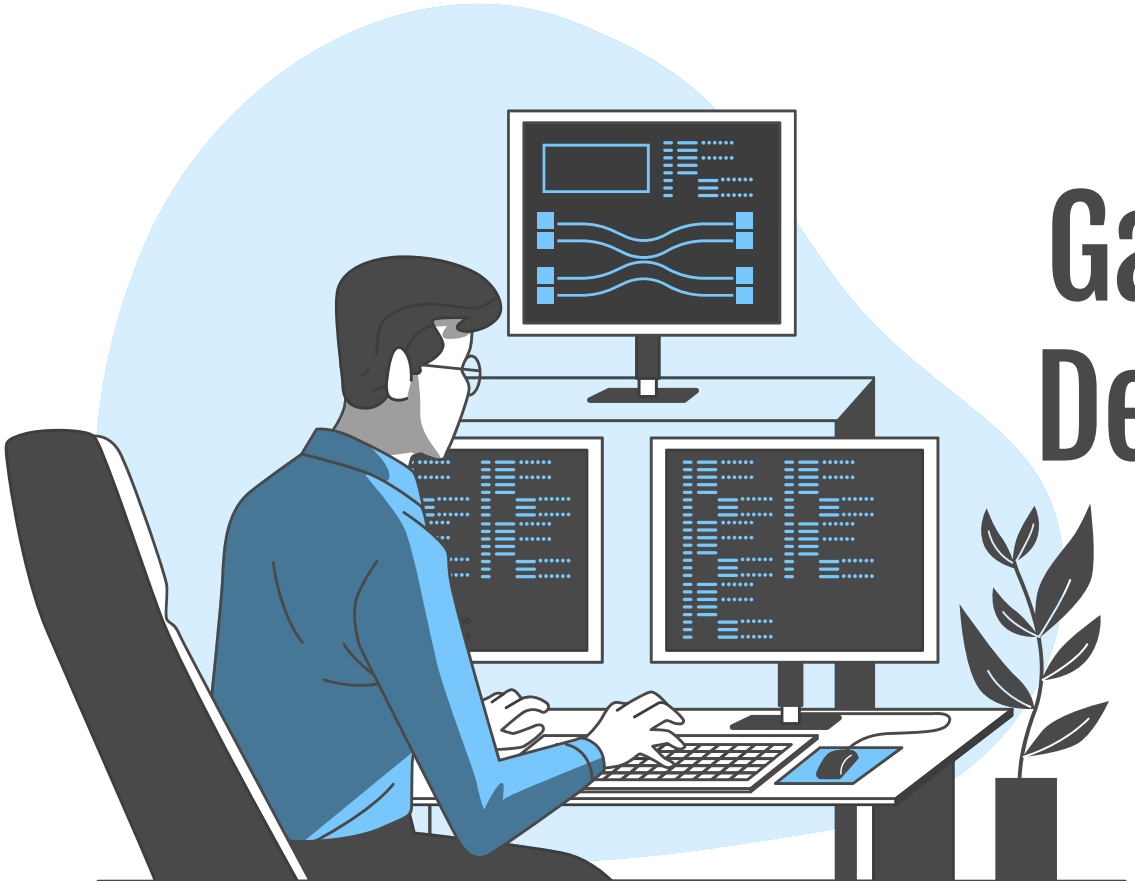


Game and XR Development with Unity

Session 22

01 November 2022

Course Objectives

01

Unity Basics

- Tool
- Interface
- Best Practices

02

C# Scripting

- Basics
- Unity related functions
- Best Practices

03

Game Development Basics

- Effects
- Animations
- Gameplay Mechanics

04

VR & AR Development

- XR Development
- Production Pipeline
- Portfolio Projects

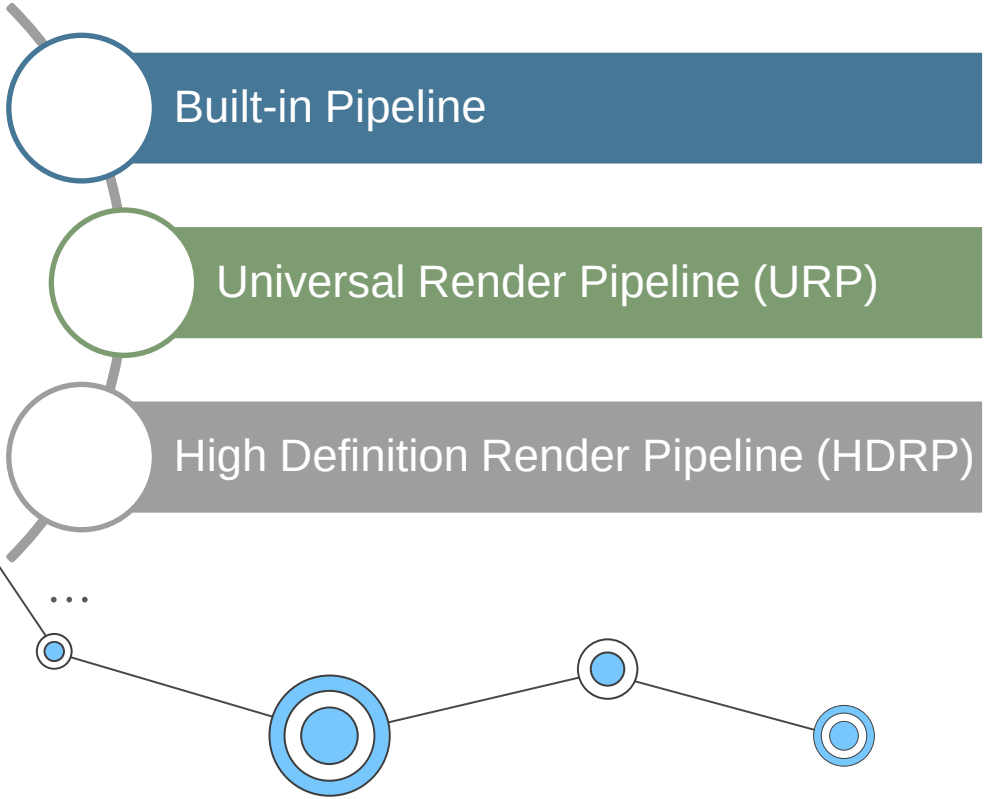
Complete Outline

Quick Recap

- **Shooter Games (Concepts Learned)**

- FPS vs TPS
- Starter Assets
- New Input System
- Mixamo – For 3D Characters
- 3D Sound
- Coroutines
- Raycasting
- Adding Enemy Character
- Damage Enemy // Enemy Health
- Particle System // Unity Particle Pack
- Export a UnityPackage
- Weapon Effects (MuzzleFlash and Audio)
- Enemy AI (NavMesh)
- Probuilder
- NavMesh – AI
- Enemy AI
- Enemy Animations
- Player Damage
- Bullet Hit Fx (Body and Wall)
- Creating Keyframe Animations
- Ammo Concept (Reloading with UI)
- Spawning Enemies
- Concept of Headshot
- Health Bar
- Pickup System
- Player Respawn
- Data Save (Basic)

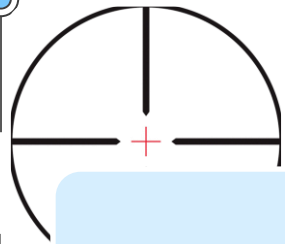
Render Pipelines



A render pipeline performs a series of operations that take the contents of a scene and displays them on a screen.

Reference

Portfolio Project - GameDev



Plan the Scope

Game Design Document

- Ref

Develop

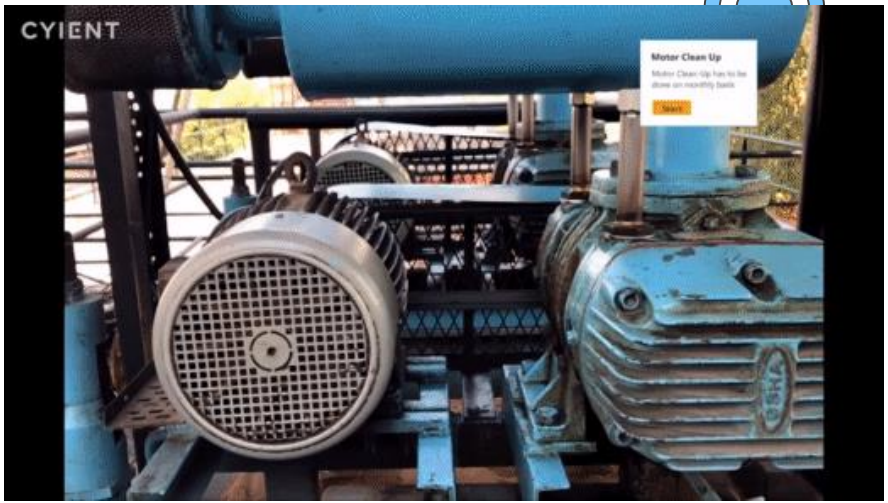
Publish

Detailed Plan

Augmented Reality

- superimposes a computer-generated image on a user's view of the real world
- enhances natural environments or situations and offer perceptually enriched experiences

Location Based



Superimposition Based

Also, Location Anchors (Cloud Anchors)

Session Objectives

Unity's AR Foundation
Supported Features

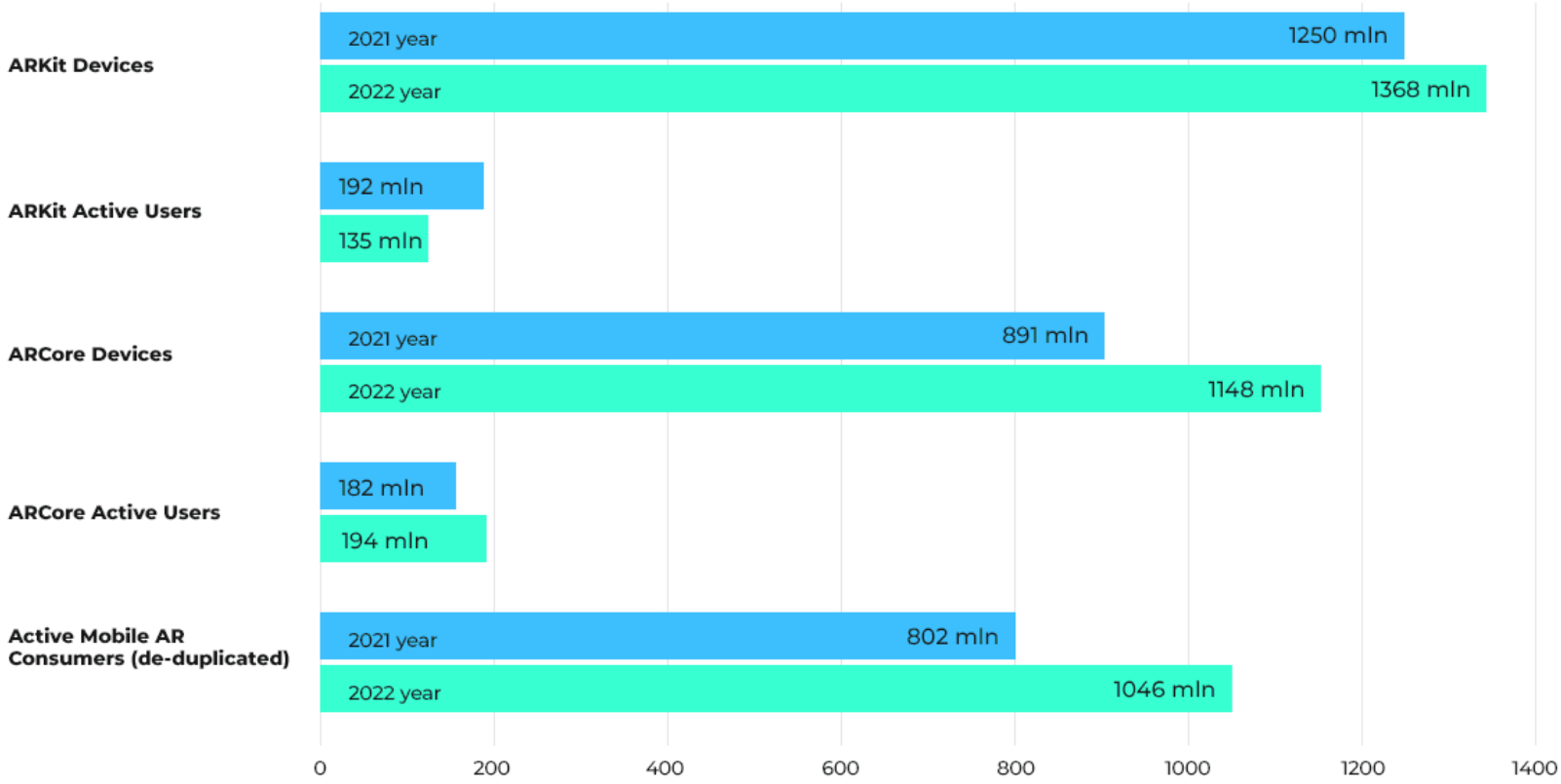
Functionality	ARCore	ARKit	Magic Leap	HoloLens
Device tracking	✓	✓	✓	✓
Plane tracking	✓	✓	✓	
Point clouds	✓	✓		
Anchors	✓	✓	✓	✓
Light estimation	✓	✓		
Environment probes	✓	✓		
Face tracking	✓	✓		
Meshing			✓	✓
2D Image tracking	✓	✓		
Raycast	✓	✓	✓	
Pass-through video	✓	✓		
Session management	✓	✓	✓	✓

- **Augmented Reality**

- AR & XR Packages in Unity
- Setting up an AR Project

Reference Docs
[About AR Foundation]
[AR Foundation Samples]
[AR foundation Demos]
[ARCore supported devices]

Mobile AR 2021-2022: ARKit + ARCore



Source: ARtillery Intelligence 2021

mobidev

AR Project

- **What will we discuss?**

- AR Foundation Samples + Demo
- Setting up Dev Environment
- Detecting Planes in real world
- Perform Hit test
- Spawn Objects
- Move Objects
- Light Estimation

Move to Unity →

Thanks!

Do you have any questions?

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