- Nature Adventure –

Literature Review

G38 – Forcefield in Sensory Unity Apps for accessible interactions

ABZU

Exploring Game

Description:

- Diving to explore and interact with underwater animals.
- The animals have unique interactions with the player.

Key Mappings:

Key	Interaction
Space	Interacting animals
Mouse movement	Move camera
Shift	Ride animal
E	Spin over
Mouse right click	Dive
Mouse left click	Boost
Up, Down, Left, Right	W, S, A, D

Difference:

- No gesture interactions.
- 3rd person view.

Kinectimals

Sensory Game

Description:

- Game for Microsoft's motion-sensing accessory
- Players can raise over 20 different types of virtual cats

Key Mappings:

Keyboard	Gesture
Mouse movement	Move hand
Mouse left click	Hand grabbing
W, S	Walk forward, Walk backward
A, D	Step to left, Step to right
Keyboard input	Voice input
Space (jump)	Physically jump

Difference:

- Not accessible for wheelchair users.
- Realistic graphics & interaction.

Nature Treks

VR Game

Description:

- Beautiful scenery and animals, very engaging for all ages and abilities.
- Can plant trees, control the weather, etc (very empowering to people who have lost all elements of control elsewhere in their lives).
- Many simply enjoy being in there and transporting around.

Key Mappings:

Keyboard	Gesture
Left thumb stick (up down left right)	Move
Right thumb stick	Teleport
Right thumb stick (left, right)	Turn
Left thumb stick	Swim
Hold/release grip button	Grab/throw
A, X	Open/close creator halo
B, Y	Open/close emotion halo

Difference:

- Not intuitive at all, often requires a lot of support
- Realistic graphics & interaction

Ocean Rift

VR Game

Description:

- Simple, engaging and fun – can swim and play with animals.
- Great introduction to VR - very safe and enjoyable experience.
- You can also select other animals (whales, sharks even amphibian dinosaurs).
- Only requires clicking one button to interact.

Key Mappings:

Keyboard	Gesture
Touch the touch pad	Swim in current facing direction
Swipe touch pad	Move in current facing direction

Difference:

- Not that many interactions

Implementing ideas

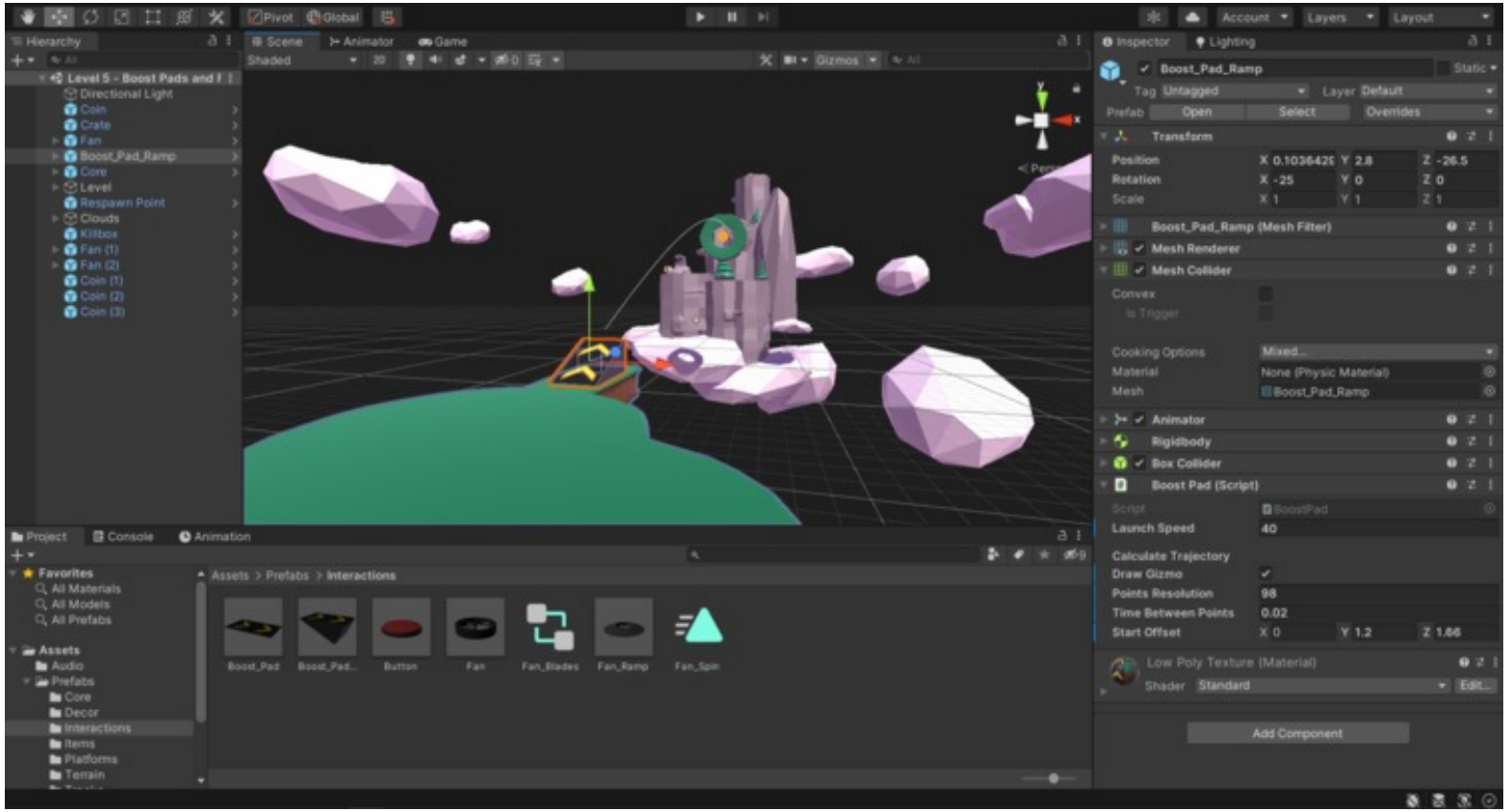
- Using PseudoVR with one camera set
- Improving the scene become more realistic using Google map
- Similar interacting mechanism but using forcefield and wrist tracking
- Including other scenes (underwater, forest, snowy mountain, beach)
- Involving different level of interaction with animals

Game Development Tools

	Unity	Unreal Engine
Pros	▪ Uses C# ▪ Easy to start with ▪ Faster to prototype ▪ Good documentation ▪ Better suited for mobile games	▪ Uses C++ ▪ Quicker to achieve better visuals ▪ Better rendering ▪ Better animation ▪ Better suits PC and console games ▪ Available blueprints are powerful for game designers ▪ All engine code is open-source
Cons	▪ Take time to make the visuals right ▪ might have to buy some packages	▪ steep learning curve ▪ C++ is less forgiving than C#

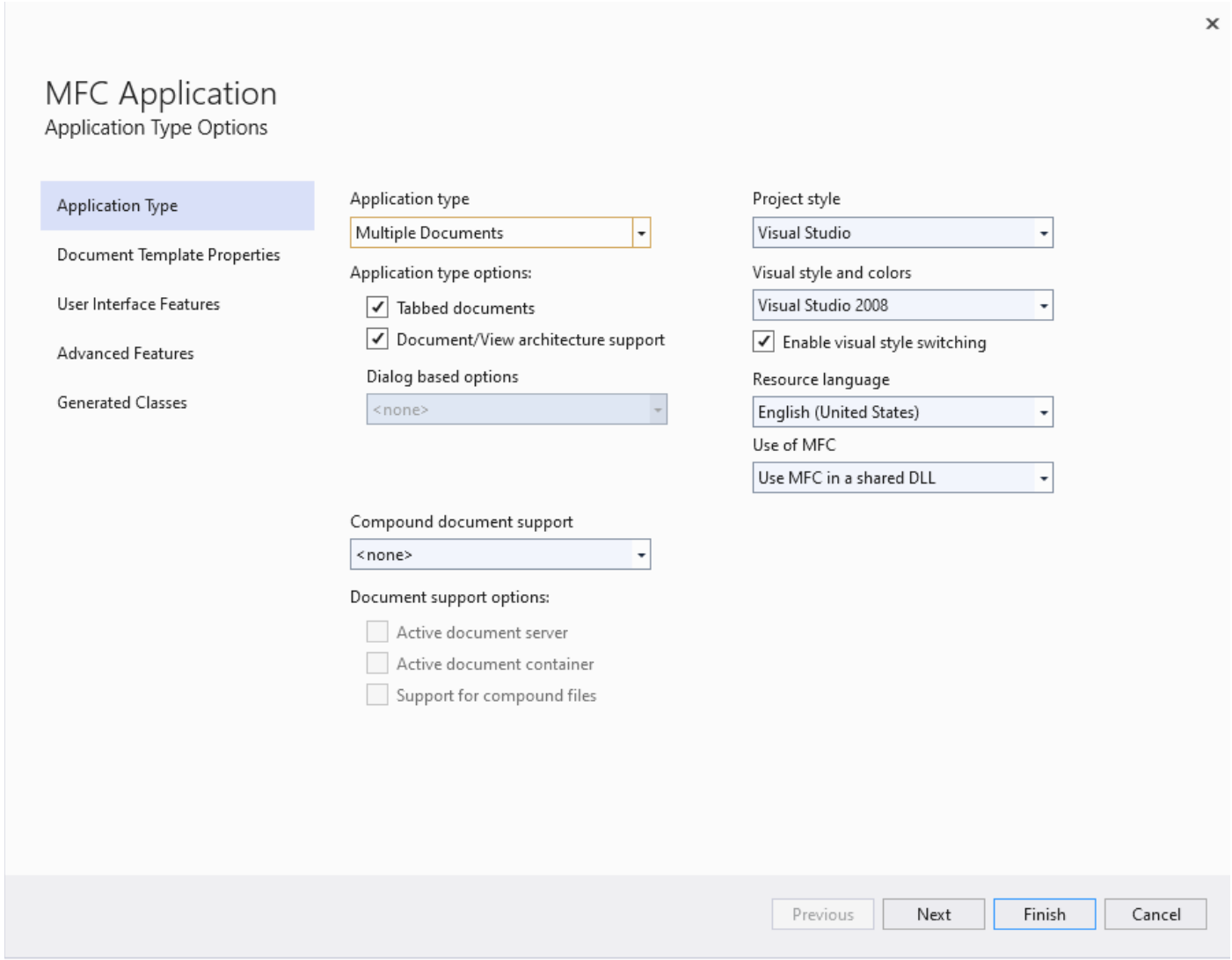
Unity

- Unity Studio
- C#



MFC App

- Visual Studio
- C++



MotionInput

- Developed by UCL in partnership with Microsoft, Intel, IBM and more.
- Allows users to interact with their devices without using touch
- Can interact with games/apps just using gestures:
  - Facial navigation, hand movement, body movement