

3D SNAKE AR GAME

18CSE304J- Building applications using opensource AR and VR SDKs

COURSE PROJECT REPORT

Submitted by

AKSH KALYANI [RA2011003010525]
SIDDHANT NAIK [RA2011051010057]

Batch-1

under the guidance of

Dr. Vaishnavi Moorthy
Assistant Professor
Department of Networking and Communications



SRM Institute of Science and Technology
School of Computing



College of Engineering
SRM Institute of Science and Technology
Kattankulathur Campus

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| | |
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| Title | 3D SNAKE AR GAME |
| Concept (50 words) | Well known snake game in Augmented Reality using ARKit |
| Purpose of application | To create an imaginative upgrade to a well known board game and promote the application of AR and VR. |
| Engineering principle mapped | <ol style="list-style-type: none"> 1. Directional movement to move the snake 2. Increase in size as snake eats items |
| ARVR Techniques used | <ol style="list-style-type: none"> 1. Plane detection 2. Points cloud 3. Vuforia SDK 4. Blender |
| Societal importance of the idea | It can be used for autistic children to improve their hand-eye coordination skills and increase focus. |

WORK GALLERY

Best 4 Screenshots of your developed course project with title under the image



Fig:1 final project



Fig:2 Final project

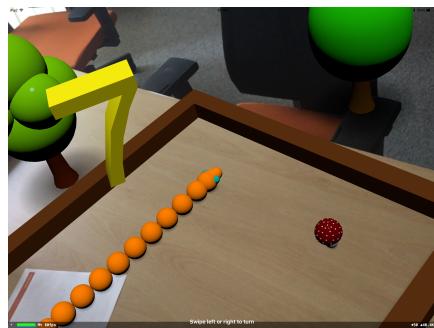
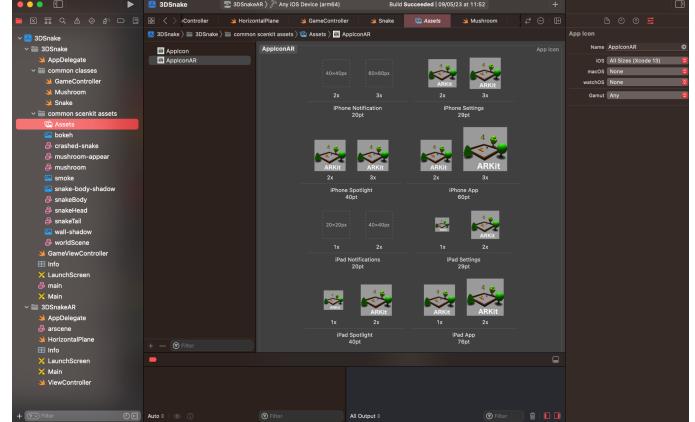
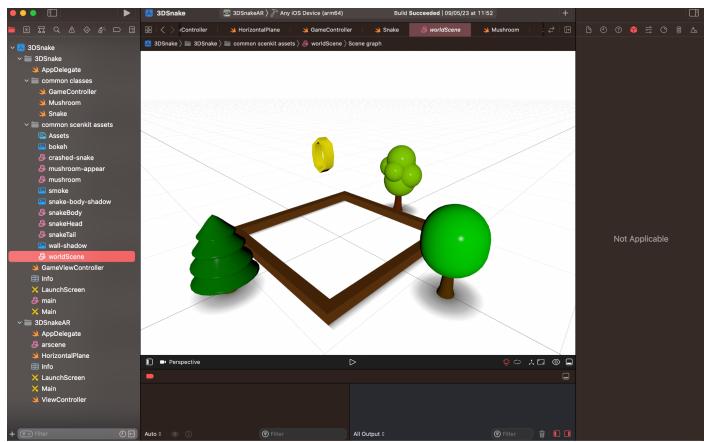
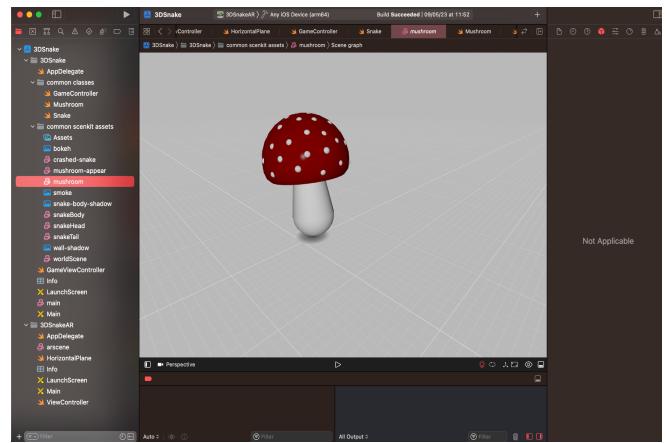
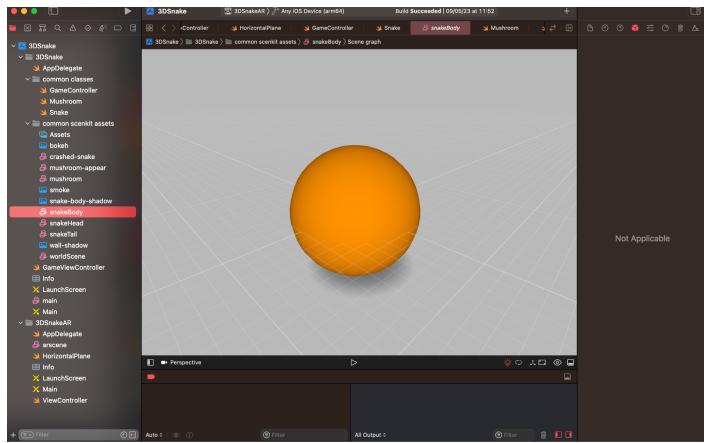


Fig:1 Final project



Fig:2 Final project

RA2011003010525 & RA2011051010057



The screenshot shows the Xcode interface with the following details:

- Project Navigator:** Shows the project structure for "3DSnake". The "GameController" file is selected.
- Editor:** Displays the content of "GameController.swift".
- Utilities:** Shows the "Identity and Type" panel for "GameController.swift".
 - Name: GameController.swift
 - Type: Default - Swift Source
 - Location: Relative to Group
 - Full Path: /Users/sid/Downloads/SEM6/ARVR/3DSnakeAR-master/3DSnake/common classes/GameController.swift
- On Demand Resource Tags:** Only resources are taggable.
- Target Membership:** Both "3DSnake" and "3DSnakeAR" are selected.
- Text Settings:**
 - Text Encoding: No Explicit Encoding
 - Line Endings: No Explicit Line Endings
 - Indent Using: Spaces
 - Widths: Tab 4, Indent 4
 - Wrap lines: checked

```
1 // 
2 // GameController.swift
3 // 3DSnake
4 // 
5 // Created by sid oon 8/03/23
6 // 
7
8 import SceneKit
9
10 protocol GameControllerDelegate: class {
11     func gameOver(sender: GameController)
12 }
13
14 final class GameController {
15     private let sceneSize = 15
16     private var timer: Timer!
17
18     // MARK: - Properties Nodes
19     public var worldSceneNode: SCNNode?
20     private var pointsNode: SCNNode?
21     private var pointsText: SCNText?
22
23     // MARK: - Properties model
24     var snake: Snake = Snake()
25
26     private var points: Int = 0
27     private var mushroomNode: Mushroom
28     private var mushroomPos: int2 = int2(0, 0)
29     private var gameOver: Bool = false
30
31     weak var delegate: GameControllerDelegate?
32
33     init() {
34         if let worldScene = SCNScene(named: "worldScene.scn") {
35             worldSceneNode = worldScene.rootNode.childNode(withName: "worldScene", recursively: true)
36             worldSceneNode?.removeFromParentNode()
37             worldSceneNode?.addChildNode(snake)
38         }
39     }
40 }
```

The screenshot shows the Xcode interface with the following details:

- Project Navigator:** Shows the project structure for "3DSnake". The file "Mushroom.swift" is selected and highlighted in red.
- Editor:** Displays the content of "Mushroom.swift". The code defines a class "Mushroom" that extends "SCNNode". It includes methods for initializing the node from a scene and running an appearance animation.
- Identity & Type:** Shows the file is named "Mushroom.swift", is a "Default - Swift Source" file, and is located relative to the group "Mushroom.swift".
- On Demand Resource Tags:** States that only resources are taggable.
- Target Membership:** Both "3DSnake" and "3DSnakeAR" are selected as targets.
- Text Settings:** Encoding is set to "No Explicit Encoding", line endings to "No Explicit Line Endings", and indent using "Spaces".

```
1 //  
2 // Mushroom.swift  
3 // 3DSnake  
4 //  
5 // Created by aksh on 18/03/23  
6 //  
7  
8  
9 import SceneKit  
10  
11 final class Mushroom: SCNNode {  
12  
13     var mushroomNode: SCNNode?  
14  
15     // MARK: - Lifecycle  
16     override init() {  
17         super.init()  
18         if let scene = SCNScene(named: "mushroom.scn"), let mushroomNode =  
19             scene.rootNode.childNode(withName: "mushroom", recursively: true) {  
20             addChildNode(mushroomNode)  
21         }  
22     }  
23  
24     required init?(coder aDecoder: NSCoder) {  
25         fatalError("not implemented")  
26     }  
27  
28     //MARK ~ Animations  
29     func runAppearAnimation() {  
30         mushroomNode?.position.y = -1  
31         removeAllActions()  
32         removeAllParticleSystems()  
33         scale = SCNVector3(0.1, 0.1, 0.1)  
34         addParticleSystem(SCNParticleSystem(named: "mushroom-appear", inDirectory: nil)!)  
35         let scaleAction = SCNAction.scale(to: 1.0, duration: 1.0)  
36         let removeParticle = SCNAction.run { _ in  
37             self.removeAllParticleSystems()  
38         }  
39     }  
40 }
```