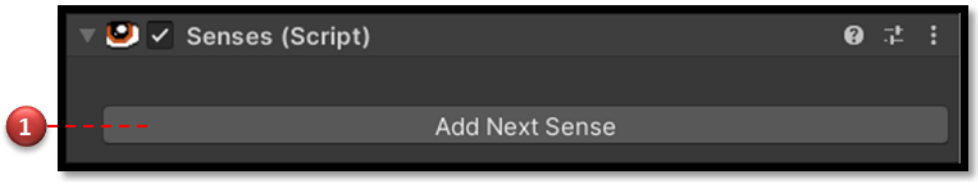
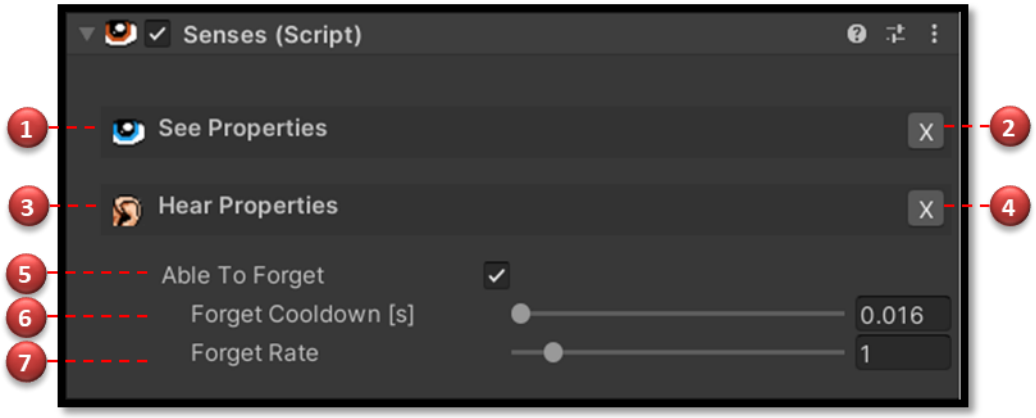
Senses Component

Description

Allows for Managing Sensors of character (Adding, Removing, Configuring) in order to gather (and further proceed) Awareness.



1	Add Next Sense Button	Allows adding next sense sensors.



1	See Properties Foldout	Allows showing / hiding of See Sensor properties.
2	Remove Button	Allows disabling See Sensor.
3	See Properties Foldout	Allows showing / hiding of Hear Sensor properties.
4	Remove Button	Allows disabling Hear Sensor.
5	Able To Forget	Able To Forget allows the setting of the Use_Forgetting state. If enabled, Awareness will decrease by the Forget Rate within the Forget Cooldown [s] time interval.
6	Forget Cooldown [s]	Allows setting up float value of time interval between each Awareness decrease.
7	Forget Rate	Allows setting up float value of Awareness decreased during each time interval.

Awareness

This floating-point value represents how well a character understands that something has been detected. It ranges from 0 to 100. Awareness is individually tracked for each **GameObject** equipped with the **TargetSenses** component.

Awareness had separate values for each enabled Sense Sensor. And each of this awareness had value in range from 0 to 100.

Forgetting - if **Able To Forget** is enabled, then awareness will be decreased by the **Forget Rate** within the **Forget Cooldown [s]** time interval, according to bellow rules:

1	See Awareness	Will be reduces over time if a GameObject with the attached TargetSenses was not detected during the last check. This mechanism ensures that characters only forget about a target if it becomes no longer visible.
2	Hear Awareness	Will be reduces over time.

Public Properties

Use_See	Returns true if uses See Sensor.
Eyes	Get transform Eyes.
Use_Hear	Returns true if uses Hear Sensor.
IgnoreLayers	Get Ignored Layers
Use_CustomRefreshRate	Returns true if uses custom refresh rate.
Cooldown_SeeTimeAmount	Get float value of Cooldown_SeeTimeAmount
Use_Forgeting	Returns true if uses forgetting.
Cooldown_Forgeting	Get float value of Cooldown_Forgeting
Forgeting_Rate	Get float value of Forgeting_Rate
Central_VisionAngle	Get float value of Central_VisionAngle
Central_VisionRadius	Get float value of Central_VisionRadius
Use Peripheral FOV	Returns true if uses peripheral field of view.
Peripheral_VisionAngle	Get float value of Peripheral_VisionAngle
Peripheral_VisionRadius	Get float value of Peripheral_VisionRadius
Use_DisplayFOV	Returns true if uses display field of view.
Use_IgnoreRotationX	Returns true if uses ignore rotation in X axis.
Use_RayCastInFovOnly	Returns true if uses raycast in field of view only.
Use_DebugDrawRay	Returns true if uses debug draw ray.
Hear_Sensitivity	Returns enum value of Hear_Sensitivity.
TagetSensesWasDetected	Returns true if TargetSenses was detected.

Public Methods

Set_Eyes	Sets transform Eyes.
Set_UseSee	Sets state of bool Use_See.
Set_UseHear	Sets state of bool Use_Hear.
Set_UseCustomRefreshRate	Sets state of bool Use_CustomRefreshRate.
Set_CooldownSeeTimeAmount	Sets float value of Cooldown_SeeTimeAmount.
Set_UseForgeting	Sets state of bool Use_Forgeting.
Set_CooldownForgeting	Sets float value of Cooldown_Forgeting.
Set_ForgetingRate	Sets float value of Forgeting_Rate.
Set_CentralVisionAngle	Sets float value of Central_VisionAngle.
Set_CentralVisionRadius	Sets float value of Central_VisionRadius.

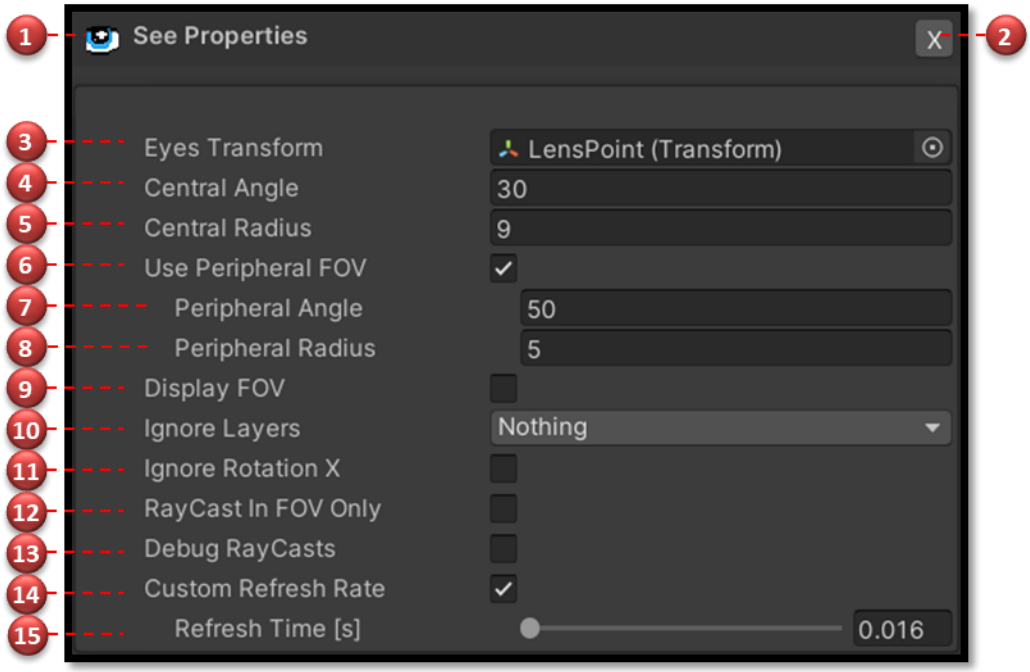
Set_UsePeripheralFOV	Sets state of bool Use_PeripheralFOV.
Set_PeripheralVisionAngle	Sets float value of Peripheral_VisionAngle.
Set_PeripheralVisionRadius	Sets float value of Peripheral_VisionRadius.
Set_UseDisplayFOV	Sets state of bool Use_UseDisplayFOV.
Set_UseIgnoreRotationX	Sets state of bool Use_IgnoreRotationX.
Set_UseRayCastInFovOnly	Sets state of bool Use_RayCastInFovOnly.
Set_DebugDrawRay	Sets state of bool Use_DebugDrawRay.
Set_HearSensitivity	Sets enum value of Hear_Sensitivity.
Recived_Noise	Increase value of Hear Awareness of provided TargetSenses

See - Senses Sensor

Description

See is Senses Sensor allows for Observing objects in two complementary zones (Central Vision and Peripheral).

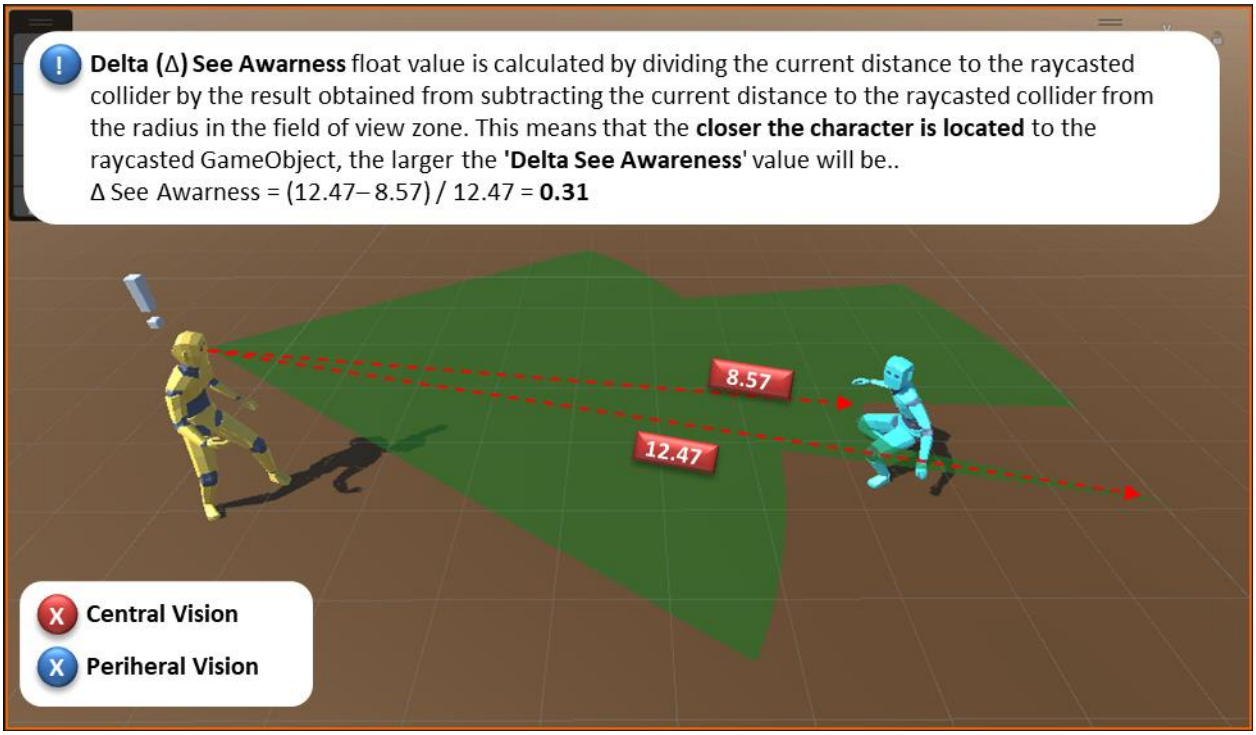
See Sensor could be enabled or disabled either through inspector tab or code.
See Sensor gather **See Awareness** of **GameObject** with attached **TargetSenses** component.
Properties of See Sensor could be setup either through inspector tab or code.

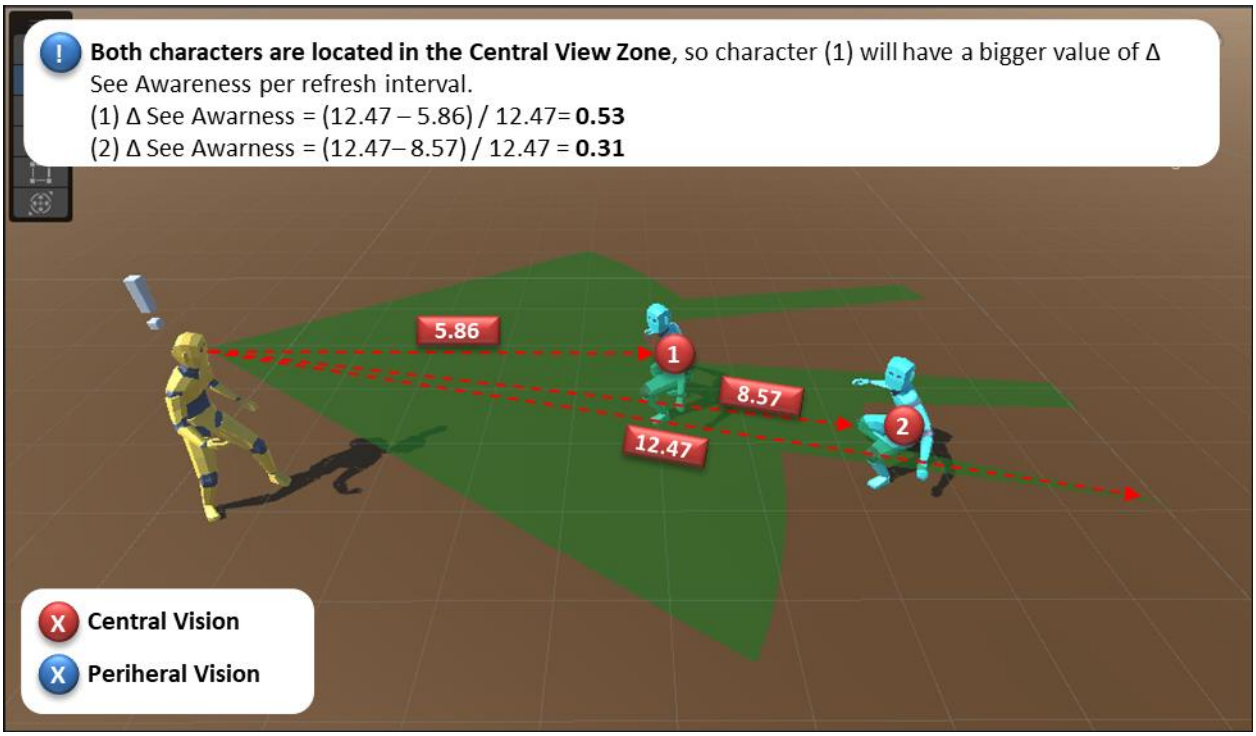


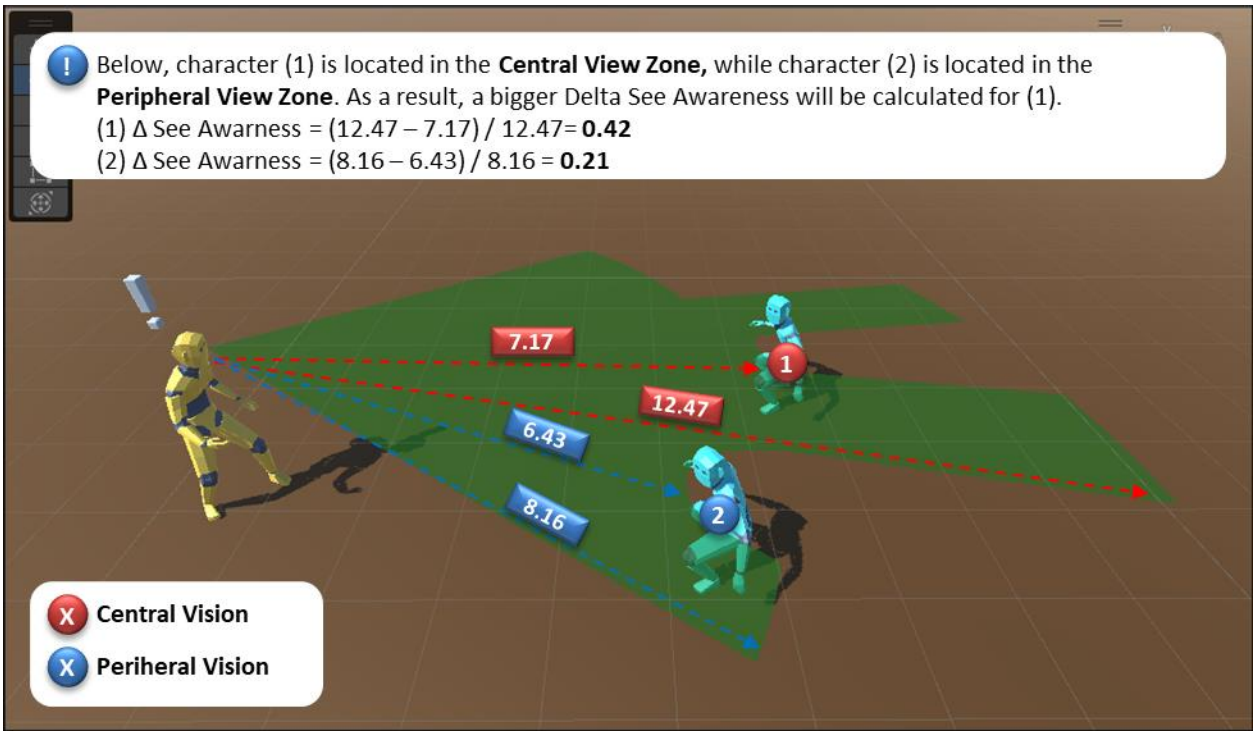
1	See Properties Foldout	Allows showing / hiding of See Sensor properties.
2	Remove Button	Allows disabling See Sensor.
3	Eyes Transform	Allows assign of Transform used as Eyes Transform. Eyes Transform position is used during radius, and angle calculations. Furthermore serves as raycast

		origin point during Line of Sight check. If not assign, script will use transform position.
4	Central Angle float	Allows setting up float value of central vision angle.
5	Central Radius float	Allows setting up float value of central vision radius.
6	Use Peripheral FOV	Allows setting state of use peripheral field of view.
7	Peripheral Angle float	Allows setting up float value of peripheral vision angle.
8	Peripheral Radius float	Allows setting up float value of peripheral vision radius.
9	Display FOV	Allows setting state of displaying field of view. Allowing for graphical preview of central and peripheral vision zone.
10	Ignore Layers	Allows setting up ignored layers.
11	Ignore Rotation X	Allows setting state of ignore rotation x. If enabled field of view will not rotate in X axis, and stay parallel to the ground level.
12	RayCast in FOV Only	When activated, the field of view will be treated as a flat triangle, causing colliders positioned below or above the field of view to be excluded from raycasting.
13	Debug RayCasts	When enabled, this feature allows for debugging raycasts. A green line indicates rays that did not hit anything, while a red line indicates rays that successfully hit an object.
14	Custom Refresh Rate	When disabled, each sense sensor refreshes during every frame of the update. However, when activated, it permits the use of a custom refresh time, defined by the Refresh Time [s] parameter.
15	Refresh Time [s]	Allows setting up float value of senses refresh time in seconds.

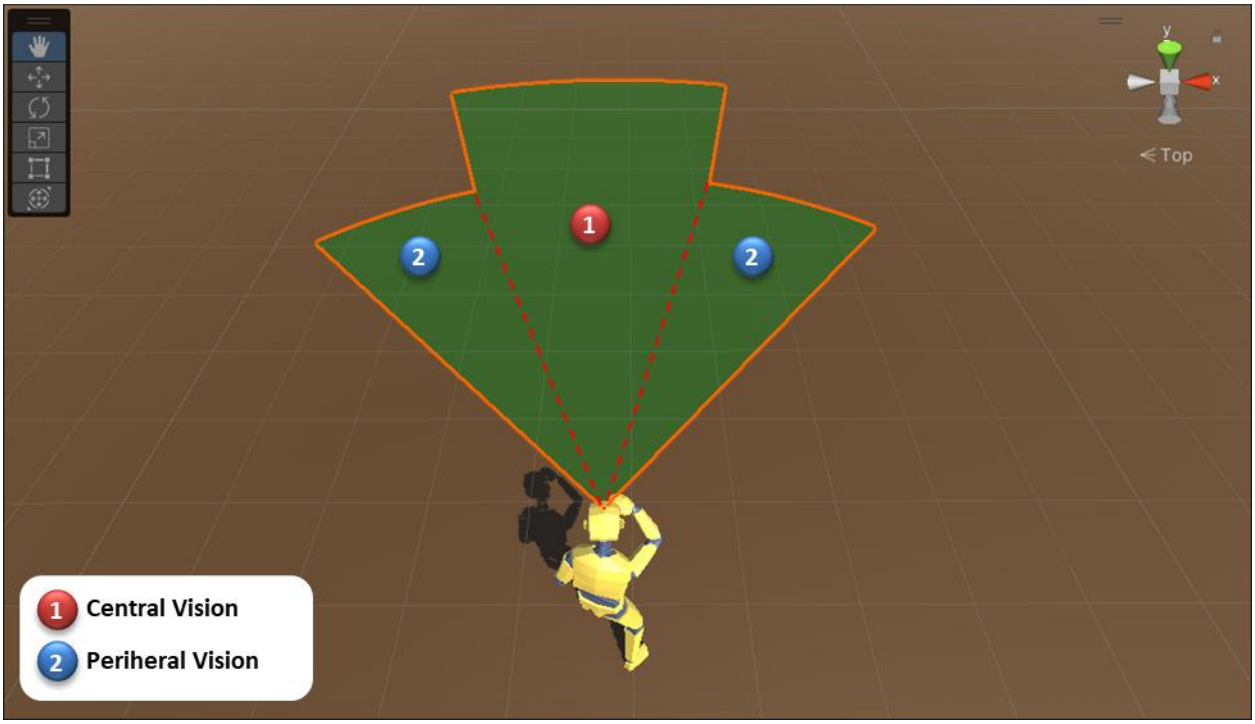
Delta See Awareness







Field of View Zones



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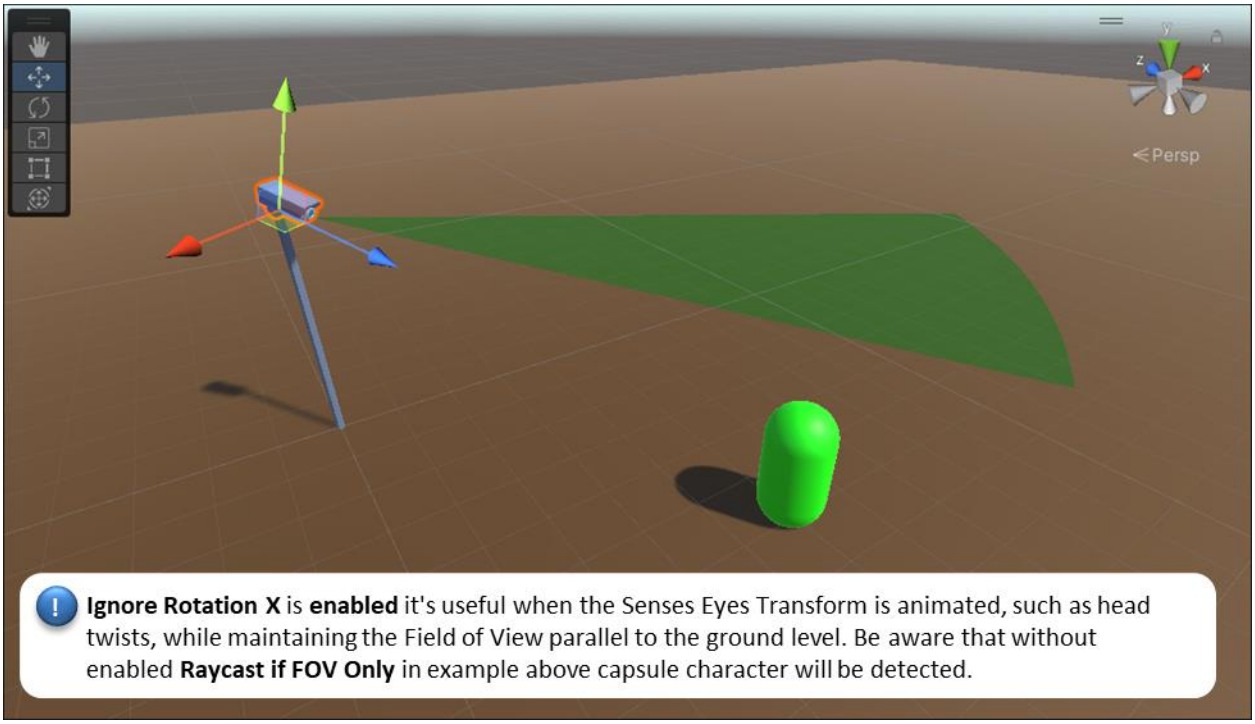
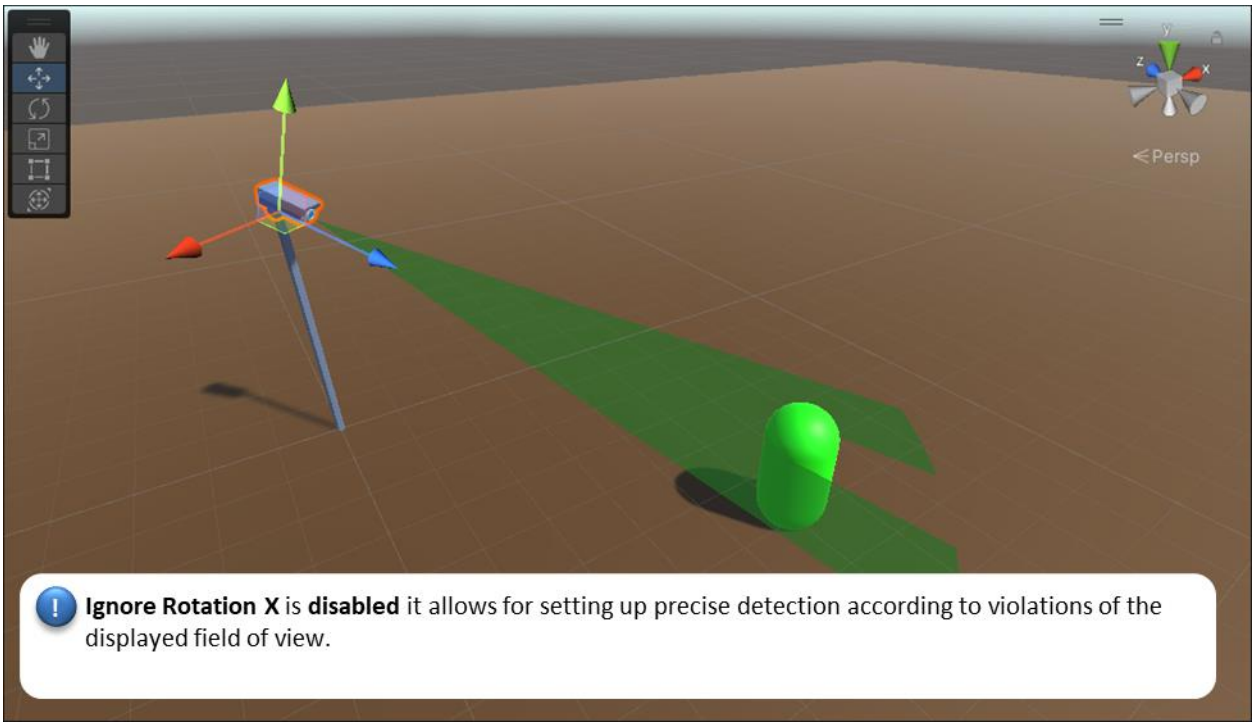
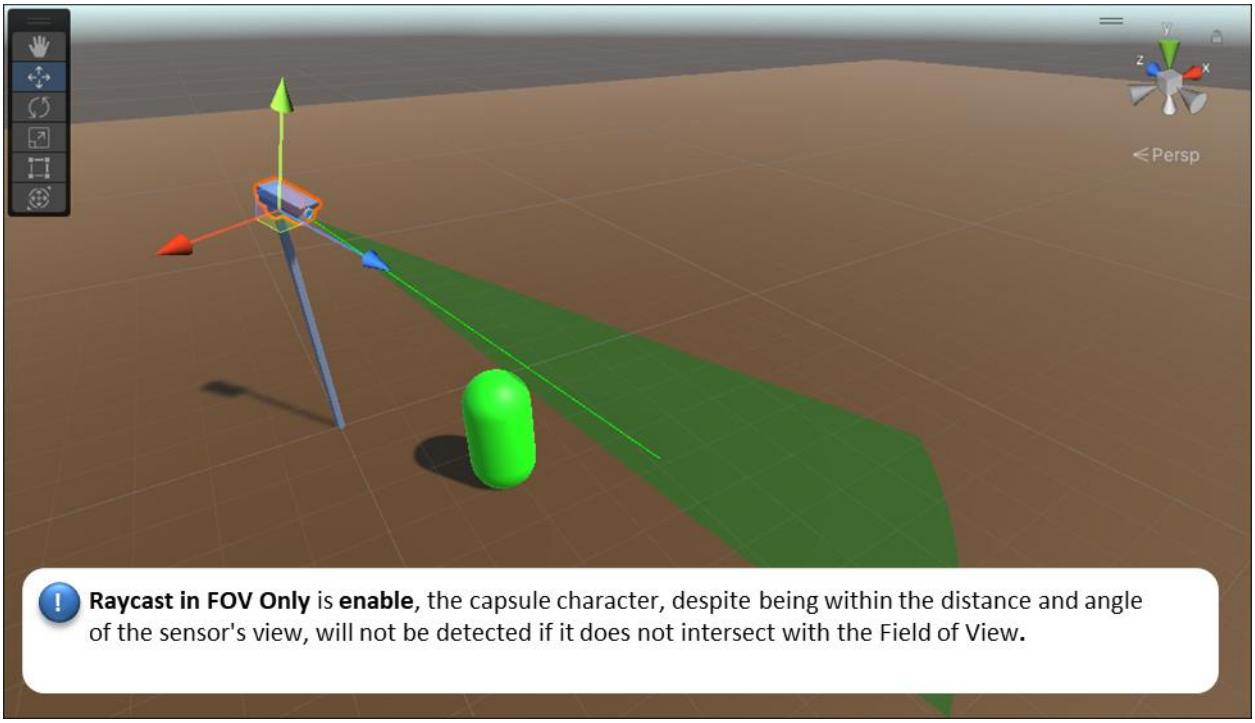
Ignore Rotation X (enabled).



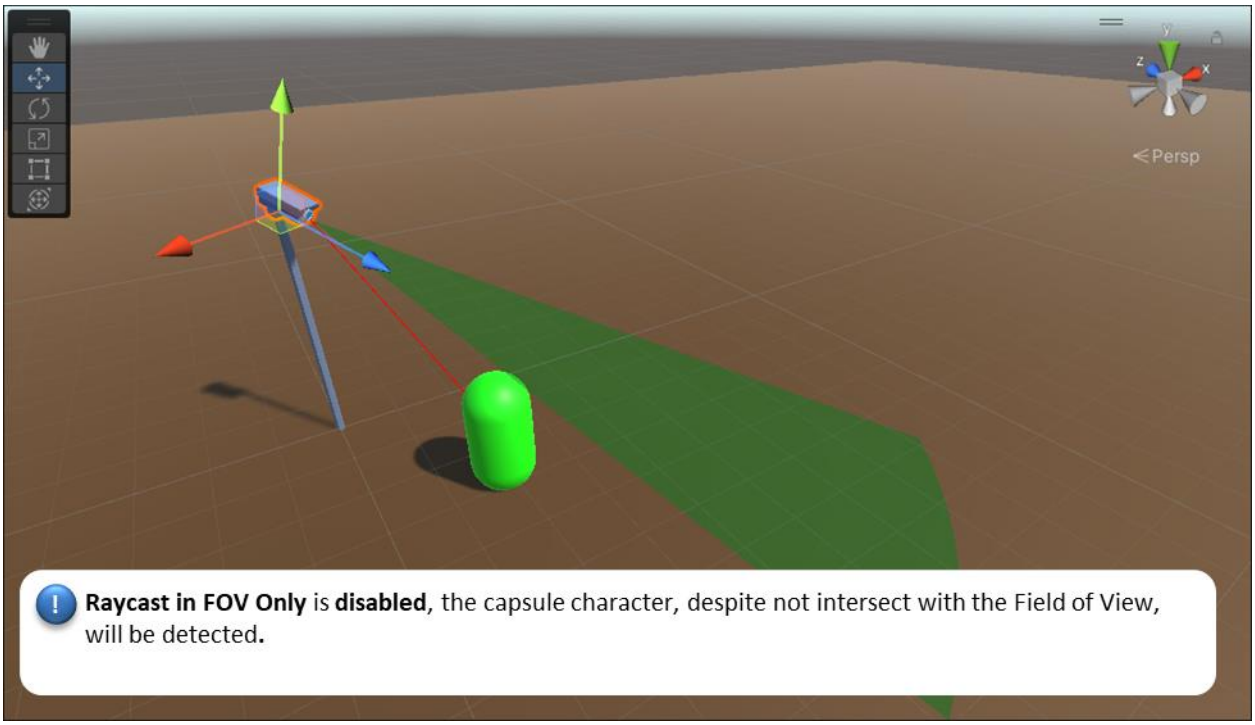
Ignore Rotation X (disabled).



Raycast in FOV Only (enabled).



Raycast in FOV Only (disabled).



Public Properties

Use_See	Returns true if uses See Sensor.
Eyes	Get transform Eyes.
IgnoreLayers	Get Ignored Layers
Use_CustomRefreshRate	Returns true if uses custom refresh rate.
Cooldown_SeeTimeAmount	Get float value of Cooldown_SeeTimeAmount
Central_VisionAngle	Get float value of Central_VisionAngle
Central_VisionRadius	Get float value of Central_VisionRadius
Use_PeripheralFOV	Returns true if uses peripheral field of view.
Peripheral_VisionAngle	Get float value of Peripheral_VisionAngle
Peripheral_VisionRadius	Get float value of Peripheral_VisionRadius
Use_DisplayFOV	Returns true if uses display field of view.
Use_IgnoreRotationX	Returns true if uses ignore rotation in X axis.
Use_RayCastInFovOnly	Returns true if uses raycast in field of view only.
Use_DebugDrawRay	Returns true if uses debug draw ray.

Public Methods

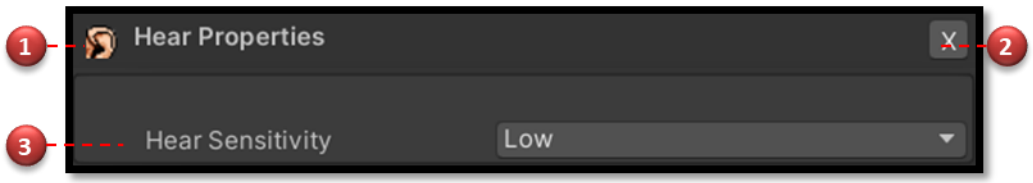
Set_UseSee	Sets state of bool Use_See.
Set_Eyes	Sets transform Eyes.
Set_UseCustomRefreshRate	Sets state of bool Use_CustomRefreshRate.
Set_CooldownSeeTimeAmount	Sets float value of Cooldown_SeeTimeAmount.
Set_CentralVisionAngle	Sets float value of Central_VisionAngle.
Set_CentralVisionRadius	Sets float value of Central_VisionRadius.
Set_UsePeripheralFOV	Sets state of bool Use_PeripheralFOV.
Set_PeripheralVisionAngle	Sets float value of Peripheral_VisionAngle.
Set_PeripheralVisionRadius	Sets float value of Peripheral_VisionRadius.
Set_UseDisplayFOV	Sets state of bool Use_UseDisplayFOV.
Set_UseIgnoreRotationX	Sets state of bool Use_IgnoreRotationX.
Set_UseRayCastInFovOnly	Sets state of bool Use_RayCastInFovOnly.
Set_DebugDrawRay	Sets state of bool Use_DebugDrawRay.

Hear - Senses Sensor

Description

Hear is Senses Sensor allows for hearing noises released by objects through **Noise Component.**

Hear Sensor could be enabled or disabled either through inspector tab or code.
Hear Sensor gather **Hear Awareness** of **GameObject** with attached **TargetSenses** component.
Properties of Hear Sensor could be setup either through inspector tab or code.



1	Hear Properties Foldout	Allows showing / hiding of Hear Sensor properties.
2	Remove Button	Allows disabling Hear Sensor.
3	Hear Sensitivity	Allows setting Hear_Sensitivity.

Public Properties

Use_Hear	Returns true if uses Hear Sensor.
Hear_Sensitivity	Returns enum value of Hear_Sensitivity.

Public Methods

Set_UseHear	Sets state of bool Use_Hear.
Set_HearSensitivity	Sets enum value of Hear_Sensitivity.
Recived_Noise	Increase value of Hear Awareness of provided TargetSenses

Noise Component

Description

Properties

Use_NaveMesh	Returns value of Use_NaveMesh.
Use_SpreadAccordingToDistance	Returns value of Use_SpreadAccordingToDistance.

Public Methods

Set_UseNaveMesh	Sets value of Use_NaveMesh.
Set_UseSpreadAccordingToDistance	Sets value of Use_SpreadAccordingToDistance.
Release_Noise	When called spreading value of Noise among all characters with enabled Hear Senses Sensor.

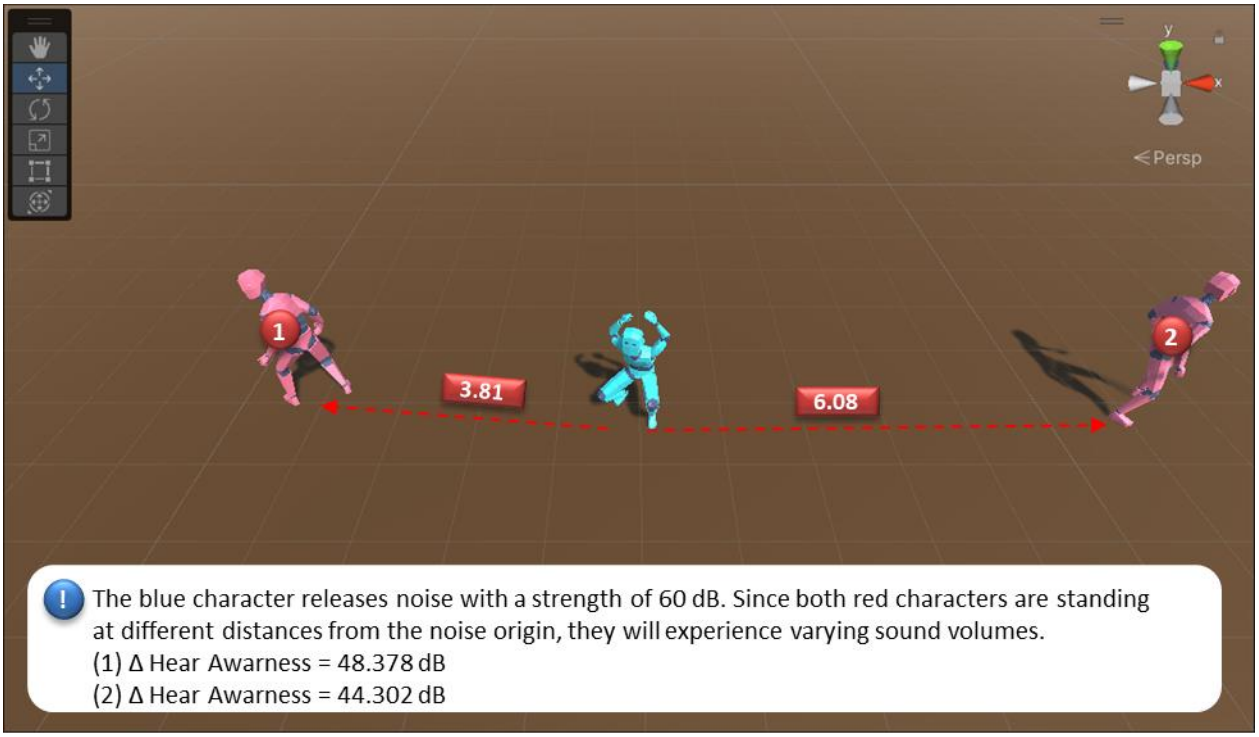
void Release_Noise (float _noiseValue)

When invoked, the noise value (_noiseValue) will be recalculated for all characters with the Hear Senses Sensor enabled, taking into account their distance from the originating NoiseComponent. If deemed significant, the recalculated noise value will then be distributed among characters capable of hearing.

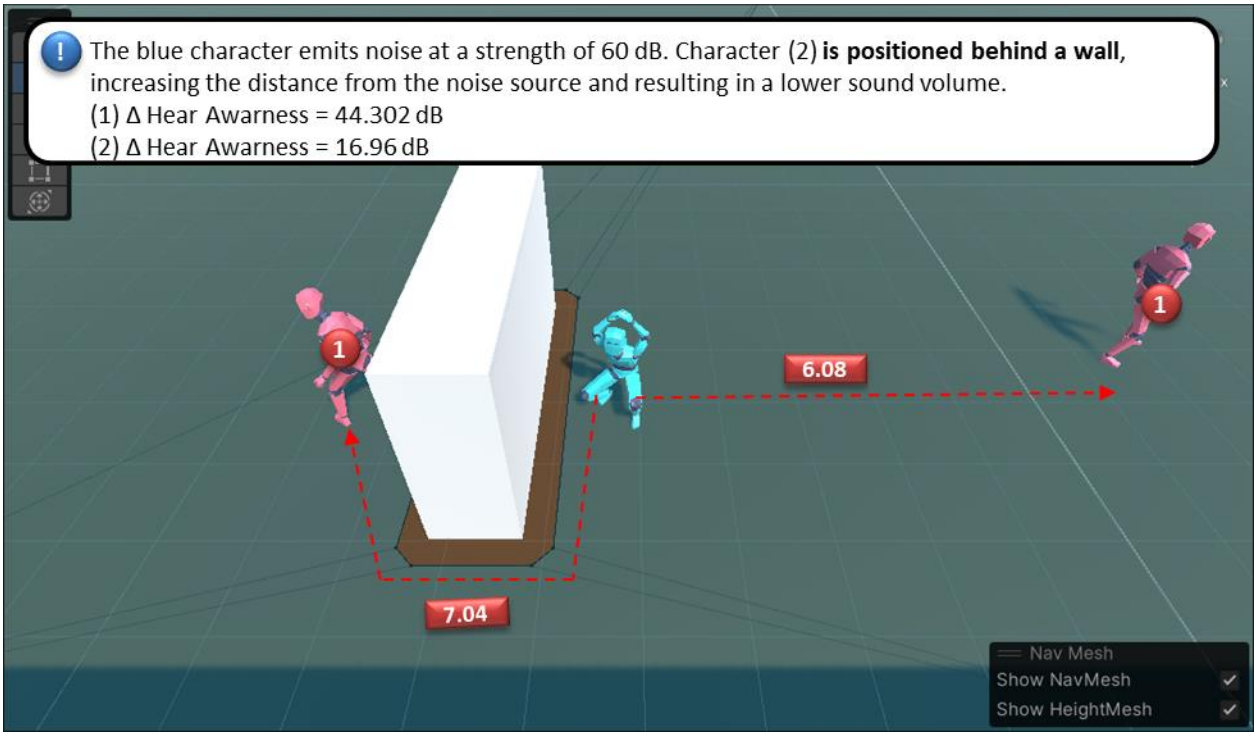
The _noiseValue parameter represents the real-world sound power in decibels (dB). Example values are provided for reference.

Footsteps	60 dB
Gunshot	140 dB
Explosion	160 dB
Wind	40 dB
Rain	50 dB
Fire crackling	70 dB
Car engine	80 dB
Bird chirping	70 dB
Water splash	90 dB
Crowd cheering	90 dB

Recalculated Noise Value



Use_NaveMesh



Obstacle Component

Description

Mitigates the detection of objects located behind it.

Properties

`Range_DecreaseFactor`	`Get float value of Range_DecreaseFactor`

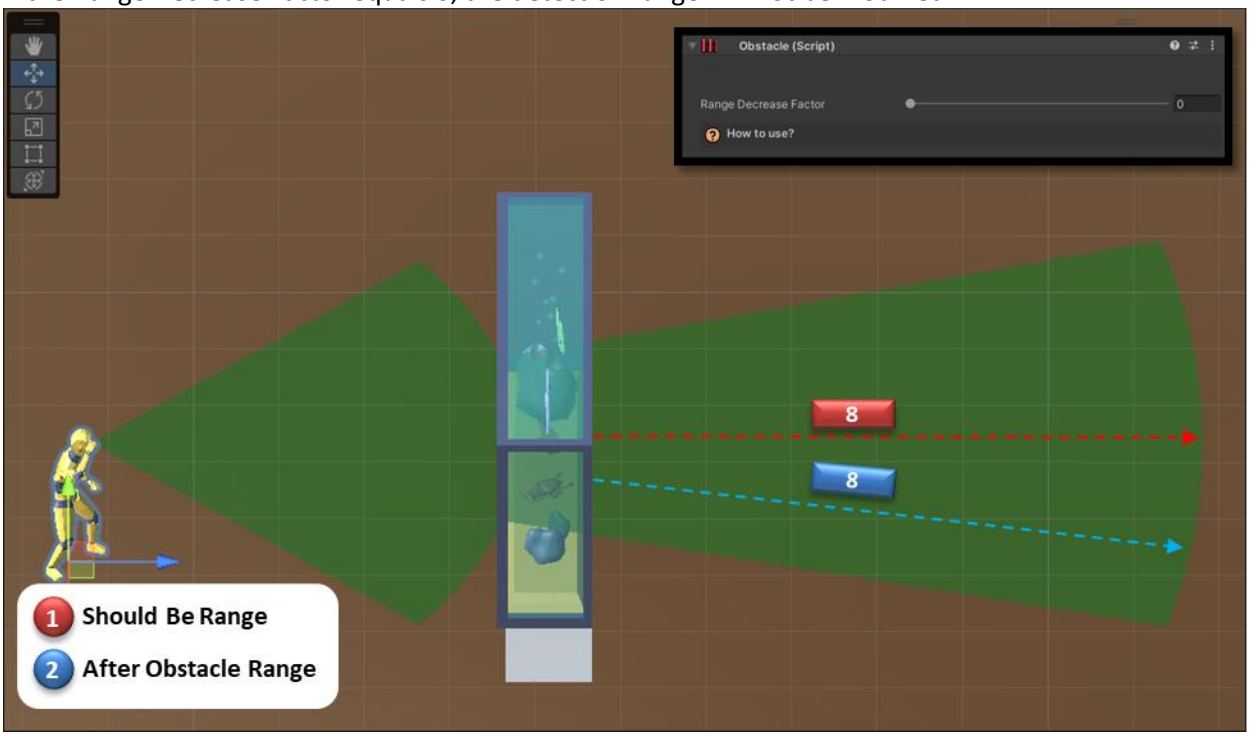
Public Methods

`Set_RangeDecreaseFactor`	`Sets float value of Range_DecreaseFactor`

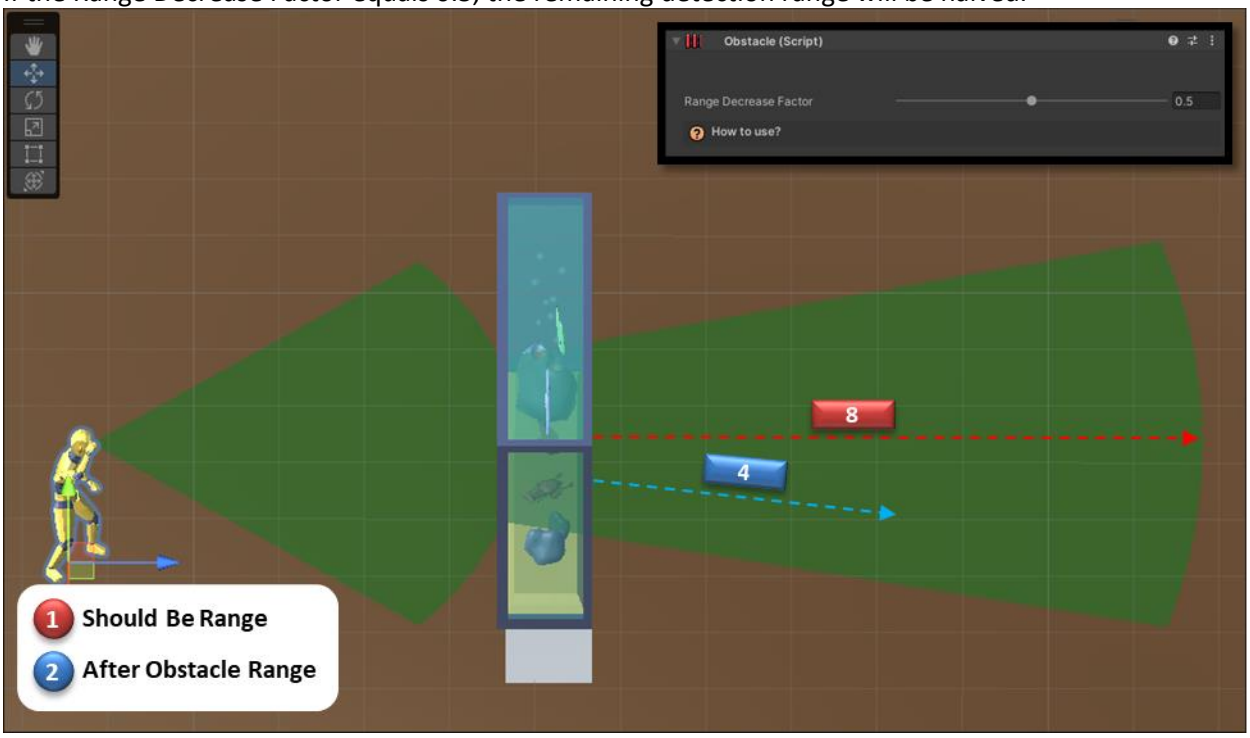
Range Decrease Factor

The Range Decrease Factor is a float value that influences the vision range of a character when looking through a GameObject with an Obstacle component attached. This factor is used in the equation: New Detection Range = Original Detection Range * (1 - Range Decrease Factor). Below are examples illustrating the main principle of this mechanic:

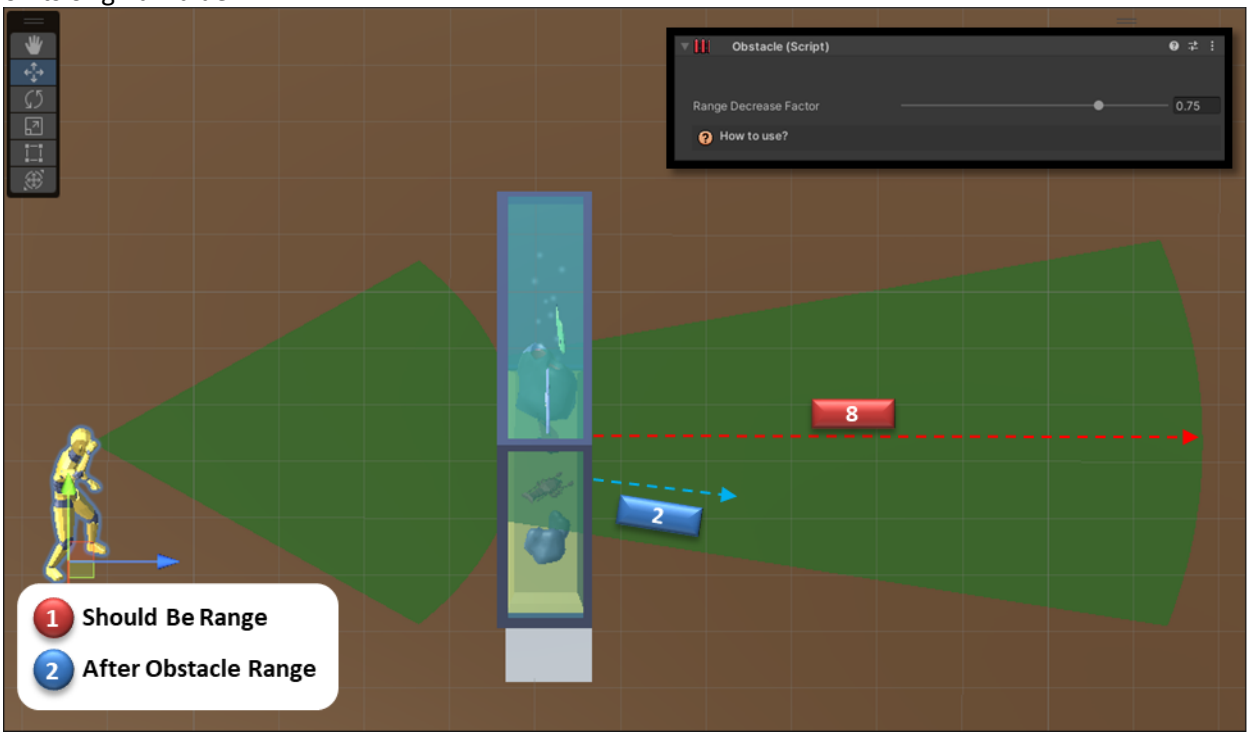
If the Range Decrease Factor equals 0, the detection range will not be modified.



If the Range Decrease Factor equals 0.5, the remaining detection range will be halved.



Finally, if the Range Decrease Factor equals 0.75, the remaining detection range will be reduced to 25% of its original value.

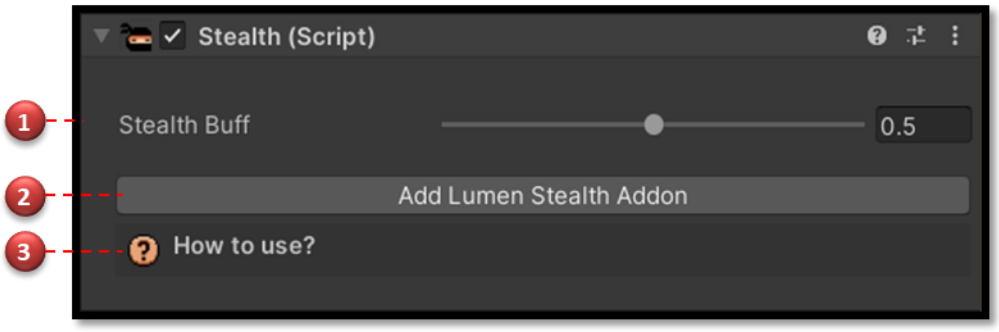


Stealth Component

Description

Enables the reduction of the delta See Awareness for GameObjects equipped with TargetSenses, based on the value of the Stealth Buff.

Requires **TargetSenses** Component attached.



1	Stealth Buff	Set float value of Stealth_Buff.
2	Add Lumen Stealth Addon Button	Allows enabling Lumen Stealth Addon.
3	'How to use?' Button	Displays Help Information.

Properties

Stealth_Buff	Get float value of Stealth_Buff.
Position_LumenMesurment	Get Vector3 value of Position_LumenMesurmen.
Use_LumenStealthAddon	Returns true if Use_LumenStealthAddon.

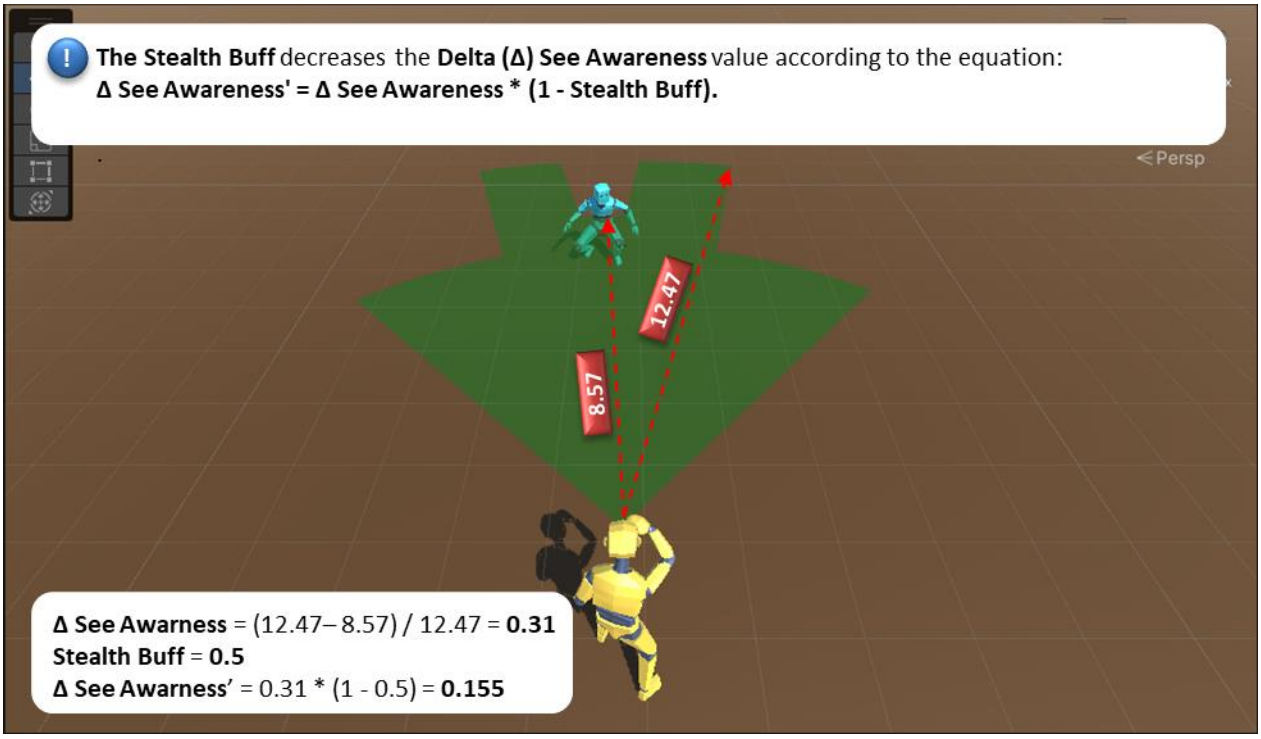
Public Methods

Set_StealthBuff	Set float value of Stealth_Buff.
Set_OffsetAxisY	Set float value of Set_OffsetAxisY.
Provide_TotalStealthBuff	Returns float value of Stealth_Buff modified with Lumen Add-on Value if needed.

float Provide_TotalStealthBuff ()

Returns float value of StealtBuff, if Use_LumenStealthAddon is enabled will return average value of Stealth_Buff and lumen stealth buff.

Reduction of the delta See Awareness



Below few more examples of how Stealth Buff will affect **Delta See Awareness** value.

Stealth Buff = 0 → **Δ See Awarness'** = 0.31 * (1 - 0) = **0.31**
Stealth Buff = 0.5 → **Δ See Awarness'** = 0.31 * (1 - 0.5) = **0.155**
Stealth Buff = 1 → **Δ See Awarness'** = 0.31 * (1 - 1) = **0**

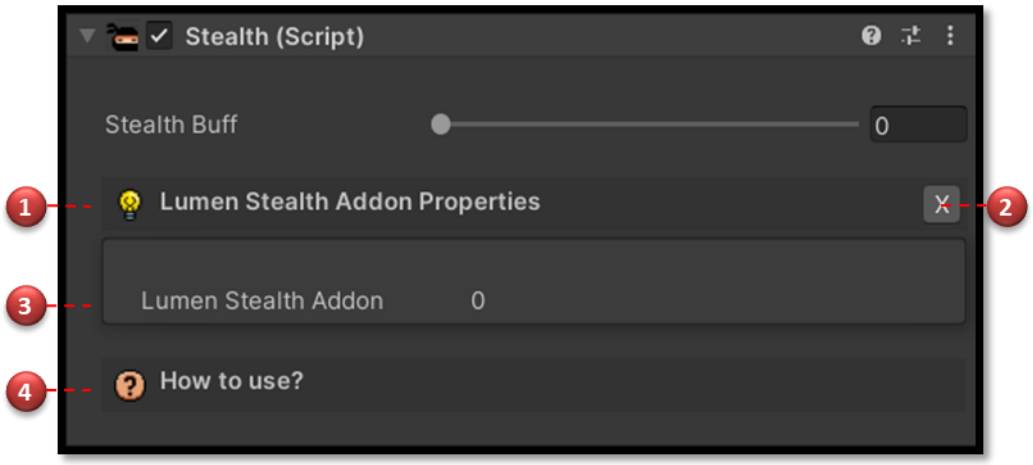
Lumen - Stealth Component Add-on

Description

Changes value of Stealth Buff according to value calculated from amount of light affecting.

GameObjects equipped with **TargetSenses**.

Lumen Stealth Addon working **only during Play Mode**.



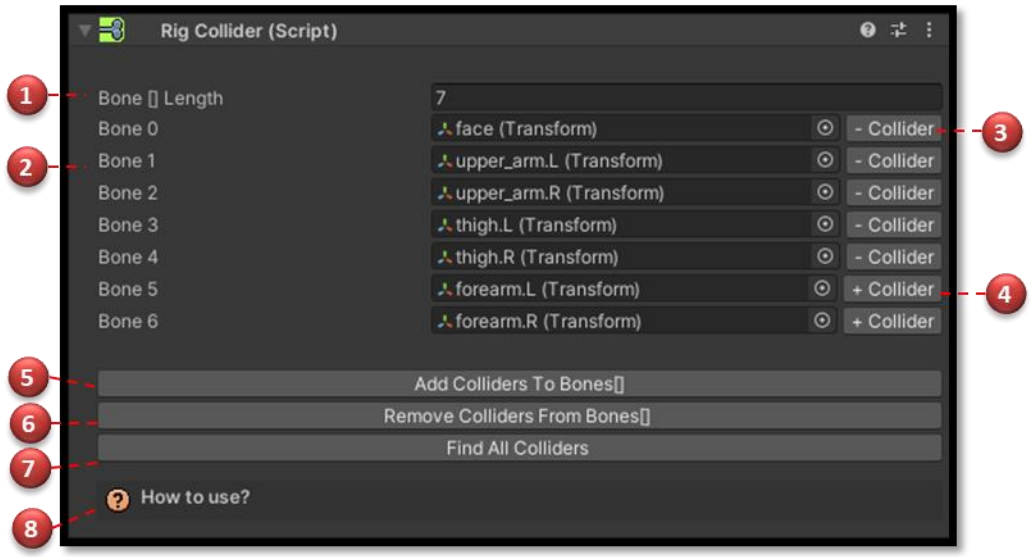
1	Lumen Stealth Addon Properties Foldout	Allows showing / hiding of Lumen Stealth Addon properties.
2	Remove Button	Allows disabling Lumen Stealth Addon.
3	Lumen Stealth Addon Value	Displays current Lumen Stealth Addon Value (*only during Play Mode)
4	'How to use?' Button	Displays Help Information.

When Lumen Stealth Addon is enabled `Provide_TotalStealthBuff()` value will be changed while in play mode.

RigCollider Component

Description

This component enables the management of colliders attached to the character rig selected by the end user. Allows for preparing Characters for more detailed detection.



1	Bone Array Length	Allows setting up length of Bone Array
2	Bone Array Elements	Allows assigning of Transform chosen as future Colliders
3	“- Collider”	Remove existing Collider
4	“+ Collider”	Generate Collider
5	Add Colliders To Bones[] Button	Will Generate all missing Colliders to Bone Array
6	Remove Colliders From Bones[] Button	Will Destroys all Colliders from Bone Array
7	Find all Colliders	Will find all Colliders
8	‘How to use?’ Button	Displays Help Information.

TargetSenses Component

Description

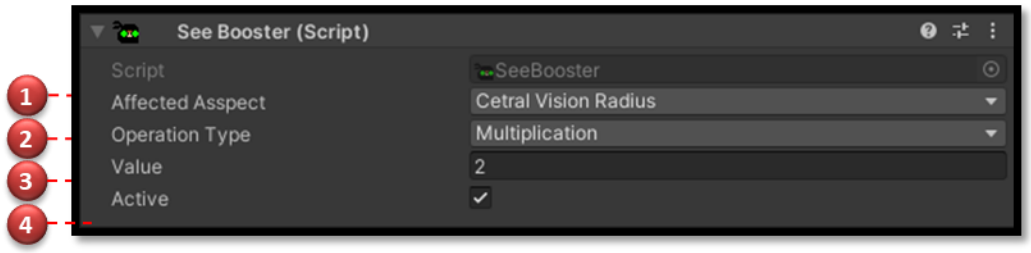
This component is necessary for characters with the Senses component attached to perceive it as an entity that needs to be tracked by awareness value.

Requires **either** a **Collider** or a **Rigidbody** component to be attached.

Senses Component

Description

This component allows for modification of See Sensor enable in Senses Component. Could modify delta See Awareness, Central Vision Range or Peripheral Vision Range. Supported types of operation are Addition, Subtraction, Multiplication, and Division.



1	Affected Aspect	Sets enum of Affected Asspect (delta See Awareness, Central Vision Range or Peripheral Vision Range).
2	Operation Type	Sets enum of Operation Type (Addition, Subtraction, Multiplication, and Division).
3	Value	Sets float value of SeeBooster.
4	Active	Sets bool state of “Active”.

Properties

AffectedAspect	Get enum of Affected Asspect.
OperationType	Get enum of Operation Type.
Value	Get float value of SeeBooster.
Active	Get bool state of “Active”.

Public Methods

Set_AffectedAsspect	Set enum of Affected Asspect.
Set_OperationType	Set enum of Operation Type.
Set_Value	Set float value of SeeBooster.
Set_ActiveState	Set bool state of “Active”.