

# MUSICARE-VR: An AI-enhanced, Music Intervention in Virtual Reality System for Persons with Dementia

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## Background and Motivation

- The number of persons with dementia (PwD) is rapidly increasing (Alzheimer's Association).
- Music intervention improves physical, cognitive, and emotional well-being in PwD.
- AI can automate interventions, lead sessions, and monitor users.
- There is an increasing need for automated dementia care solutions.

## AI & Biometrics for Personalized Therapy

- AI uses biometric sensors to track the user's physical well-being.
- A comfortability score is calculated based on biometric data to adjust activity intensity.
- AI provides real-time interaction and responses using ChatGPT.

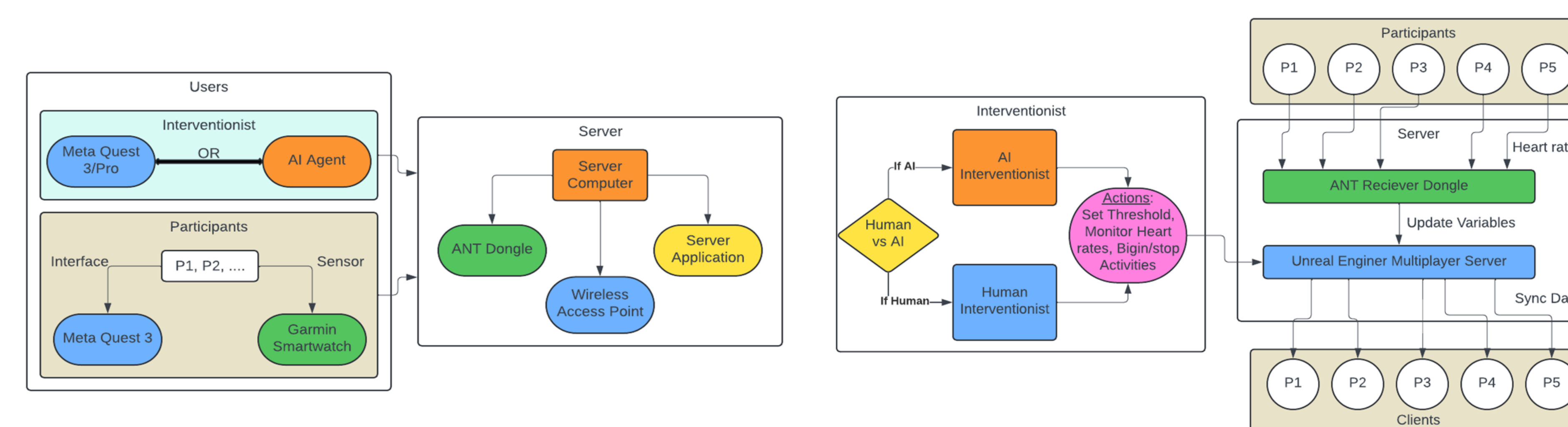


Figure 2: System flow (left) and Data flow (right) of the MUSICARE System

## Impacts

- MUSICARE-VR has the potential to revolutionize dementia care by providing personalized, AI-driven music therapy that improves engagement
- It can reduce caregiver burden through automated interventions
- Using music, it could potentially provide benefits to the physical, cognitive, and emotional wellbeing of PwADRD
- It could also foster engagement between PwADRD through wireless connections and long-distance sessions

## MUSICARE-VR

- Combines VR, AI, and music intervention for PwD

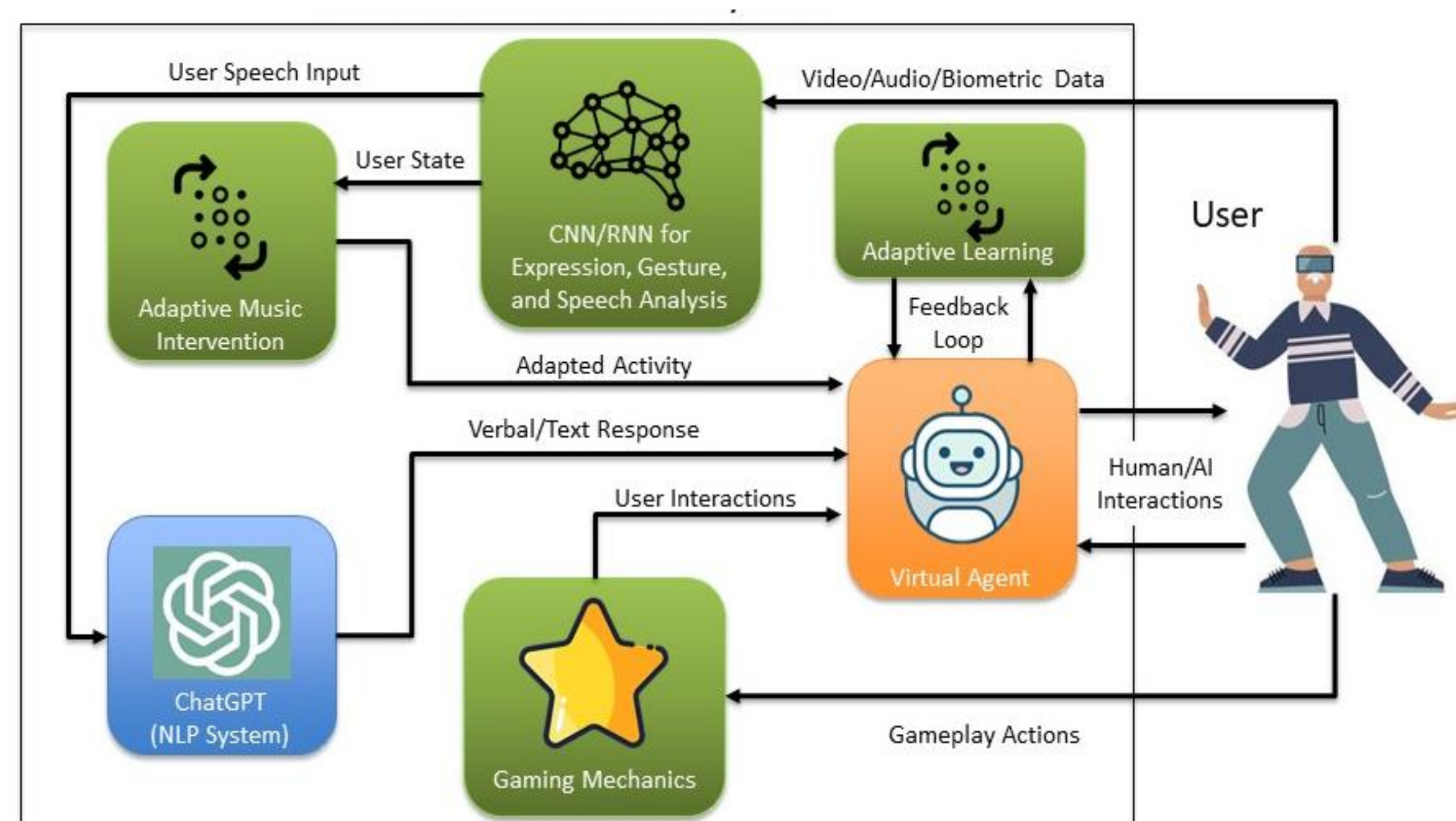


Figure 1: The general layout and flow of the MUSICARE System

## Current Development Status

- Current features include Metronome Activity, Sing Along and Dance Along Activities, and Biometric Tracking

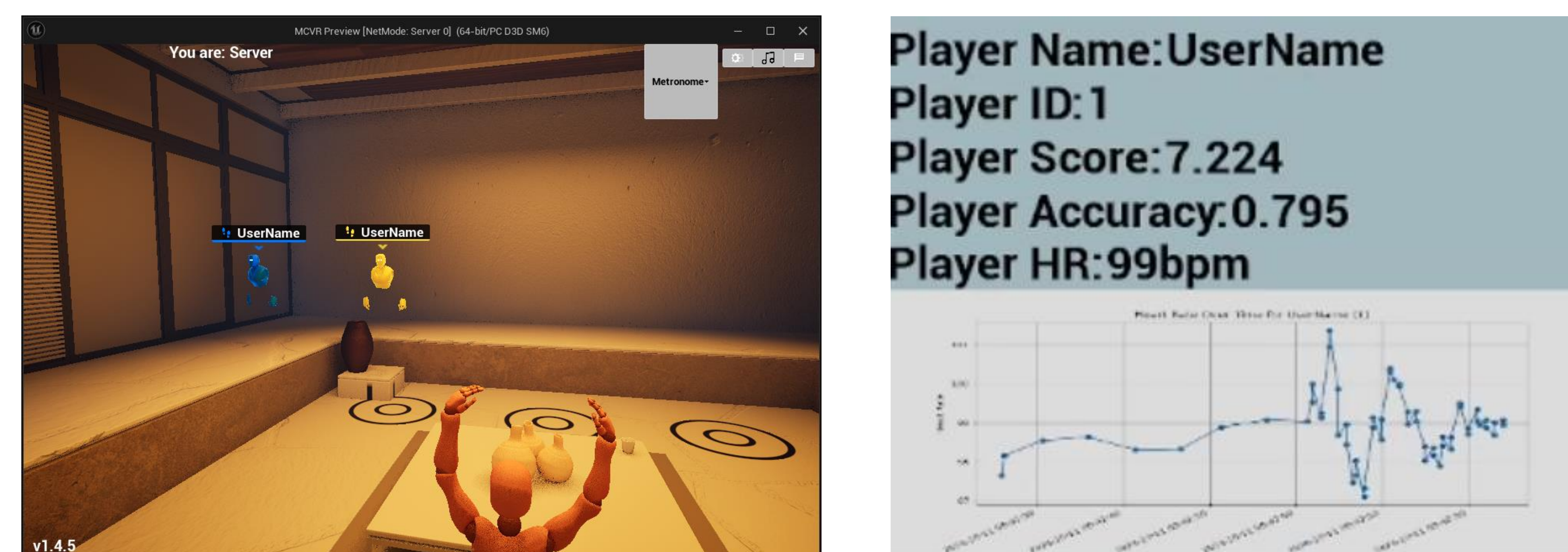


Figure 3: In game view (left) and biometric example (right)

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