NANYANG TECHNOLOGICAL UNIVERSITY
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School of Computer Science and Engineering
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ThinkTune

An Auditory Memory Training Game utilizing Nonwords

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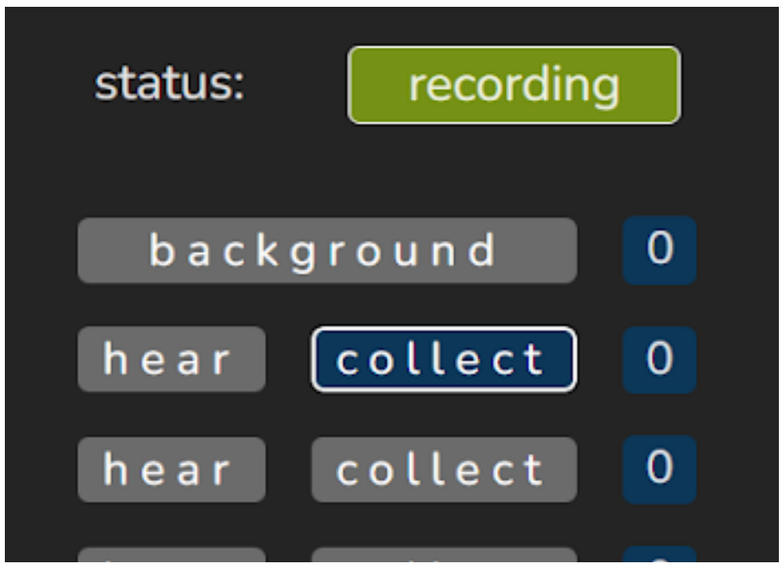
Project Objectives

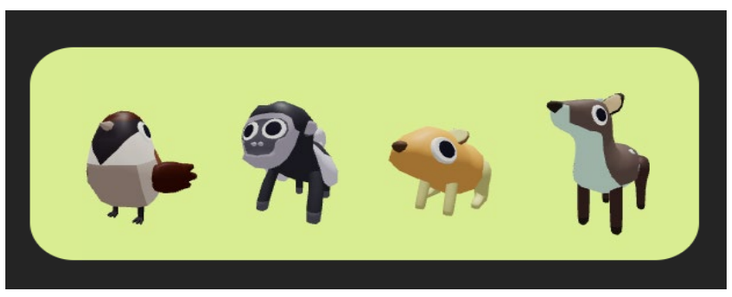
With the growing interest in combating cognitive decline, memory training games are becoming increasingly popular. Many of these games utilize auditory cues, but most focus on familiar words and sounds. This project explores the impact of utilizing nonwords (meaningless sound combinations) in such applications with the development of **ThinkTune**, an auditory game web application incorporating both nonwords and words. Through a comparative user study, the project analyzes the **engagement effects** of nonwords versus words and investigates **design elements** that keep users motivated.

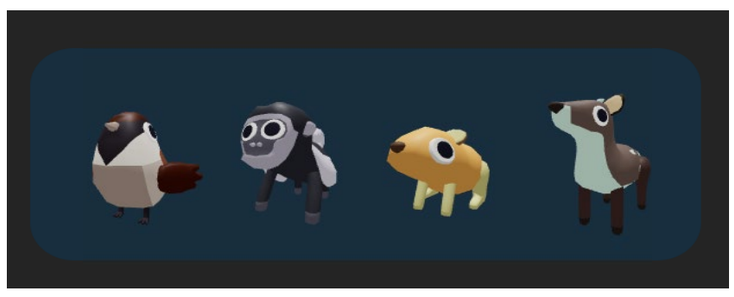
ThinkTune Overview

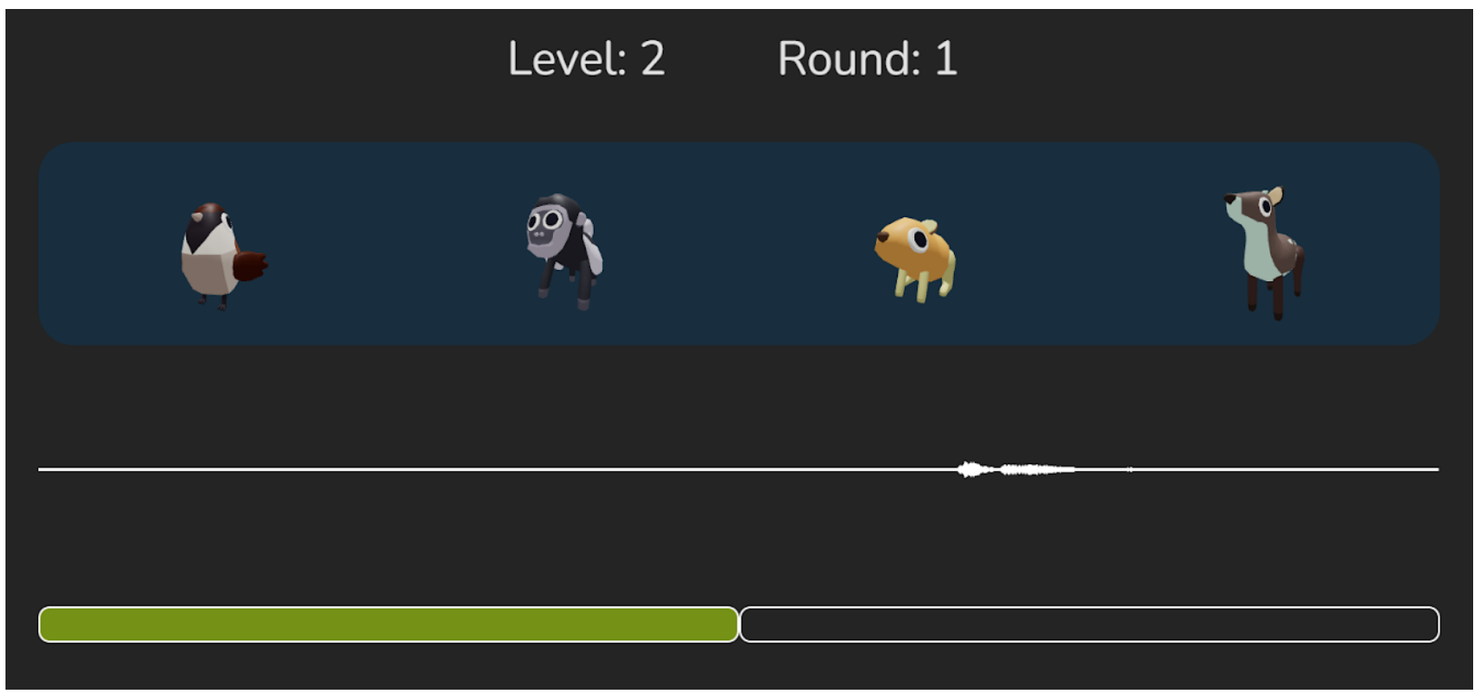


There are 2 gameplay modes: Light (word) & Dark (nonword). Animated 3D characters react to audio cues while its played, and players are to replicate the sequence after a countdown. Audio sequence length increases with level progression, keeping the game challenging.

Audio samples are collected from players in training mode for transfer learning to allow the speech recognizer to better adapt to individual sound perception differences. This improves recognition of users' attempts during gameplay.







Technology Stack