



Introduction To Twin Stick

What this section covers...

- Using 3D with 2D controls (2.5D game).
- Using world-space UI in a 3D game.
- **CrossPlatformInputManager** & virtual controls.
- Saving game state to PlayerPrefs.
- UI anchors + much more.



Introducing Version Control

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In This Video...

- Why you may want to use version control.
- An overview of how we use it.
- Follow us on GitHub.
- Where to find the course repositories.

Version Control Glossary

- **Repo:** Short for repository. The code for a project.
- **Commit:** Save local snapshot of your project.
- **Push:** Send your local repository to the server.
- **Pull:** Get your remote repository from the server.
- **Checkout:** Load local snapshot of your project.

Follow Us On GitHub

- Signup for GitHub if you haven't already.
- Visit <https://github.com/CompleteUnityDeveloper>
- Take a look around the site.
- Click through to Ben / Brice.
- Follow us for future code updates.



Sharing Your Game With Git

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In This Video...

- How Git can help you share your project.
- How we use Git for the course.
- What's different about how you may use it.
- Read Dan's blog post*

<http://leereilly.net/2012/11/29/hosting-games-on-github.html>

Open Our Project Prototype

- Visit <https://github.com/CompleteUnityDeveloper>
- Find the 10-TwinStick “repo”.
- Download the latest commit from the **pt** branch.
- Open the project in Unity to test it works.



Using SourceTree & Git

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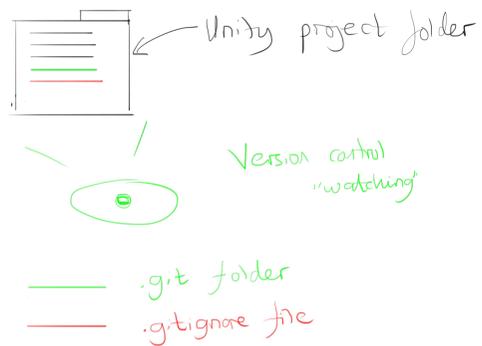
In This Video...

- Download SourceTree
- Creating local & remote repos.
- Using a **.gitignore** file for Unity.
- Connect to GitHub (or BitBucket).
- Share your repo in the discussions.

Bitbucket vs GitHub

GitHub	BitBucket
+ Very well known, great support on web.	- Less well known.
+ Plays well with SourceTree.	- Can have problems with SourceTree!
- Private repos are paid.	+ Private repos are free.

Ecosystem Overview



Share Your Repo

- Put a secret message in your scene.
- Push your repo to GitHub (or SourceTree).
- Share it in the Discussions.
- Challenge people to find the message.
- Celebrate, you're now a real coder!



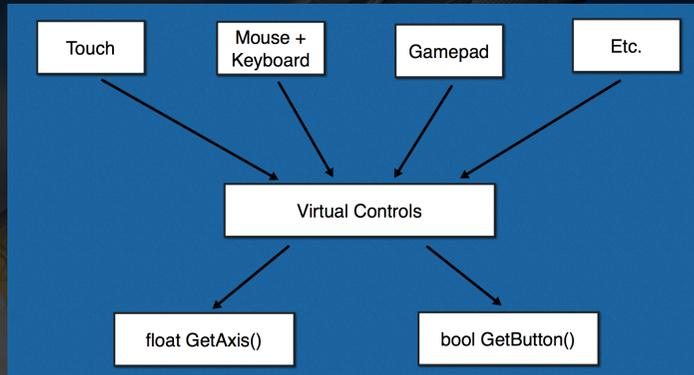
Using CrossPlatformInputManager

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In This Video...

- What is **CrossPlatformInputManager**.
- How a virtual control layer works.
- Setting-up and reading control values.

Virtual Control Layer



Using CrossPlatformInputManager

1. Assets > Import Package > CrossPlatformInput
2. `using` UnityStandardAssets.CrossPlatformInput;
3. Use **CrossPlatformInputManager**. to access.

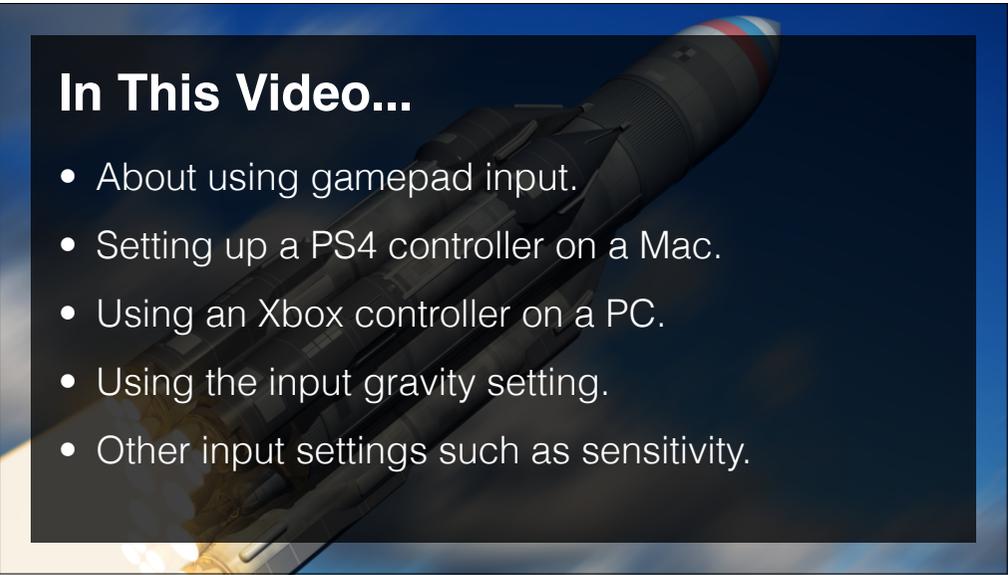
Log Virtual Control Values

- Lookup how you read input using **Input**.
- Replace with **CrossPlatformInput**.
- Import the appropriate namespace.
- Print control values to the console.



Using Analog Gamepad (Optional)

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In This Video...

- About using gamepad input.
- Setting up a PS4 controller on a Mac.
- Using an Xbox controller on a PC.
- Using the input gravity setting.
- Other input settings such as sensitivity.



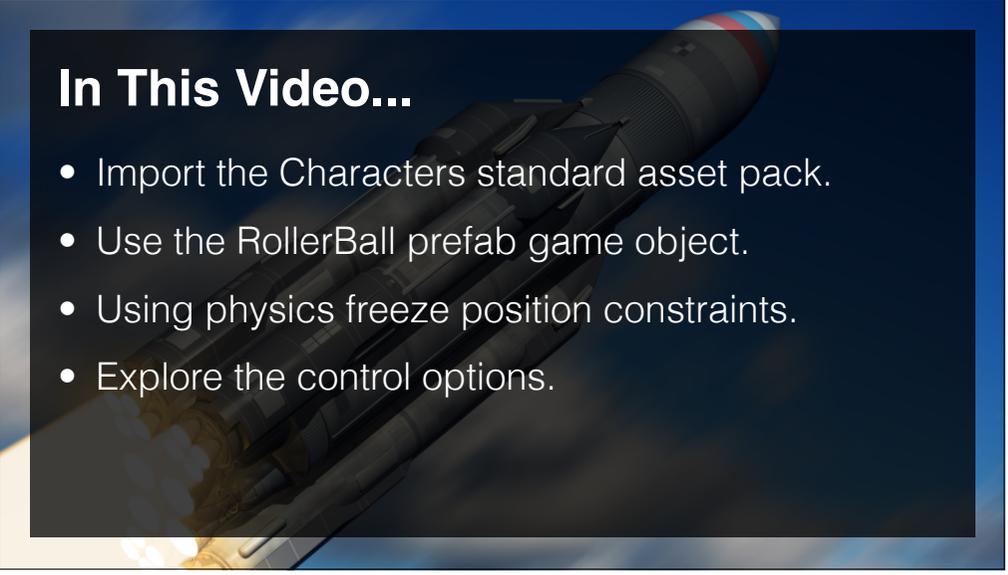
Using A Gamepad OR Gravity

- If you have a gamepad, try and get it working.
- Otherwise simulate using input gravity.



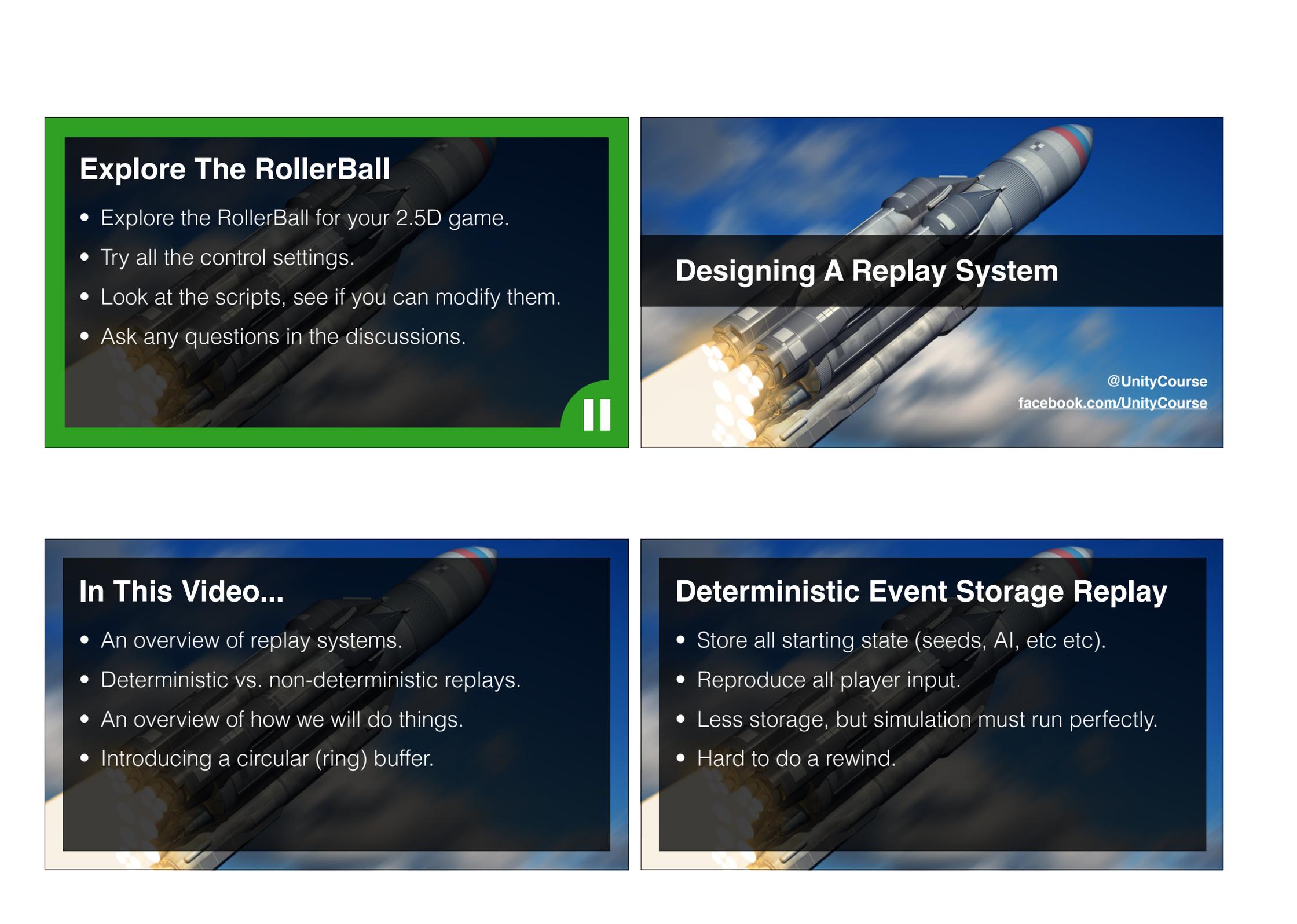
Using The RollerBall Prefab

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In This Video...

- Import the Characters standard asset pack.
- Use the RollerBall prefab game object.
- Using physics freeze position constraints.
- Explore the control options.

A background image of a space shuttle launching, viewed from a low angle, with a bright orange and yellow flame at the base. The shuttle is white with blue and red stripes on the nose. The background is a clear blue sky with some light clouds.

Explore The RollerBall

- Explore the RollerBall for your 2.5D game.
- Try all the control settings.
- Look at the scripts, see if you can modify them.
- Ask any questions in the discussions.



Designing A Replay System

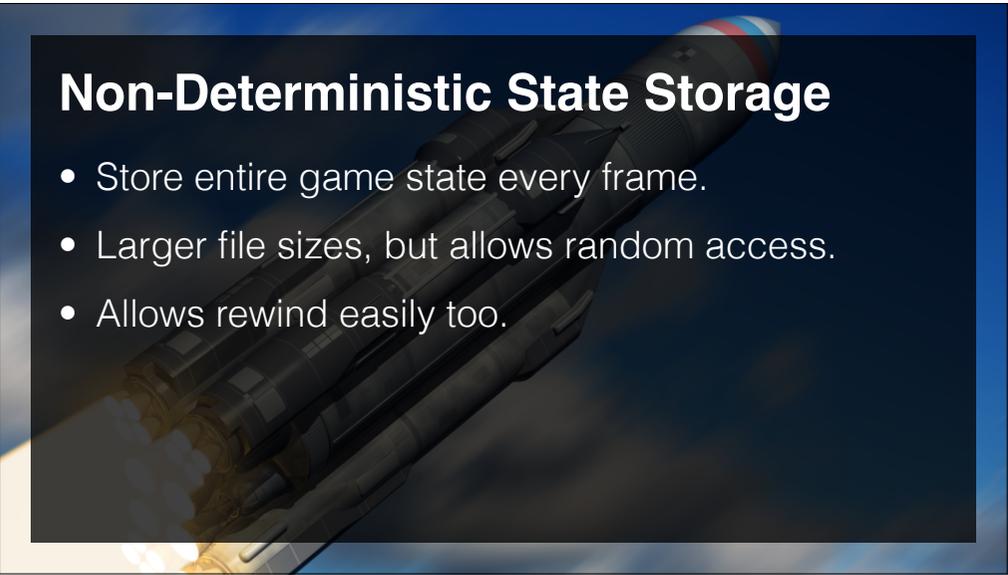
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In This Video...

- An overview of replay systems.
- Deterministic vs. non-deterministic replays.
- An overview of how we will do things.
- Introducing a circular (ring) buffer.

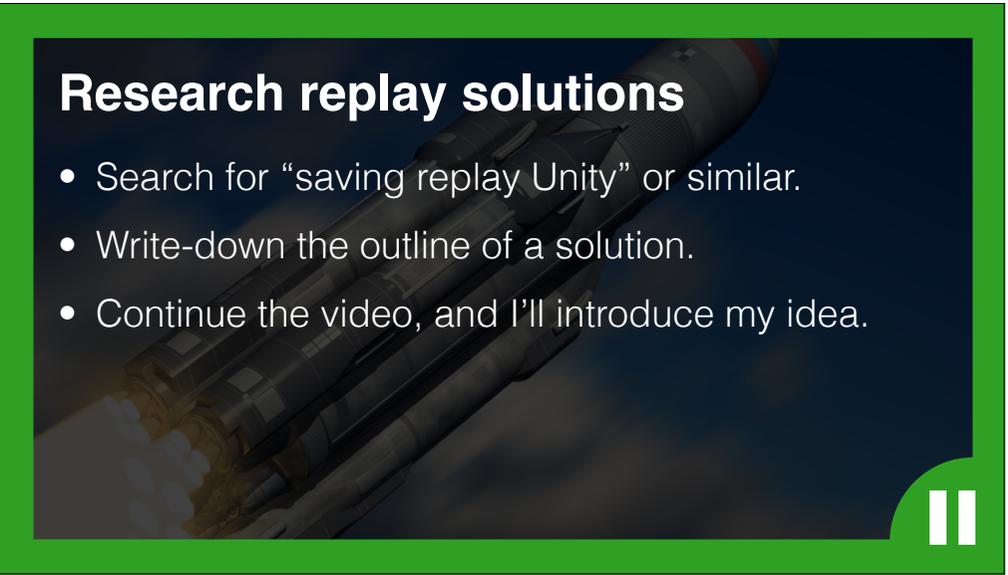
Deterministic Event Storage Replay

- Store all starting state (seeds, AI, etc etc).
- Reproduce all player input.
- Less storage, but simulation must run perfectly.
- Hard to do a rewind.

A space shuttle is shown in the background, ascending into the sky with a blue and white gradient. The shuttle is angled upwards, and its engines are visible at the bottom.

Non-Deterministic State Storage

- Store entire game state every frame.
- Larger file sizes, but allows random access.
- Allows rewind easily too.

A space shuttle is shown in the background, ascending into the sky with a blue and white gradient. The shuttle is angled upwards, and its engines are visible at the bottom.

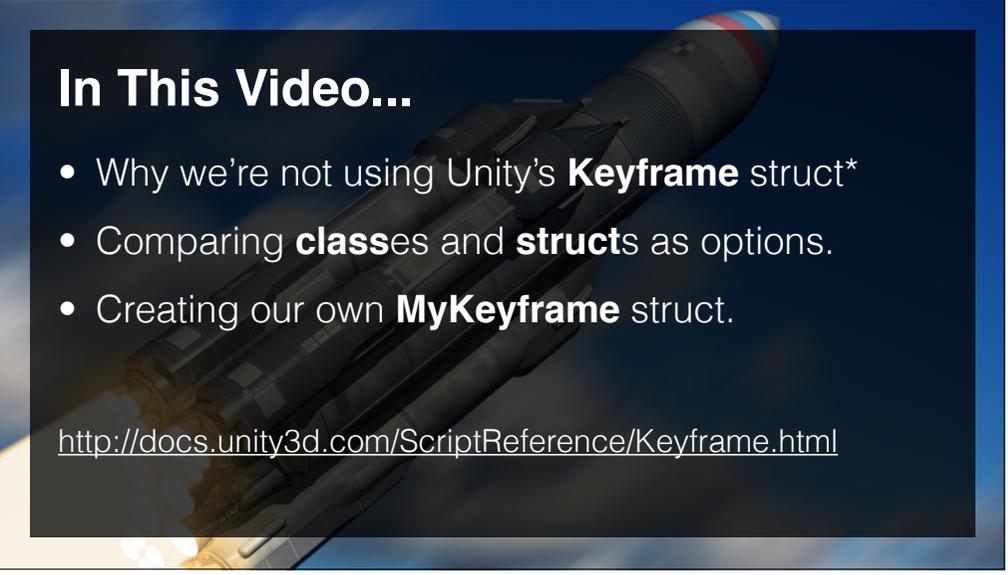
Research replay solutions

- Search for “saving replay Unity” or similar.
- Write-down the outline of a solution.
- Continue the video, and I’ll introduce my idea.

A space shuttle is shown in the background, ascending into the sky with a blue and white gradient. The shuttle is angled upwards, and its engines are visible at the bottom.

Class Vs Struct In C#

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A space shuttle is shown in the background, ascending into the sky with a blue and white gradient. The shuttle is angled upwards, and its engines are visible at the bottom.

In This Video...

- Why we’re not using Unity’s **Keyframe** struct*
- Comparing **classes** and **structs** as options.
- Creating our own **MyKeyframe** struct.

<http://docs.unity3d.com/ScriptReference/Keyframe.html>

Write A MyKeyFrame Class

- In the **Replay.cs** as a helper class.
- Define as a class (not struct) for now.
- Try and provide a “constructor”, so you can say **keyFrame = new MyKeyFrame (time, pos, rot)** elsewhere in your code. Bonus marks!



Creating A Replay System

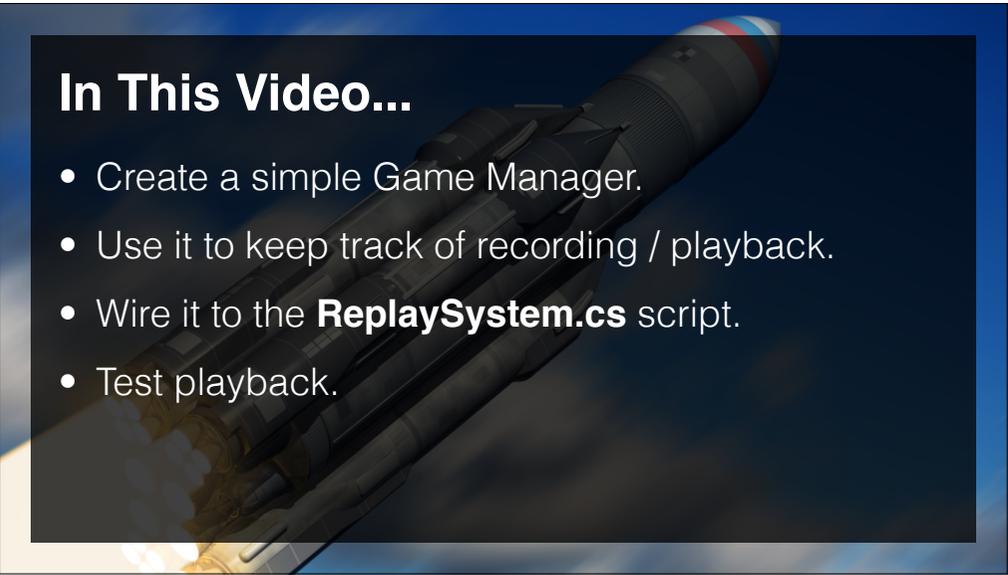
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In This Video...

- An overview of our replay system code.
- Implementing a ring buffer for frames.
- Testing our record.

Building A Game Manager

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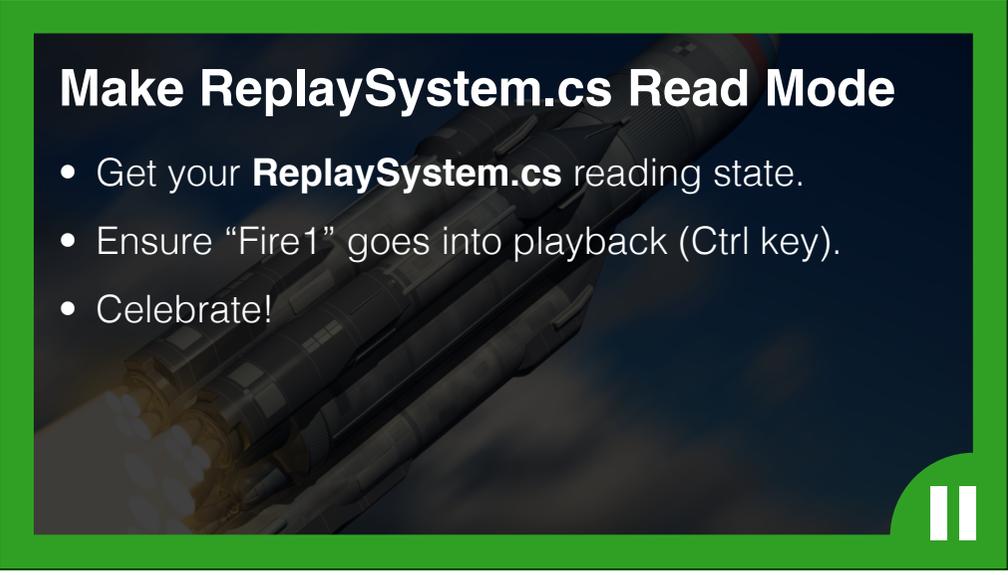
In This Video...

- Create a simple Game Manager.
- Use it to keep track of recording / playback.
- Wire it to the **ReplaySystem.cs** script.
- Test playback.



Write GameManager.cs

- Create an empty game object.
- Attach **GameManager.cs**
- Have it keep track of **bool recording**.
- While holding “Fire1” button, is in playback.
- Otherwise in record mode (normal gameplay).



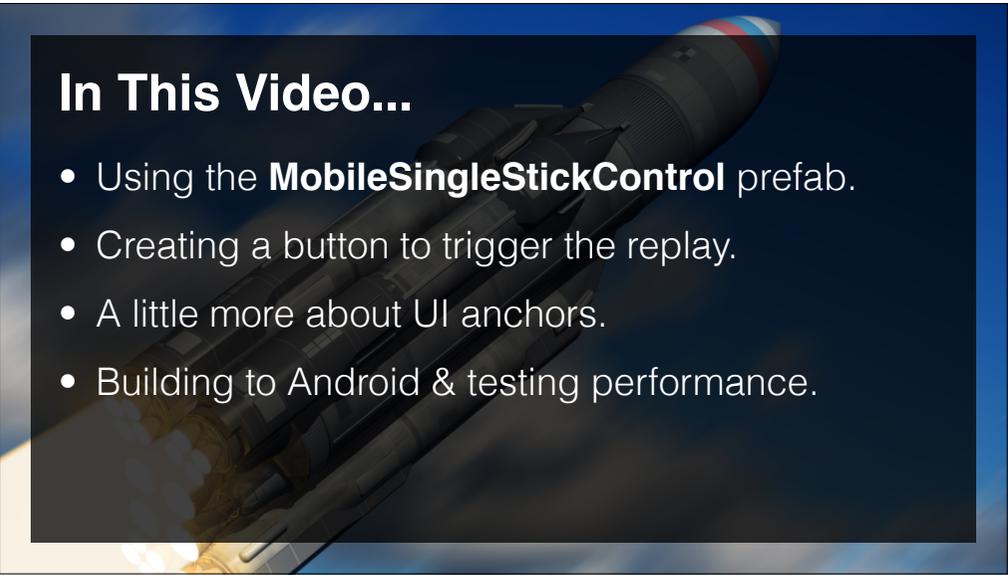
Make ReplaySystem.cs Read Mode

- Get your **ReplaySystem.cs** reading state.
- Ensure “Fire1” goes into playback (Ctrl key).
- Celebrate!



Touchscreen Joystick Control

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A close-up, low-angle shot of a space shuttle launch, showing the boosters and the orbiter against a dark blue sky with some clouds. The shuttle is angled upwards from the bottom left towards the top right.

In This Video...

- Using the **MobileSingleStickControl** prefab.
- Creating a button to trigger the replay.
- A little more about UI anchors.
- Building to Android & testing performance.

A close-up, low-angle shot of a space shuttle launch, showing the boosters and the orbiter against a dark blue sky with some clouds. The shuttle is angled upwards from the bottom left towards the top right.

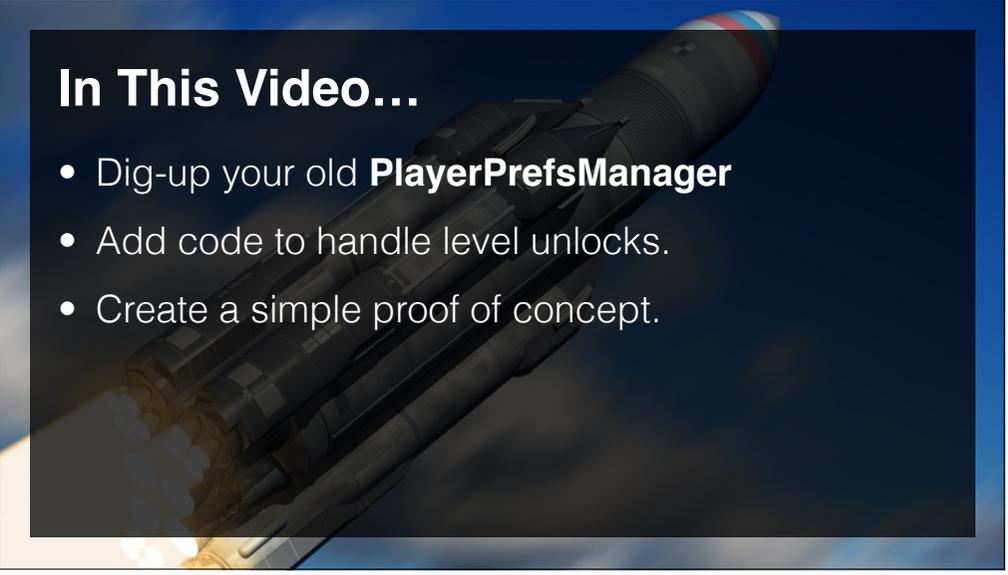
Setup A Replay Button

- Make a replay button.
- Choose a relevant sprite (may need to rotate).
- Test this button triggers the replay.

A close-up, low-angle shot of a space shuttle launch, showing the boosters and the orbiter against a dark blue sky with some clouds. The shuttle is angled upwards from the bottom left towards the top right.

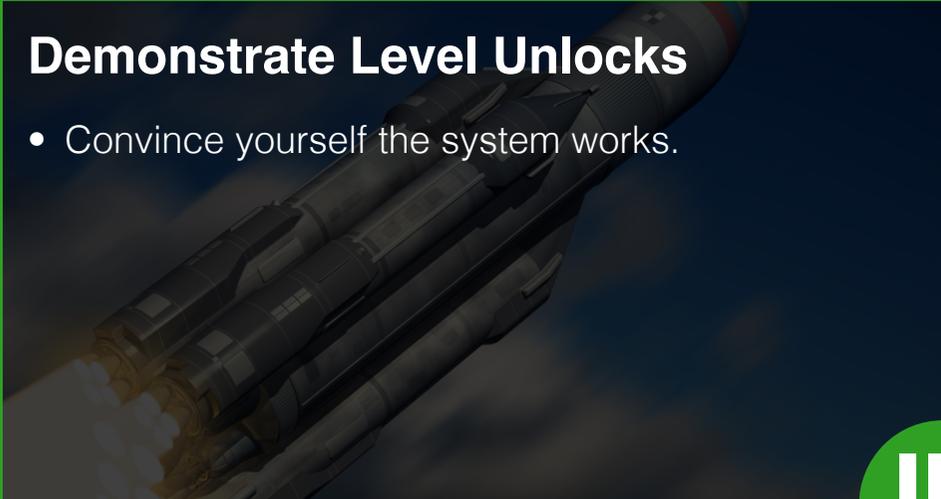
Level Unlocks In Unity

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A close-up, low-angle shot of a space shuttle launch, showing the boosters and the orbiter against a dark blue sky with some clouds. The shuttle is angled upwards from the bottom left towards the top right.

In This Video...

- Dig-up your old **PlayerPrefsManager**
- Add code to handle level unlocks.
- Create a simple proof of concept.



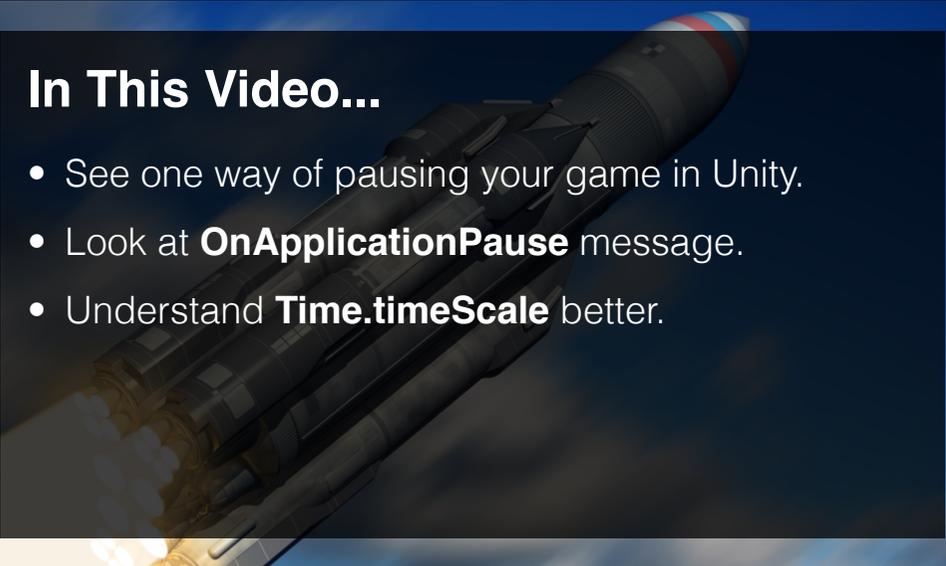
Demonstrate Level Unlocks

- Convince yourself the system works.



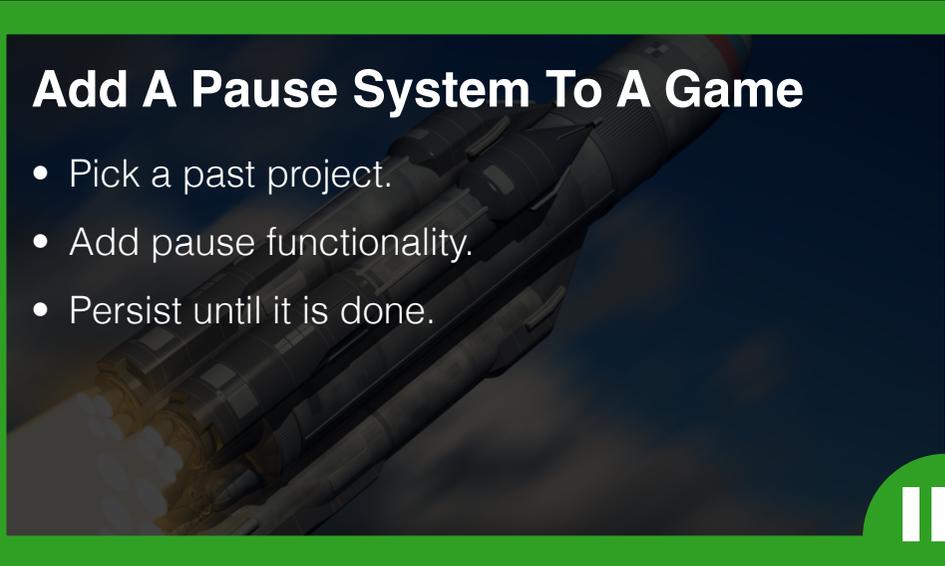
Pausing Your Game

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In This Video...

- See one way of pausing your game in Unity.
- Look at **OnApplicationPause** message.
- Understand **Time.timeScale** better.



Add A Pause System To A Game

- Pick a past project.
- Add pause functionality.
- Persist until it is done.



A composite image featuring a rocket launch. The rocket is shown ascending from the bottom left towards the top right against a blue sky with light clouds. The rocket has a white body with a red and blue stripe near the nose. At the bottom left, the rocket's engines are firing, creating a bright orange and yellow flame. In the bottom right corner, the silhouettes of two people are visible, looking towards the rocket. A dark horizontal band is overlaid across the middle of the image, containing the text "Section Wrap Up" in white.

Section Wrap Up