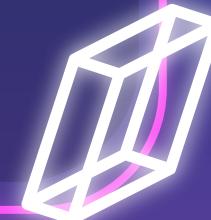
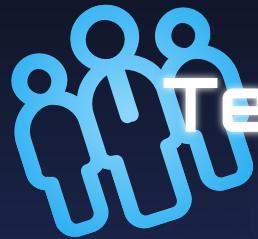


Beep Saber

VR IN GAMES

Group 30





Team Details



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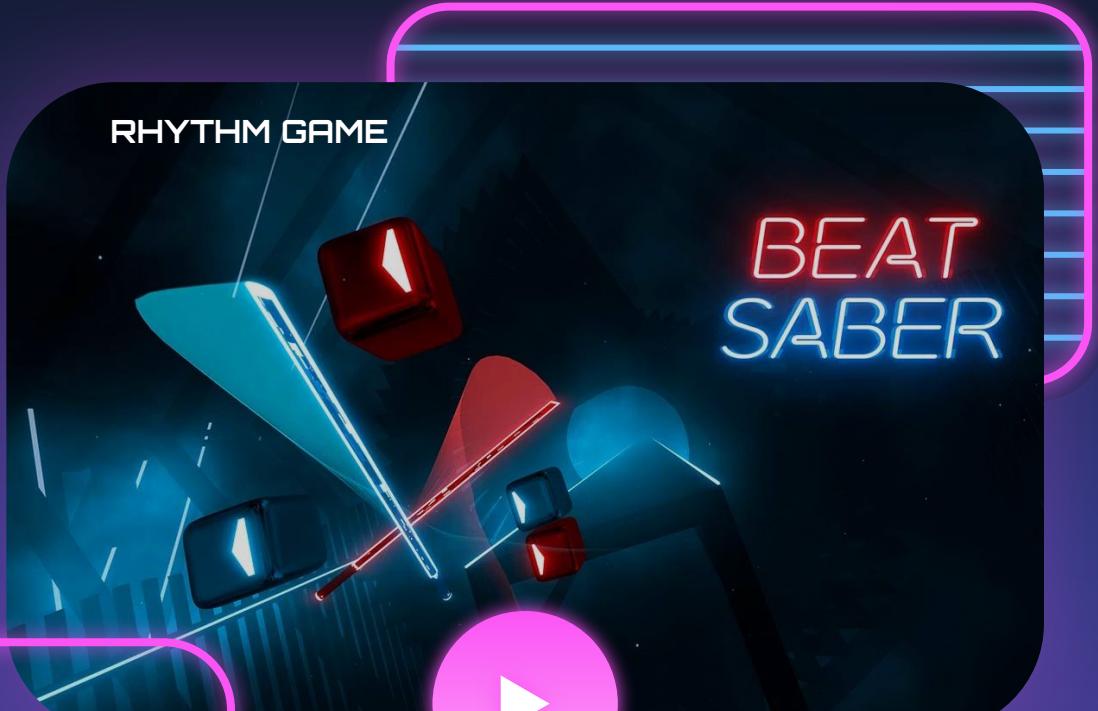
01

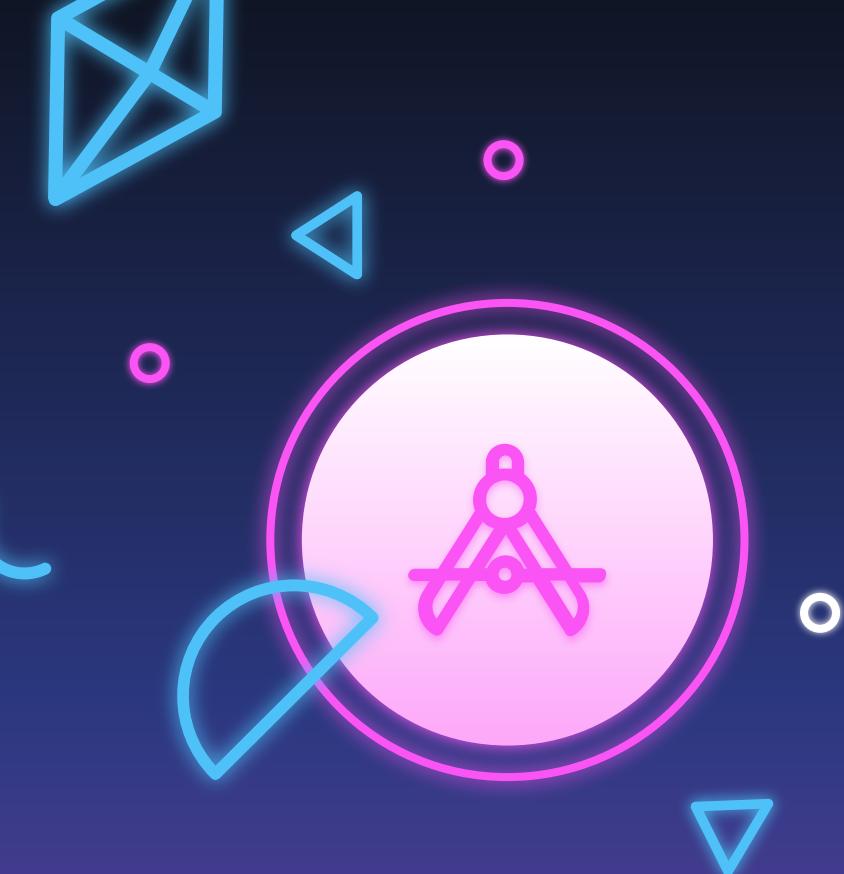
Problem Statement

VR in Games:
We decided to make an open-source, inexpensive and easy-to-access version of the popular rhythm game, Beat Saber

Introduction

- ▷ Beat Saber: Original Game
- ▷ Major Issue: Expensive controllers
- ▷ Our Vision: Create a free version of the game playable without the controllers





02

Design

The game is split into three major parts. The tracker sends real-time coordinates of the player to the socket server in the backend which sends them to the frontend, rendering the objects from the given data.

○ Tracking Input



Camera Input



Webpage



Mediapipe ML

Arm and Head Coords



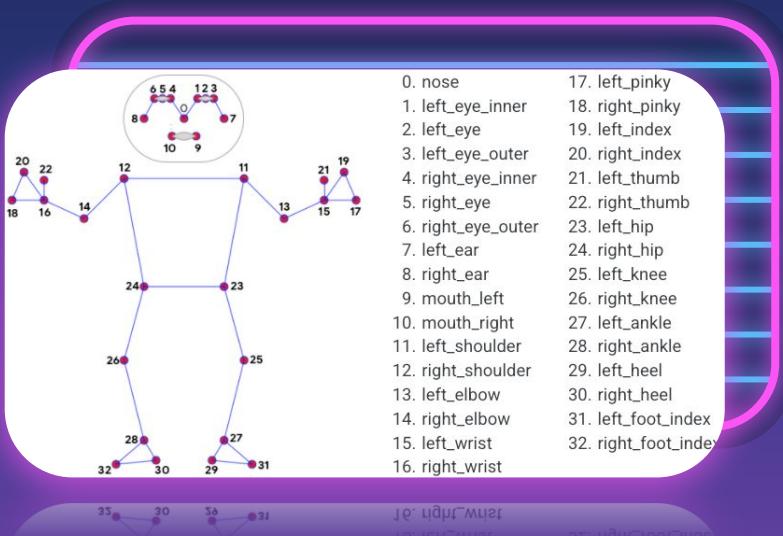
Socket Out

- ▷ For this we are using a Machine Learning Library.
- ▷ Detect the angle and position of the player's forearms.
- ▷ Use it to position and tilt the swords in game.
- ▷ Player's face is used to position the camera horizontally.

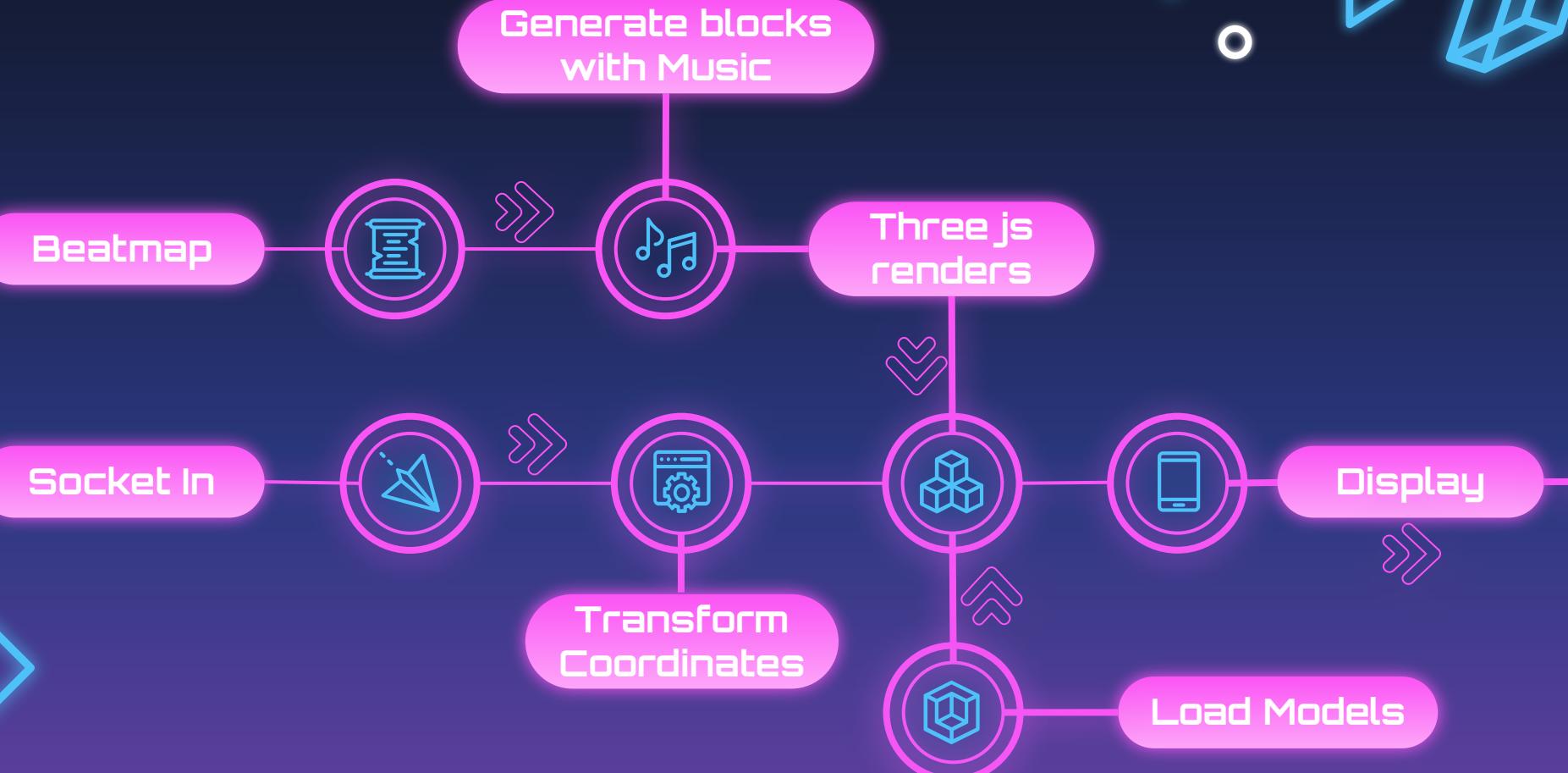
○ The Backend



- ▷ Points 14, 15, 16, 17 (forearms) used for swords
- ▷ Player is added to a room with a unique id, which connects detection and game.
- ▷ Change in detection output: Server sends message to client connected to specific room



◦ Graphics

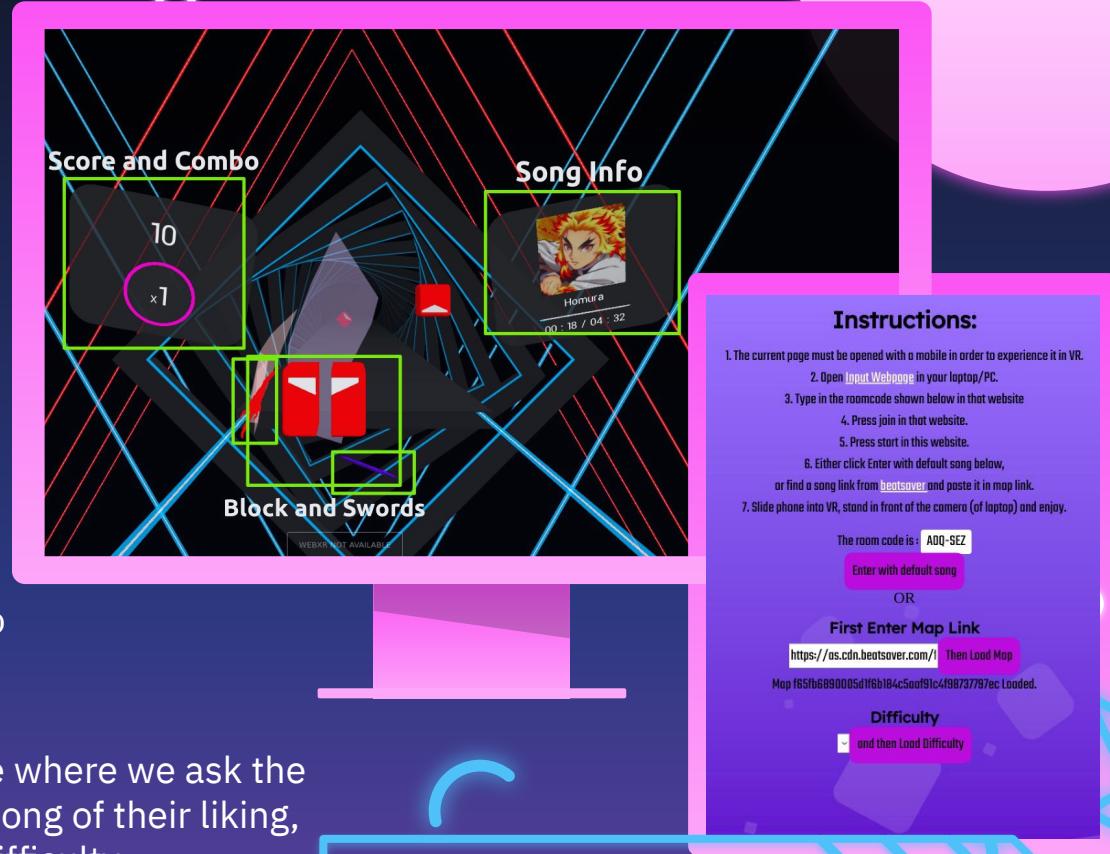


The Website

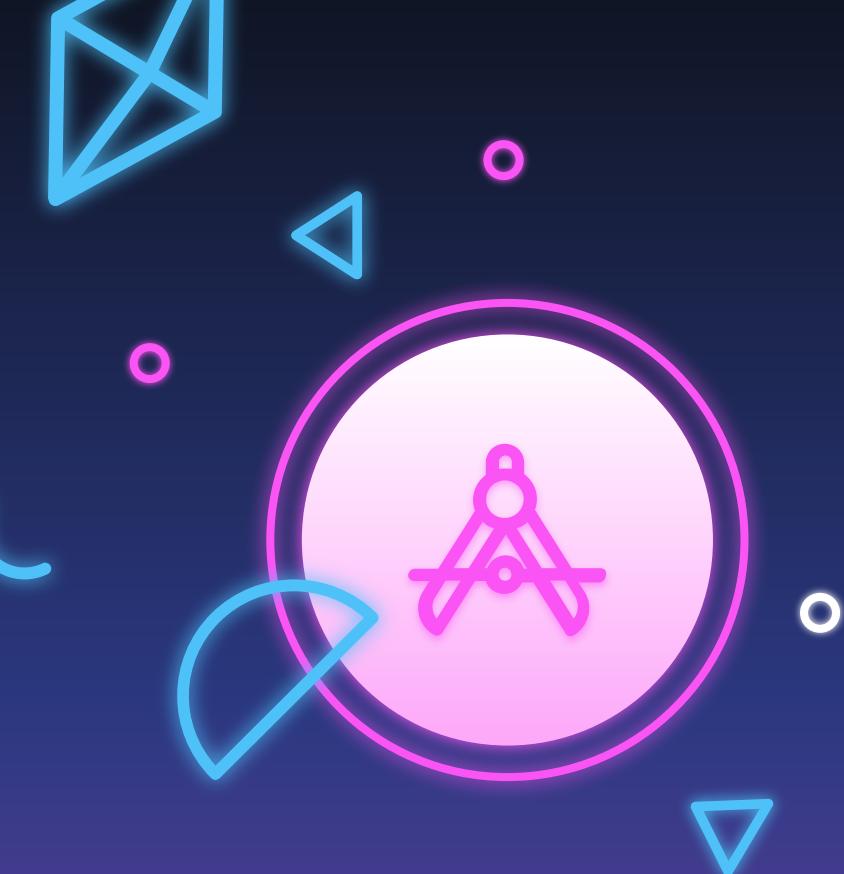
The HUD GUI , includes the score, combo, and the information about the currently playing song, and a start button.

Objects are loaded, involves the two daggers, and the beat blocks.

- ▷ This is a website where we ask the user to put the song of their liking, and select the difficulty.



Webpage



03

Tools

The game is a webapp and is entirely coded in javascript with three.js instead of Unity. Unity wasn't chosen because of networking aspects of the project.

Tools Used

React.js

Render frontend with well moduled code

Three.js

Create and display 3D computer graphics in the web via WebGL

ThreemeshUI

Build VR Interfaces in Three.js

Express.js

Make simple Javascript servers

MediaPipe

ML library for live and streaming media

Socket.io

Bidirectional low latency communication library

Them VS. Us

THEM

- ▷ Expensive Game and Gear
- ▷ Proprietary
- ▷ 3D model of Player shown

US

- ▷ Accessible to all
- ▷ Open source
- ▷ First person POV



Game Play
Demo
Ft. Udith



THANK YOU !