Living Birds v1.1

Living Birds is a fully scripted system for adding life like song birds to any Unity3D game. The sytem consists of 6 different types of common song birds and a controller script to set up your scene. The Living Birds system will handle all spawning, unspawning, bird animations and actions, and targetting once your scene is set up. The Living Birds system is controlled by 2 well commented C# scripts and is easy to add functionality if you desire to. There are several function calls that you can use at runtime to control the Living Birds based on the needs of your game.

Each bird model is less than 730 triangles and is animated through the Unity Mechanim Animation System. Each bird has a hand painted 102ree4x1024 texture map that can be reduced in size to meet the requirments of your game through the texture inport settings. There is also a demo scene included to show you how the birds function in an environment. Prefabs have been included for the two types of bird target as well as a prefab for the Living Birds Controller. Living Birds comes with a built in Pause Feature that works independently of the Unity Time. This way if your game's pause feature doesn't change Time.timeScale to pause, Living Birds will still easily pause with one function call to the Living Birds Controller.

Importing Living Birds Into Your Game:

You may import the Living Birds Packaage directly from the Unity Asset Store or select the package directly by clicking the "Assets/Import Package/Custom Package" and selecting the file directly. Once the package is unpacked you will see a folder in your Assets called "living birds". All Living Birds assets are contained wthin this controller. You will notice there are bird prefabs within the Resources folder of "living birds". These prefabs must reside within a "resources" folder so they can be instantiated to the scene at runtime.

Setting Up Your Game for Living Birds:

Living Birds only requires 2 things to run properly. A Living Birds Controller GameObject and an appropriate amount of target GameObjects for the birds to land on.

Living Birds Controller:

There must be at least one active Living Birds Controller in a scene to use Living Birds. Birds will not function individually without it. The controller is responsible for all spawning, unspawning, targetting, and fleeing of the birds. It is also responsible for which types of birds are in the scene and the amount. The prefab has an underscore at the beginning of its name as a convienence so the controller GameObject will stay at the top of your Heirarchy. The name of the GameObject is not important and you may rename it if you wish.

Ideal Number Of Birds : int idealNumberOfBirds
The Controller will try to keep roughly this number of birds active in your scene at all times. Birds will spawn in and out so the actual amount will vary.

Maximum Number Of Birds : int maximumNumberOfBirds
The total amount of birds the controller will instantiate and use in your scene.

Current Camera : Camera currentCamera
The currentCamera variable is exposed inside the controller script so you may update it if your game changes cameras. If no camera is assigned the controller will do a search for the camera with tag = "MainCamera".

Living Birds uses the currentCamera by spawning birds outside of its view. It also keeps track of all targets around the camera and deactivates targets far away from the

camera. This way you can always be assured that the birds are within the area the game is taking place.

Unspawn Distance : float unspawnDistance
This variable controls the distance from the current camera that birds must be before they unspawn. It also controls the radius in which bird targets will be active. This way birds are not wasting resources interacting where they cannot be seen.

High Quality: bool highQuality
Birds that spawn will have alpha enabled textures that show their wing and tail feathers.

Ground Layer : LayerMask groundLayer
Select the Physics Layer that your game's ground object(s) belong to. This option is especially important if you have a large number of colliders in your game. The controller picks points on the ground by choosing a random point on the top of a ground target and Raycasting down until it hits another Collider. The groundLayer variable will set up a LayerMask so that this raycast only tests against Colliders belonging to the same layer your ground resides on. If the raycast returns false the birds will land on the top face of the ground target.

Bird Types: bool
Select which types of birds you would like in your scene.

Public Functions

void AllFlee();
All birds fly away and seek a random target point well out of unspawn range. Birds will then unspawn once they are a distance away and gradually respawn into the scene and resume normal activities.

void Pause();
This will toggle the pause parameter. If the birds are paused they will unpause. If they are currently active they will pause. Note: the pause feature in Living Birds is independent of Time.timeScale. If you set the timeScale to 0 for your pause you do not need to Pause Living Birds in addition to what you are already doing in game. If your game does not use timeScale Pausing Living Birds through a function call will freeze all birds, animations, and sounds.

void AllPause();
All birds will pause. This will freeze all motion, spawning, animation and sounds.

void AllUnPause();
All birds will unpause. This will resume all motion, spawning, and animation.

void SpawnAmount(int);
Force the controller to immediatly spawn this many birds. Note: the controller will not Spawn more birds than the maximumNumberOfBirds.

void ChangeCamera(Camera);
Pass a reference of the currently used camera to the Living Birds Controller every time it is changed. Birds will gather around the transform of the currentCamera. Active targets will

also be determined by the location of the current camera. If your game does not change cameras Living Birds will automatically assign the camera with the tag "Main Camera".

lb_Bird:

lb_Bird.cs is attached to each individual bird. There are two public functions as of version 1.1

```
void KillBird();
```

Will initiate the bird death animation, alter the collider shape, and enable the rigidbody to make the bird a physical object. This function will also alert the Living Birds Controller to spawn a particle emitter with feathers at the position of the bird.

```
void KillBirdWithForce(Vector3);
```

This function is the same as KillBird() but it allows you to pass a Vector3 which will be added to the rigidbody as a force when the function is called.

Living Bird Targets:

Living Birds uses two kinds of targets. Both are GameObjects with Collider components, set to Trigger. It is important to note that any Living Bird Target must use the included tag "lb_groundTarget" or "lb_perchTarget". Living Bird Targets can be included in your games level assets and should be used liberally through out your levels. The controller will automatically choose new targets for the birds based on the location of the current camera and the unspawnDistance variable so you don't need to worry about activating and deactivating targets. Ground Targets should be cubes and should not be larger than a few units but not smaller than .5 units. It is better to use several Ground Targets than one larget target that covers a very large area. Perch targets send one bird to the target's position.

Perch Targets are set up so that only one bird may occupy each target at a time. The bird will fly to the transform position of the target. If a bird is perched while another bird is attempting to land on the target the perched bird will fly away and allow the new bird to land. Perch targets must use the tag "lb_perchTarget".

Ground Targets are cubes with a trigger collider. Ground Targets must overlap the ground object in your game such that the top face of the cube is not clipping into the ground object. The target must overlap the surface of the ground to avoid birds landing on the top of the invisible target. Birds find a point on the ground by Raycasting from the top of the Ground Target down until the ray hits the ground collider. Ground targets are larger than perch targets and birds will find a random point within the target to land. Many birds may land within a ground target at once. If birds touch one another they will fly away and seek a new target.

Thank you for purchasing Living Birds. Please send any questions or bugs to

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