Truffle Hunters

TATEV TSOKOLAKYAN | NATALIE ADAM | NUO XU

Setup

MongoDB, Nodejs(Mongoose and Express), AWS T3.micro
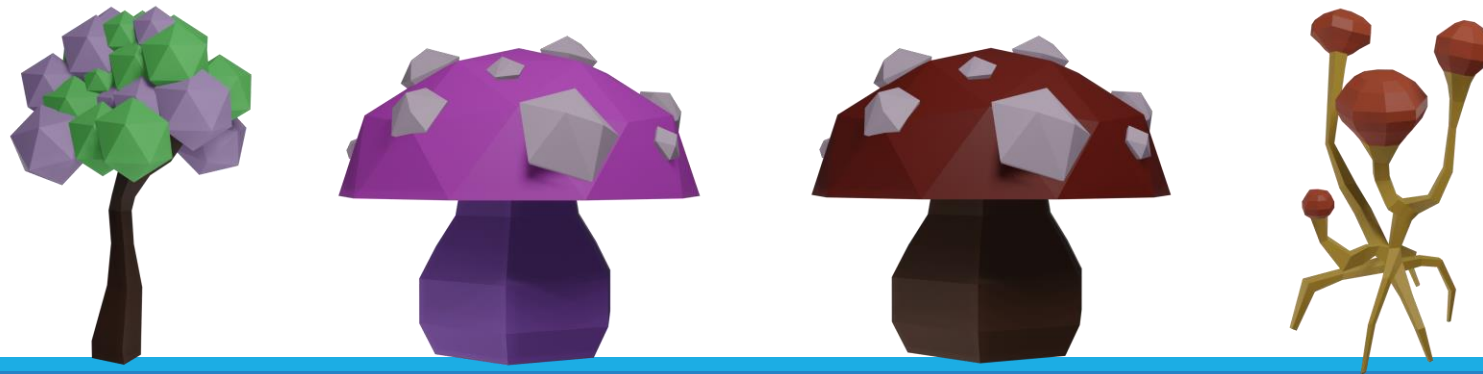
Unity 2021.3.33f1 or higher

Mapbox Unity SDK

Unity ARFoundations and XR Interaction Toolkit
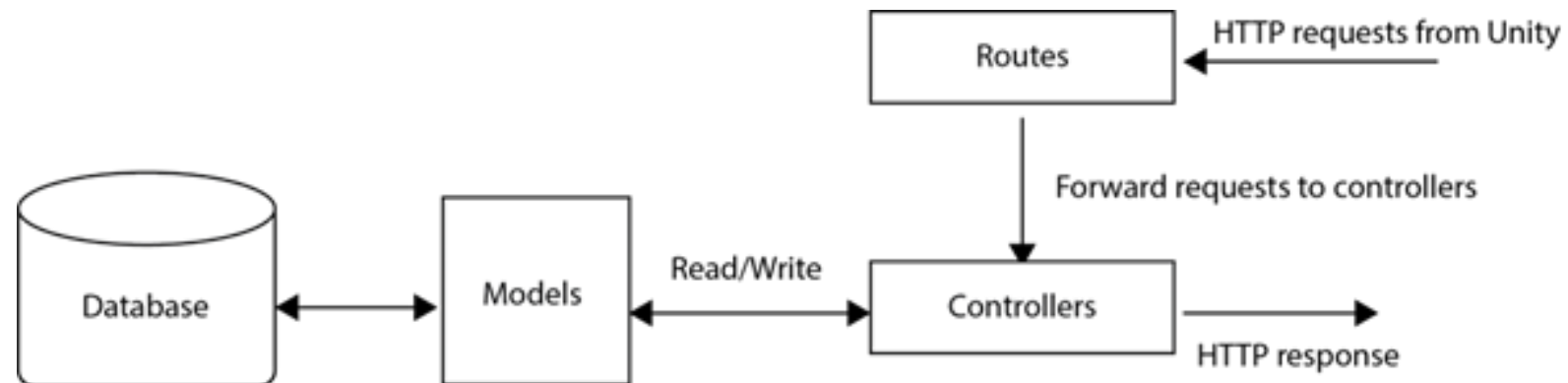
Unity Barracuda

Blender

Backend Development

MongoDB: Database model

Express.js: Routes and controllers

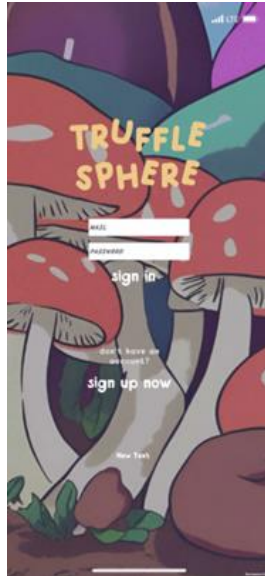UnityWebRequest: Server client talking

Location-Based Games

Login: Username and password

Map: Location tracking and event spawning using Mapbox API

Capture: Truffle spawning and XP collection
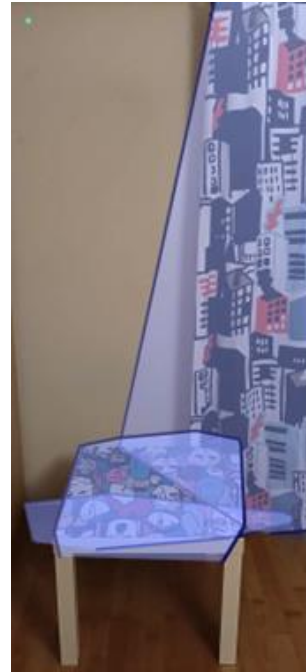
Truffle Spawning

PLANE DETECTION

Trackable flat surface

AR Raycast Manager

Distance between truffle

OBJECT OCCLUSION

AR Occlusion Manager

Depth buffer

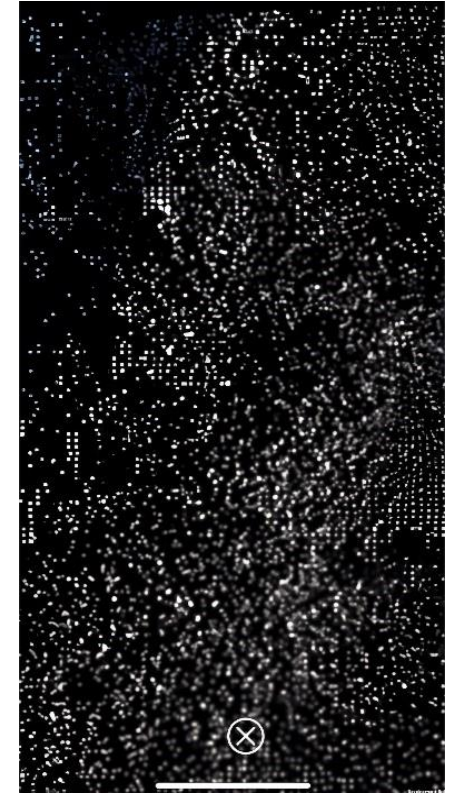# Truffle Collection

STYLE TRANSFER

Unity Barracuda

Pix2Pix

ONNX

PARTICLE SYSTEM

Vertex and Pixel Shaders

Optical Flow

Future Work

TRUFFLE GENERATING SYSTEM

AUDIO AR

TRADE SYSTEM

TRUFFLE COLLECT TOOLS

Gameplay Trailer

References

Unity Technologies. (2022). "Unity AR Foundation Manual." Retrieved 12. March 2024, from
https://docs.unity3d.com/Packages/com.unity.xr.arfoundation@5.1/manual/index.html.

MozDevNet. "Express tutorial part 3: Using a database (with mongoose)" Retrieved 25. March 2024, from
https://developer.mozilla.org/en-US/docs/Learn/Server-side/Express_Nodejs/mongoose

MozDevNet. "Express tutorial part 4: Routes and controllers" Retrieved 25. March 2024, from
https://developer.mozilla.org/en-US/docs/Learn/Server-side/Express_Nodejs/routes

Unity Technologies. "Unity Documentation version 2022.3 Scripting API: UnityWebRequest" Retrieved 25. March 2024, from
https://docs.unity3d.com/ScriptReference/Networking.UnityWebRequest.html

Pix2pix: Image-to-image translation with a conditional Gan : Tensorflow Core. (n.d.). Retrieved 25. March 2024, from
https://www.tensorflow.org/tutorials/generative/pix2pix

Microsoft. (n.d.). Microsoft/Soundscape: An IOS application/service that AIDS navigation through spatialized audio. Retrieved 25. March
2024, from https://github.com/microsoft/soundscape