National Yang Ming Chiao Tung University Computer Science and Engineering Projects

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Real-time Interactive AR/VR Piano

PROJECT GOAL

The goal of our project is to create an innovative piano teaching platform that includes Augmented Reality (AR), Virtual Reality(VR) technology, and real-time interaction over a network.

Through the integration of VR, we aim to provide users with a remote piano learning experience where they can visualize and interact with a 3D representation of the piano keys, guided by a teacher in a different location.
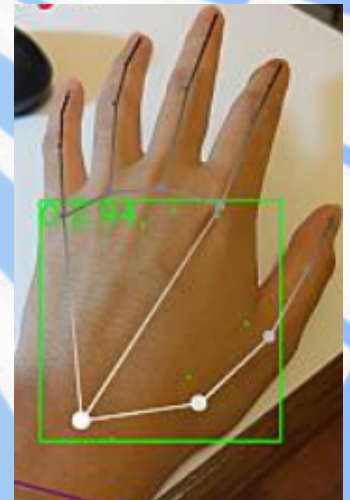
OPERATIONAL ARCHITECTURE

The platform will utilize a Recording Client to capture and process finger movements on a physical piano or a paper piano, transmit the data over a network, and present the information in real-time on the AR/VR Client through Unity and VR glasses.
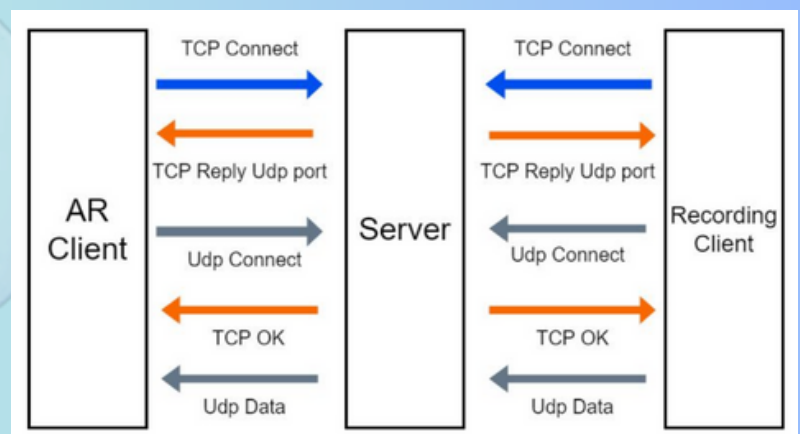
- **Recording Client**
  Captures and processes finger movements on a physical or paper piano.

- **Server**
  Converted data from the Recording Client to the AR Client.

- **AR/VR Client**
  Positions virtual piano keys in the augmented reality space based on received data. Modifies the positions of the 3D models in real-time within the Unity environment to align with the physical piano keys or a paper piano.

Flowchart