

Humanoid Controller

Description:

The `HumanoidController` class serves as an abstract base class for implementing a 2D character controller. It provides a comprehensive set of functionalities for handling:

- Movement
- Jumping
- Dashing
- Ledge grabbing
- Ledge climbing
- Sliding

You can inherit from this class to create custom humanoid characters with dynamic and responsive behaviors.

Features:

-Movement:

Smooth and responsive horizontal movement with adjustable parameters for snappiness or smoothness.

-Jumping:

Supports both ground and air jumps, with customizable jump parameters such as coyote time and the number of air jumps the character is allowed to perform.

-Dashing:

Implements a dash mechanic with cooldown, allowing characters to cover distances quickly.

-Ledge Grabbing and Climbing:

Enables automatic detection and grabbing of ledges, with the option to climb them. The system includes events for tracking ledge-related actions.

-Sliding:

Supports floor sliding with adjustable parameters like minimum slide speed and cancel conditions.

-Wall Sliding:

Provides the ability to slide on walls, including conditions for initiating and ending wall slides.

Initialization and Callbacks:

`Awake()`: Initializes components and properties when the object is created.

`Start()`: Subscribes to events and performs additional setup.

`OnDisable()`: Unsubscribes from events when the object is disabled.

`Update()`: Main update loop where character state, timers, and various adjustments are managed.

Debugging:

`Debugging()`: Provides debugging functionalities for testing and development.

Dependencies:

Required Components: `CharacterMovement`, `CharacterEnvironmentalQuery`, `Rigidbody2D`

Optional Components: `CharacterSlide`, `CharacterDash`, `CharacterLedgeGrab`, `CharacterCombat`

Notes:

-The class is designed to be easily extensible, allowing you to integrate additional functionalities or customize existing behaviors.

-Events provide hooks for implementing custom logic or responding to specific character actions.

Events:

OnCharacterJump	Triggered when the character performs a jump.
OnCharacterDash	Triggered when the character performs a dash.
OnLedgeGrabEnter	Triggered when the character enters the ledge grab state.
OnLedgeClimbEnter	Triggered when the character starts climbing a ledge.
OnLedgeExit	Triggered when the character exits the ledge grab or ledge climb state.

Properties:

VerticalVelocity	Current vertical velocity of the character.
HorizontalVelocity	Current horizontal velocity of the character.
LedgeDetected	Indicates whether a ledge is currently detected.
IsGrounded	Indicates whether the character is grounded.
IsRunning	Indicates whether the character is currently in a running state.
IsFloorSliding	Indicates whether the character is currently sliding on the floor.
IsWallSliding	Indicates whether the character is currently sliding on a wall.
IsDashing	Indicates whether the character is currently dashing.
IsLedgeGrabbing	Indicates whether the character is currently in the ledge grab state.
IsLedgeClimbing	Indicates whether the character is currently climbing a ledge.

Public Methods:

ChangeHorizontalVelocity	Changes the character's horizontal velocity based on the provided direction.
TryJumping	Attempts to make the character jump based on certain conditions.
LedgeGrab	Handles the logic for ledge grabbing, allowing customization of conditions.
LedgeClimb	Handles the logic for ledge climbing, allowing customization of conditions.
TryDashing	Attempts to make the character perform a dash based on certain conditions.
TryFloorSlide	Handles the logic for initiating and exiting floor sliding.

Version Information:

Unity Compatibility: Compatible with Unity engine.

Class Version: 1.0