Aim Assist Pro

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Chapter 1

Namespace Index

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Chapter 2

Hierarchical Index

2.1 Class Hierarchy

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Class Index

3.1 Class List

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Contains output from the aim assist calculations 12
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GameObjects with this component can be targeted by the Aim Assist component to adjust the aim. 13
Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.AimEaseIn.AimEaseIn
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Smoothly rotates the player towards the target. A curve is available to smooth out the rotation and allow some wiggle room. 15
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Input data to pass to the AimLock. 16
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Improve performance by storing which game objects have certain components on them 17
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Compensates for the player's strafe by loosely following the target while it's still in assist range 22
Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.Magnetism.MagnetismInput
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Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.Helper.SelectedTargetStore
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Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.TargetSelector.TargetSelector
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Namespace Documentation

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4.2 Agoston_R.Aim_Assist_Pro Namespace Reference

4.3 Agoston_R.Aim_Assist_Pro.Scripts Namespace Reference

4.4 Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode Namespace Reference

Classes

- class AimAssistBase

  Base class for all aim assist classes that handles the setup of the target selector.

4.5 Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.AimEaseIn Namespace Reference

Classes

- class AimEaseIn

  Picks a more dominant axis for look input (horizontal or vertical) and downscales the other axis by a given factor.

4.6 Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.AimLock Namespace Reference

Classes

- class AimLock

  Smoothly rotates the player towards the target. A curve is available to smooth out the rotation and allow some wiggle room.
- struct AimLockInput

  Input data to pass to the AimLock.

4.7 Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.Helper Namespace Reference

Classes

- class Cache

  Improve performance by storing which game objects have certain components on them.
- class SelectedTargetStore

  Contains logic that handles the selection of a single target and calling its notification events.
- class **Utils**

  Contains additional logic for the aim assist.

Enumerations

- enum PlayerControlType { **CharacterController** , **Rigidbody** }

  Determines which control type the player uses.

4.8 Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.Helper.Info Namespace Reference

Classes

- class CharacterControllerInfo

  Physics information from the Character Controller.
- interface IPlayerPhysicsInfo

  Physics information on the player.
- class RigidbodyInfo

  Physics information from the Rigidbody.

4.9 Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.Magnetism Namespace Reference

Classes

- class Magnetism

  Compensates for the player's strafe by loosely following the target while it's still in assist range.
- struct MagnetismInput

  Contains data needed for the magnetism aim assist to work.

4.10 Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.Model Namespace Reference

Classes

- struct AimAssistResult

  Contains output from the aim assist calculations.

4.11 Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.PrecisionAim Namespace Reference

Classes

- class PrecisionAim

  Slows down the look input using a curve to ease up aim on the target.

4.12 Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.Target Namespace Reference

Classes

- class AimAssistTarget

  GameObjects with this component can be targeted by the Aim Assist component to adjust the aim.

4.13 Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.TargetSelector Namespace Reference

Classes

- class TargetSelector

  Finds and selects a given target for the aim assists and invokes events on the target if any are defined.
- class TargetSelectorDebugDrawer

  Debug drawer that shows what the target selector sees in the Scene view.

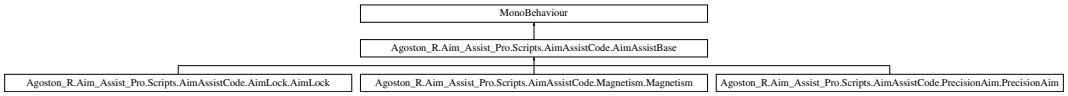
Chapter 5

Class Documentation

5.1 Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.AimAssistBase Class Reference

Base class for all aim assist classes that handles the setup of the target selector.

Inheritance diagram for Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.AimAssistBase:



Public Attributes

- bool **aimAssistEnabled** = true
- Transform **playerCamera**

Properties

- AimAssistTarget **Target** `[get]`

  The current target available from the selector
- float **AimAssistRadius** `[get]`

  The radius of the selector in metres
- float **NearClipDistance** `[get]`

  The near clip distance of the selector
- float **FarClipDistance** `[get]`

  The far clip distance of the selector

5.1.1 Detailed Description

Base class for all aim assist classes that handles the setup of the target selector.

The documentation for this class was generated from the following file:

- AimAssistBase.cs

5.2 Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.Model.AimAssistResult Struct Reference

Contains output from the aim assist calculations.

Public Member Functions

- **AimAssistResult** (float rotationAdditionInDegrees, Vector3 turnAddition, float pitchAdditionInDegrees)

Properties

- float RotationAdditionInDegrees `[get]`

  The horizontal turn adjustment that's calculated by the aim assist.
- Vector3 TurnAddition `[get]`

  The horizontal turn adjustment along the UP axis that's calculated by the aim assist.
- float PitchAdditionInDegrees `[get]`

  The vertical pitch adjustment that's calculated by the aim assist.
- static AimAssistResult **Empty** `[get]`

  Returns an empty result. You can add this to your rotations as if they were actual populated values and they'll make no difference.

5.2.1 Detailed Description

Contains output from the aim assist calculations.

The values are unclamped - they are additions. When assigning to properties with a limit like the camera pitch, the resulting value has to be clamped before assigning to the camera pitch.

5.2.2 Property Documentation

5.2.2.1 PitchAdditionInDegrees

```
float Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.Model.AimAssistResult.PitchAdditionIn↩
Degrees  [get]
```

The vertical pitch adjustment that's calculated by the aim assist.

Has to be added to the pitch of the camera. Already contains the direction with its Sign.

5.2.2.2 RotationAdditionInDegrees

```
float Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.Model.AimAssistResult.RotationAddition↩
InDegrees [get]
```

The horizontal turn adjustment that's calculated by the aim assist.

Has to be added to the rotation. Already contains the direction with its Sign.

When working with quaternions e.g. using MoveRotation for a Rigidbody, make sure you include the original rotation for the RB too

5.2.2.3 TurnAddition

```
Vector3 Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.Model.AimAssistResult.TurnAddition
[get]
```

The horizontal turn adjustment along the UP axis that's calculated by the aim assist.

Has to additionally rotate the player by this vector after handling your inputs. Added for convenience over RotationAdditionInDegrees

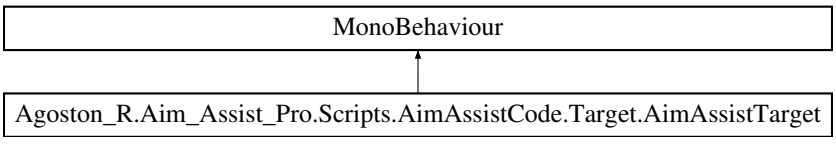
The documentation for this struct was generated from the following file:

- Model/AimAssistResult.cs

5.3 Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.Target.Aim↩ AssistTarget Class Reference

GameObjects with this component can be targeted by the Aim Assist component to adjust the aim.

Inheritance diagram for Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.Target.AimAssistTarget:



Public Attributes

- readonly UnityEvent TargetSelected = new UnityEvent()

  Can be invoked when the target is picked up by the aim assist.
- readonly UnityEvent **TargetLost** = new UnityEvent()

  Invoked when the target is no longer picked up by the aim assist.

5.3.1 Detailed Description

GameObjects with this component can be targeted by the Aim Assist component to adjust the aim.

5.3.2 Member Data Documentation

5.3.2.1 TargetSelected

```
readonly UnityEvent Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.Target.AimAssistTarget.↩
TargetSelected = new UnityEvent()
```

Can be invoked when the target is picked up by the aim assist.

Invoked once when the target is picked up but is not repeatedly invoked while the aim assist lasts.

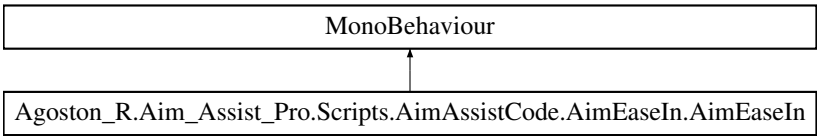
The documentation for this class was generated from the following file:

- Target/AimAssistTarget.cs

5.4 Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.AimEaseIn.↩ AimEaseIn Class Reference

Picks a more dominant axis for look input (horizontal or vertical) and downscales the other axis by a given factor.

Inheritance diagram for Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.AimEaseIn.AimEaseIn:



Public Member Functions

- Vector2 AssistAim (Vector2 lookInputDelta)

  Downscales the less dominant axis in input.

Public Attributes

- bool **aimAssistEnabled** = true
- float **smoothnessMultiplier** = 0.6f

5.4.1 Detailed Description

Picks a more dominant axis for look input (horizontal or vertical) and downscales the other axis by a given factor.

This makes it easier to do horizontal or vertical turns on the controller.

5.4.2 Member Function Documentation

5.4.2.1 AssistAim()

```
Vector2 Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.AimEaseIn.AimEaseIn.AssistAim (
            Vector2 lookInputDelta )  [inline]
```

Downscales the less dominant axis in input.

The input is the controller input delta. The output is the modified controller input delta - NOT the actual angles to rotate.

Run your look input through this before proceeding with the rotations.

Parameters

lookInputDelta	controller look input delta

Returns

the modified look input delta

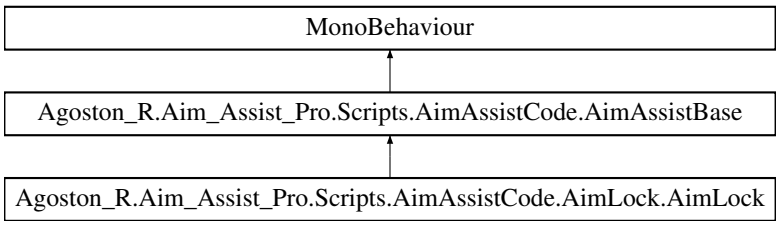
The documentation for this class was generated from the following file:

- AimEaseIn/AimEaseIn.cs

5.5 Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.AimLock.AimLock Class Reference

Smoothly rotates the player towards the target. A curve is available to smooth out the rotation and allow some wiggle room.

Inheritance diagram for Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.AimLock.AimLock:



Public Member Functions

- AimAssistResult SnapAim (AimLockInput input)

  Smoothly snaps aim to the target's position, at its center.

Public Attributes

- float **horizontalAngularVelocity** = 30f
- float **verticalAngularVelocity** = 30f
- bool **enableAngularVelocityCurve** = true
- AnimationCurve **angularVelocityCurve**
- bool **adaptiveAngularVelocity** = true
- float **baseAimDistance** = 10f

Additional Inherited Members

5.5.1 Detailed Description

Smoothly rotates the player towards the target. A curve is available to smooth out the rotation and allow some wiggle room.

5.5.2 Member Function Documentation

5.5.2.1 SnapAim()

```
AimAssistResult Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.AimLock.AimLock.SnapAim (
            AimLockInput input )  [inline]
```

Smoothly snaps aim to the target's position, at its center.

Takes in the delta time as it can be different based on where the input logic is implemented (Update, fixed update etc) or scaled time.

Returns the needed adjustment in degrees for the pitch and rotation. This adjustment is an addition - you need to add it to your turn / pitch.

Parameters

input	The input data for the aim lock. All fields have to be set for it to work.

Returns

the additional rotation in degrees. add this to your rotation and pitch.

The documentation for this class was generated from the following file:

- AimLock/AimLock.cs

5.6 Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.AimLock.AimLockInput Struct Reference

Input data to pass to the AimLock.

Public Member Functions

- AimLockInput (Vector2 lookInputDelta, float deltaTime)

  Creates a new instance. Make sure populate all parameters with actual values and not just some default.

Properties

- float **DeltaTime** `[get]`

  The last frame's time. Taking it as parameter as it can be different based on the method the aim lock in implemented in e.g. Update or Fixed Update or when you use scaled time.
- Vector2 **LookInputDelta** `[get]`

  The look input delta of the player.

5.6.1 Detailed Description

Input data to pass to the AimLock.

5.6.2 Constructor & Destructor Documentation

5.6.2.1 AimLockInput()

```
Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.AimLock.AimLockInput.AimLockInput (
            Vector2 lookInputDelta,
            float deltaTime ) [inline]
```

Creates a new instance. Make sure populate all parameters with actual values and not just some default.

Parameters

lookInputDelta	look input delta
deltaTime	delta time

The documentation for this struct was generated from the following file:

- AimLock/AimLockInput.cs

5.7 Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.Helper.Cache< T > Class Template Reference

Improve performance by storing which game objects have certain components on them.

Public Member Functions

- void RegisterItem (T item)

  Registers a new item to the cache
- bool IsEmpty ()

  Check whether the store is empty
- void StoreItems (IEnumerable< T > items)

  Replace the store with the given elements.
- ICollection< T > FindAll ()

  Returns the elements stored in the cache in a readonly fashion.
- bool RemoveItem (T item)

  Remove the given item if it is in the store.
- T FindOrInsert (Component obj)

  Tries to find the given component on the added object and saves it if not found in storage.
- void **Purge** ()

  Clear all items from the store.

Properties

- static Cache< T > **Instance** `[get]`

5.7.1 Detailed Description

Improve performance by storing which game objects have certain components on them.

Cuts down on GetComponent calls and queries.

Template Parameters

T	Type of component stored for a given game object

Type Constraints

T* : *Component

5.7.2 Member Function Documentation

5.7.2.1 FindAll()

```
ICollection< T > Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.Helper.Cache< T >.FindAll ( )
[inline]
```

Returns the elements stored in the cache in a readonly fashion.

Returns

the elements of the cache

5.7.2.2 FindOrInsert()

```
T Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.Helper.Cache< T >.FindOrInsert (
            Component obj )  [inline]
```

Tries to find the given component on the added object and saves it if not found in storage.

If there's no T component on the object in question, it stores the null and will return that later.

Parameters

obj	the object in question whom we check for the T component

Returns

the stored component if already present, the found component if present or null.

5.7.2.3 IsEmpty()

```
bool Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.Helper.Cache< T >.IsEmpty ( )  [inline]
```

Check whether the store is empty

Returns

true if the store has no elements inside, false otherwise

5.7.2.4 RegisterItem()

```
void Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.Helper.Cache< T >.RegisterItem (
            T item )  [inline]
```

Registers a new item to the cache

HAS TO BE CALLED EVERY TIME a new item of type T has been instantiated to the scene.

Parameters

item	item to add

5.7.2.5 RemoveItem()

```
bool Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.Helper.Cache< T >.RemoveItem (
```

```
T item )  [inline]
```

Remove the given item if it is in the store.

Parameters

item	item to remove

Returns

true if the item is found and removed, false otherwise.

5.7.2.6 StoreItems()

```
void Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.Helper.Cache< T >.StoreItems (
            IEnumerable< T > items )  [inline]
```

Replace the store with the given elements.

Parameters

items	elements to add to the store

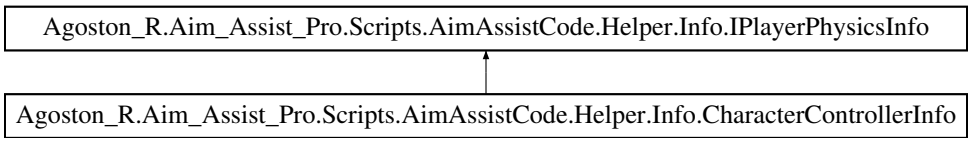
The documentation for this class was generated from the following file:

- Helper/Cache.cs

5.8 Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.Helper.Info.↩ CharacterControllerInfo Class Reference

Physics information from the Character Controller.

Inheritance diagram for Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.Helper.Info.CharacterControllerInfo:



Public Member Functions

- **CharacterControllerInfo** (CharacterController controller)

Properties

- Vector3 Velocity [get]

  The CharacterController's velocity

5.8.1 Detailed Description

Physics information from the Character Controller.

5.8.2 Property Documentation

5.8.2.1 Velocity

```
Vector3 Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.Helper.Info.CharacterControllerInfo.↩
Velocity [get]
```

The CharacterController's velocity

Implements Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.Helper.Info.IPlayerPhysicsInfo.

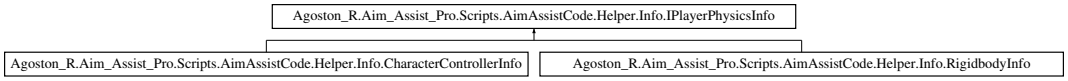
The documentation for this class was generated from the following file:

- Helper/Info/CharacterControllerInfo.cs

5.9 Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.Helper.Info.↩ IPlayerPhysicsInfo Interface Reference

Physics information on the player.

Inheritance diagram for Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.Helper.Info.IPlayerPhysicsInfo:



Properties

- Vector3 Velocity [get]

  The player's velocity

5.9.1 Detailed Description

Physics information on the player.

Using this as a strategy pattern to eliminate code duplication when working with both rigidbodies and character controllers.

5.9.2 Property Documentation

5.9.2.1 Velocity

```
Vector3 Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.Helper.Info.IPlayerPhysicsInfo.Velocity
[get]
```

The player's velocity

Implemented in Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.Helper.Info.CharacterControllerInfo, and Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.Helper.Info.RigidbodyInfo.

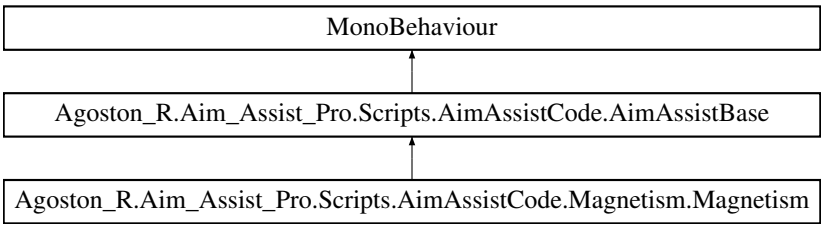
The documentation for this interface was generated from the following file:

- Helper/Info/PlayerPhysicsInfo.cs

5.10 Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.Magnetism.↩ Magnetism Class Reference

Compensates for the player's strafe by loosely following the target while it's still in assist range.

Inheritance diagram for Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.Magnetism.Magnetism:



Public Member Functions

- AimAssistResult **AssistAim** (MagnetismInput magnetismInput)

Public Attributes

- PlayerControlType **controlType**
- Rigidbody **playerBody**
- CharacterController **playerController**
- float **horizontalSmoothnessAwayFromTarget** = 1.09f
- float **horizontalSmoothnessTowardsTarget** = 2f
- float **lerpDistance** = 0.1f
- bool **verticalCompensation**
- float **verticalSmoothness** = 1.15f

Additional Inherited Members

5.10.1 Detailed Description

Compensates for the player's strafe by loosely following the target while it's still in assist range.

Requires a RigidBody to be present on the player.

The documentation for this class was generated from the following file:

- Magnetism/Magnetism.cs

5.11 Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.Magnetism.↩ MagnetismInput Struct Reference

Contains data needed for the magnetism aim assist to work.

Public Member Functions

- MagnetismInput (Vector2 movementInputDelta, float deltaTime)

  Creates a new instance. All values have to be populated with actual data for the aim assist to work.

Properties

- Vector2 **MovementInputDelta** `[get]`

  The player's movement input delta. Needed to know the player's intentions.
- float **DeltaTime** `[get]`

  The delta time of the given frame. Needed because the aim assist doesn't know if the controls are implemented in FixedUpdate or Update or using a scaled time.

5.11.1 Detailed Description

Contains data needed for the magnetism aim assist to work.

5.11.2 Constructor & Destructor Documentation

5.11.2.1 MagnetismInput()

```
Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.Magnetism.MagnetismInput.MagnetismInput (
            Vector2 movementInputDelta,
            float deltaTime )  [inline]
```

Creates a new instance. All values have to be populated with actual data for the aim assist to work.

Parameters

movementInputDelta	the player's movement input delta
deltaTime	the delta time

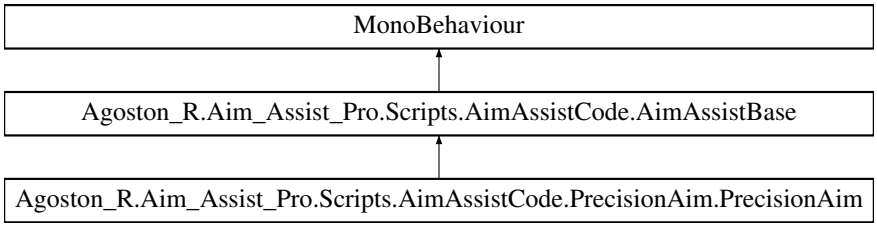
The documentation for this struct was generated from the following file:

- Magnetism/MagnetismInput.cs

5.12 Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.PrecisionAim.PrecisionAim Class Reference

Slows down the look input using a curve to ease up aim on the target.

Inheritance diagram for Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.PrecisionAim.PrecisionAim:



Public Member Functions

- Vector2 AssistAim (Vector2 lookInputDelta)
  Calculates the slowed down player input delta using the curve.

Public Attributes

- AnimationCurve **smoothingCurve**

Additional Inherited Members

5.12.1 Detailed Description

Slows down the look input using a curve to ease up aim on the target.

5.12.2 Member Function Documentation

5.12.2.1 AssistAim()

```
Vector2 Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.PrecisionAim.PrecisionAim.AssistAim (
            Vector2 lookInputDelta )  [inline]
```

Calculates the slowed down player input delta using the curve.

Receives a look input delta, returns a modified look input delta.

Before calculating your rotations from the player input, run that input through this.

Parameters

lookInputDelta	the player's look input delta

Returns

the modified look input delta

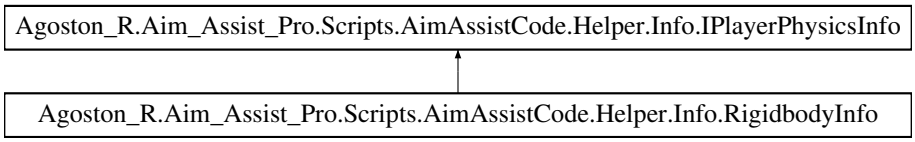
The documentation for this class was generated from the following file:

- PrecisionAim/PrecisionAim.cs

5.13 Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.Helper.Info.RigidbodyInfo Class Reference

Physics information from the Rigidbody.

Inheritance diagram for Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.Helper.Info.RigidbodyInfo:



Public Member Functions

- **RigidbodyInfo** (Rigidbody playerBody)

Properties

- Vector3 Velocity `[get]`

  The player's velocity

5.13.1 Detailed Description

Physics information from the Rigidbody.

5.13.2 Property Documentation

5.13.2.1 Velocity

```
Vector3 Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.Helper.Info.RigidbodyInfo.Velocity
[get]
```

The player's velocity

Implements Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.Helper.Info.IPlayerPhysicsInfo.

The documentation for this class was generated from the following file:

- Helper/Info/RigidbodyInfo.cs

5.14 Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.Helper.↩ SelectedTargetStore Class Reference

Contains logic that handles the selection of a single target and calling its notification events.

Public Member Functions

- void ProcessTarget (AimAssistTarget target)
  Calls the events to the selected target and stores it to prevent invoking the same events over and over again.

5.14.1 Detailed Description

Contains logic that handles the selection of a single target and calling its notification events.

Must use distinct instances for each player, in case multiple players are present.

5.14.2 Member Function Documentation

5.14.2.1 ProcessTarget()

```
void Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.Helper.SelectedTargetStore.ProcessTarget (
            AimAssistTarget target ) [inline]
```

Calls the events to the selected target and stores it to prevent invoking the same events over and over again.

Parameters

target	target that was found

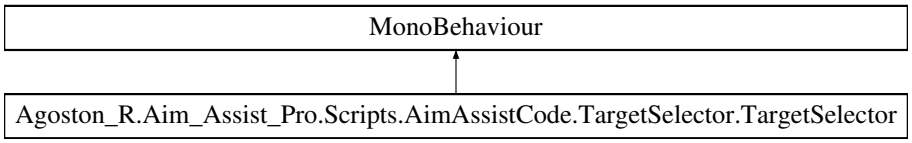
The documentation for this class was generated from the following file:

- Helper/SelectedTargetStore.cs

5.15 Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.TargetSelector.TargetSelector Class Reference

Finds and selects a given target for the aim assists and invokes events on the target if any are defined.

Inheritance diagram for Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.TargetSelector.TargetSelector:



Public Attributes

- Transform **playerCamera**
- float **aimAssistRadius** = 0.5f
- float **nearClipDistance** = 0.5f
- float **farClipDistance** = 50f
- LayerMask **layerMask**

Properties

- AimAssistTarget **Target** `[get]`

  The target that is currently found by the selector. Null if currently no targets are found.

5.15.1 Detailed Description

Finds and selects a given target for the aim assists and invokes events on the target if any are defined.

Separating the selection can enable you to use multiple aim assists together with no additional performance hit from the target selection process.

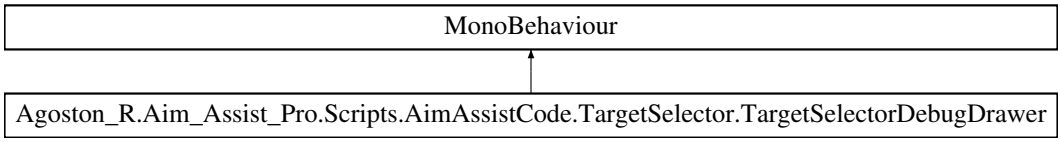
The documentation for this class was generated from the following file:

- TargetSelector/TargetSelector.cs

5.16 Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.TargetSelector.TargetSelectorDebugDrawer Class Reference

Debug drawer that shows what the target selector sees in the Scene view.

Inheritance diagram for Agoston_R.Aim_Assist_Pro.Scripts.AimAssistCode.TargetSelector.TargetSelectorDebugDrawer:



5.16.1 Detailed Description

Debug drawer that shows what the target selector sees in the Scene view.

The documentation for this class was generated from the following file:

- TargetSelector/TargetSelectorDebugDrawer.cs

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