type	Default value	Description
2D Fight - Strafe Left Distance Min	Float	100	Minimum distance AI should move to while moving left.
2D Fight - Strafe Left Distance Max	Float	300	Maximum distance AI should move to while moving left.
2D Fight - Strafe Right Distance Min	Float	100	Minimum distance AI should move to while moving right.
2D Fight - Strafe Right Distance Max	Float	300	Maximum distance AI should move to while moving right.
2D Fight - Strafe Left Execution Probability	Int	100	What's the probability of this task to happen. 0 = never happen, 100 = always happen

2D Fight - Strafe Right Execution Probability	Int	100	What's the probability of this task to happen. 0 = never happen, 100 = always happen
2D Fight - Start Crouch Execution Probability	Int	100	What's the probability of this task to happen. 0 = never happen, 100 = always happen
2D Fight - Stand up Execution Probability	Int	100	What's the probability of this task to happen. 0 = never happen, 100 = always happen
2D Fight - Idle Execution Probability	Int	100	What's the probability of this task to happen. 0 = never happen, 100 = always happen
2D Fight - Go To Cover Point Execution Probability	Int	100	What's the probability of this task to happen. 0 = never happen, 100 = always happen
2D Fight - Idle Time Min	Float	2	Minimum amount of time (in seconds) that AI will wait in.
2D Fight - Idle Time Max	Float	3	Maximum amount of time (in seconds) that AI will wait in.

Covering settings

Variable name	Type	Default value	Description
Cover point sight radius	Float	800	Sphere radius of cover point sight. This radius tells how far AI should look for cover point.
Force cover point	Bool	False	True = AI runs to selected target cover point, False = AI run to nearest available cover point. It's applied only for first cover point movement.
Target cover point	BP_AI_Cover_point reference		Cover point which AI will run to. "Force cover point" has to be set to true.
Use Preferred Cover Point	Bool	False	True = AI will try to reach target cover point (Preferred cover point) when it is available on every cover point search, False = AI run to nearest cover point. "Force cover point" has to be set to false to make effect.
Preferred Cover Point	BP_AI_Cover_point reference		Cover point which AI will try to run to. "Use preferred cover point" has to be set to true and "Force cover point" has to be set to false.
Debug - Show cover point sight radius	Bool	False	Enable render of sphere radius representing sensing area for cover points. In other words, AI will look for cover point within this volume.

Go to cover point when alarmed	Bool	True	Should AI go to cover point after seeing player. If false, he will stand/crouch and shoot at player.
Cover Point Time Settings	S_Cover_point_wait_time		Settings for state when AI is in cover point.
Cover Points To Ignore	BP_AI_Cover_point reference (array)		AI won't go to any of cover point from this array.
Sprint To Cover Probability (%)	Int	50	Probability percentage to enable sprint when AI is going to cover point.
Crouching Cover - Change Cover Probability	Int	25	AI is in crouching cover - probability of changing cover after one cycle. For example in standing cover - when cycle time is 5 seconds and probability is set to 50%, AI will in every 5 seconds change cover point with 50% chance. Look for "changing cover" node in behavior tree for reference.
Standing Cover - Change Cover Probability	Int	60	AI is in standing cover - probability of changing cover after one cycle. For example in standing cover - when cycle time is 5 seconds and probability is set to 50%, AI will in every 5 seconds change cover point with 50% chance. Look for "changing cover" node in behavior tree for reference.
Go To Combat Mode On CP Search Fail	Bool	False	Should AI go to combat mode if currently is in cover mode and can't find any other valid cover points to go to.
Change CP To Nearest To Player (3D Only)	Bool	True	When is in cover point, should he change cover point to nearest to player. If set to false, he will change to cover nearest to himself. Works only with 3D AI and when change cover probability is not set to 0.

Keeping distance fight - AI in 2D

Variable name	Type	Default value	Description
Move Closer To Player	Bool	True	Should AI run towards player during "keep distance to player" fight mode.
Move Away From Player	Bool	True	Should AI run away player during "keep distance to player" fight mode.

Move Closer Distance	Float	300	Target distance between player and AI when AI is moving closer to player. For example - setting 400 - AI will run towards player and when distance will be 400 cm or less, he will stop running. "Move closer to player" has to be set to true to make it work.
Move Away Distance	Float	550	Target distance between player and AI when AI is moving away from player. For example - setting 600 - AI will run away from player and when distance will be 600 cm or more, he will stop running. "Move away from player" has to be set to true to make it work.
Movement Restart Time Min	Float	2	Minimum time used to recheck distance to player. For example - setting it to 5 - AI will every 5 seconds check if he is at correct distance for move closet or move away from player.
Movement Restart Time Max	Float	3	Maximum time used to recheck distance to player. For example - setting it to 5 - AI will every 5 seconds check if he is at correct distance for move closet or move away from player.
Crouch During Keeping Distance Mode	Bool	False	Should AI crouch during keeping distance fight mode.
Minimum Distance To Player	Float	200	When AI is moving closer to player (in keeping distance fight mode) AI won't go closer to player then this value.

Pathnode settings

Variable name	Type	Default value	Description
Initial Patrol Pathnode	BP Pathnode reference		First pathnode to which AI will go after spawn in patrol mode.

Patrol settings

Variable name	Type	Default value	Description
Return to patrol time	Float	8	How long AI should look for player after stop seeing him. After this time AI will stop looking at player and go from shooting mode to patrol mode.
Able to Look Around During Patrol	Bool	True	Should AI look around when is in patrol mode.
Look Around Directions	E_Right_Left_Both	Right and left	In which directions AI can look around during patrol state.
Look around interval time	Float	12	How often AI should look around during patrol.
Should Crouch During Patrol	Bool	False	Should AI walk and crouching during patrol mode.
Patrol Mode - Arms Pose	E_Arms_Pose	Patrol mode arms	During patrolling, should AI keep weapon down (patrol mode) or should keep weapon "ready to fire" (aiming mode)
Never Return To Patrol Mode	Bool	False	When AI switch to alarm mode, he will never switch back to patrol mode.

Alarming enemies settings

Variable name	Type	Default value	Description
Should AI Alarm Turrets	Bool	True	Should turrets be alarmed when AI is alarmed? Only turrets within radius (Turrets Alarm Radius) will be alarmed
Should AI Alarm Flying Bots	Bool	True	Should flying bots be alarmed when AI is alarmed? Only flying bots within radius (Flying Bots Alarm Radius) will be alarmed
Should AI Alarm Cameras	Bool	True	Should cameras be alarmed when AI is alarmed? Only cameras within radius (Cameras Alarm Radius) will be alarmed
Should Alarm Other Human AI's	Bool	True	Whether this AI should alarm other human AI's when he's alarmed.

Turrets Alarm Radius	Float	800	Every turrets within this (sphere) radius will be alarmed when AI is alarmed. Works only if "Should AI Alarm Turrets" is set to true. It's used in "Alarm Turrets" function.
Flying Bots Alarm Radius	Float	800	Every flying bots within this (sphere) radius will be alarmed when AI is alarmed. Works only if "Should AI Alarm flying bots" is set to true. It's used in "Alarm flying bots" function.
Cameras Alarm Radius	Float	800	Every camera within this (sphere) radius will be alarmed when AI is alarmed. Works only if "Should AI Alarm cameras" is set to true. It's used in "Alarm cameras" function.
Human AI Alarm Radius	Float	800	Every human AI within this (sphere) radius will be alarmed when this AI is alarmed. Works only if "Should Alarm Other Human AI's" is set to true. It's used in "Alarm Other Human AI's" function.
Specified Turrets To Alarm	BP Turret Enemy reference (array)		
Specified Flying Bots To Alarm	BP Flying Bot Enemy reference (array)		
Specified Cameras To Alarm	BP Surveillance Camera reference (array)		
Specified Human AI's To Alarm	BP Turret Enemy reference (array)		
Turrets Alarm Mode	E_Alarm_Enemy_Mode	Within Radius And Specified	Which found turrets should AI alarm. "Should AI Alarm Turrets" has to be set to true to work.
Flying Bots Alarm Mode	E_Alarm_Enemy_Mode	Within Radius And Specified	Which found flying bots should AI alarm. "Should AI Alarm Flying Bots" has to be set to true to work.
Cameras Alarm Mode	E_Alarm_Enemy_Mode	Within Radius And Specified	Which found cameras should AI alarm. "Should AI cameras" has to be set to true to work.
Human AI's Alarm Mode	E_Alarm_Enemy_Mode	Within Radius And Specified	Which found human AI's should this AI alarm. "Should Alarm Other Human AI's" has to be set to true to work.

26. BP_AI_Cover_point

Properties

Variable name	Type	Default value	Description
Is cover point available?	Bool	True	Is cover point available to use? It can't be use when other AI is using it already.
Cover for 2D plane	Bool	False	This cover point is used only by AI running in 2D plane. In AI character "AI is 2D plane" has to be set to true.
Standing Cover	Bool	False	Should AI just stand in this cover.
Debug - Helper Mesh In Game	Bool	False	Should helper mesh be visible during gameplay.

27. BP_Pathnode

Settings

Variable name	Type	Default value	Description
Next Pathnode Array	BP_Pathnode reference (array)		Next pathnode actors array which AI will go to.
Rotate AI towards pathnode	Bool	True	Should AI rotate towards pathnode after reaching pathnode.
Infinitely Waiting	Bool	False	Should AI stay in this pathnode forever and ignore other connected pathnodes.
Wait Time Min	Float	1	Minimum amount of time (in second) that AI will wait in this pathnode.
Wait Time Max	Float	2	Maximum amount of time (in second) that AI will wait in this pathnode.
Default Standing Mode	E_Stand_Crouch	Standing	Should AI crouch or stand while is in this pathnode.
Animation Loop	Bool	False	Pathnode animations will loop forever if true. Work only if there is at least one animation added to animation settings array.

Animation - random order	Bool	False	Should animations launch in random order.
Animation Settings	S_Cover_point_animation_settings		Settings for animations applied in this pathnode.