



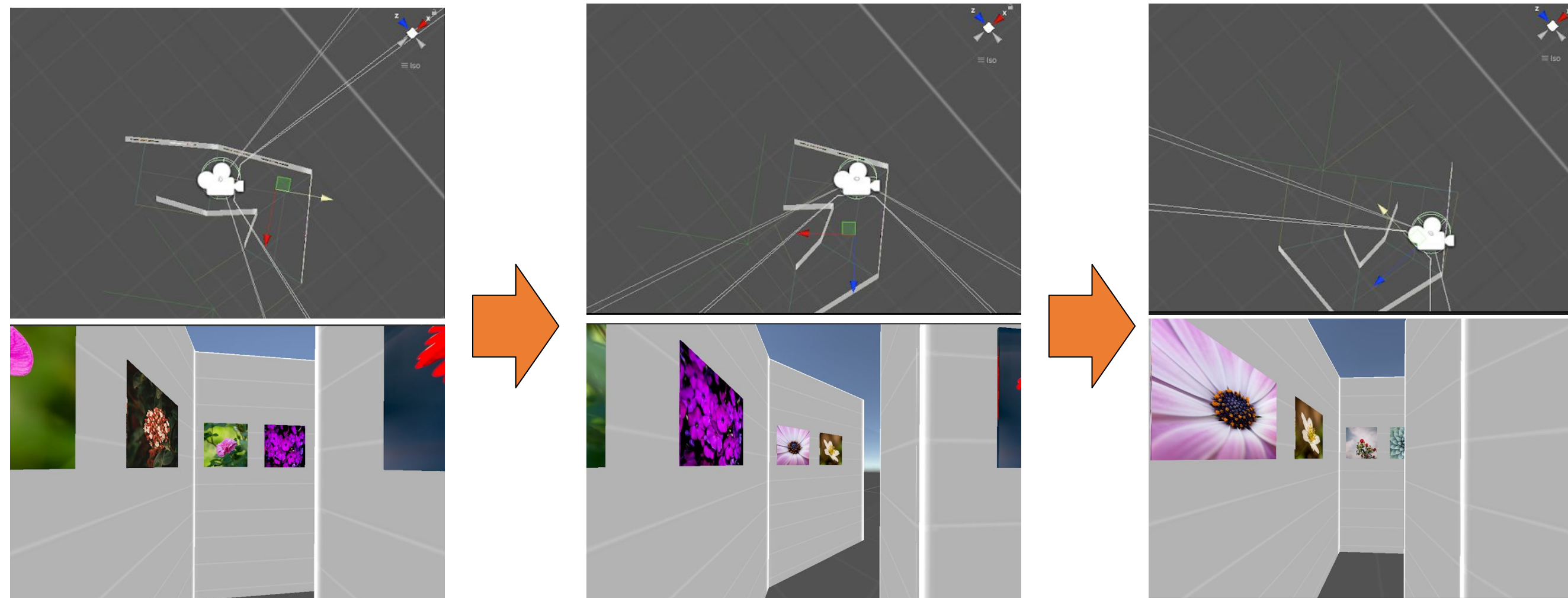
Dynamic Path Generation System For Continuous Locomotion In Virtual Reality

ABSTRACT

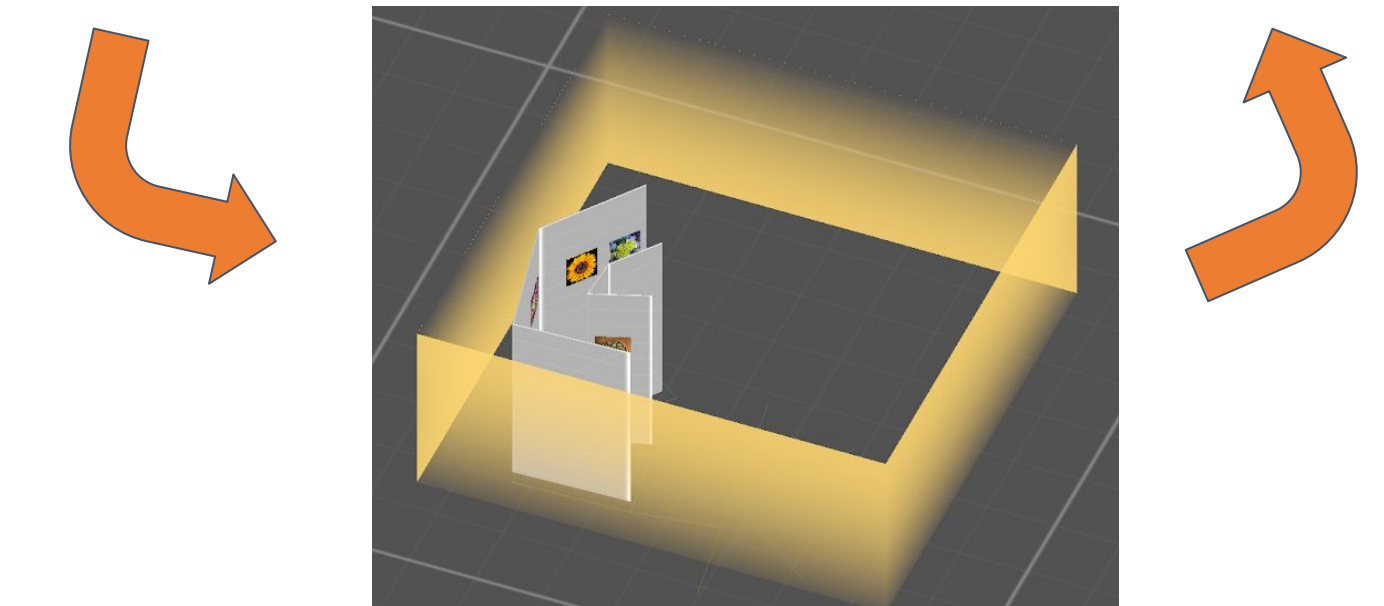
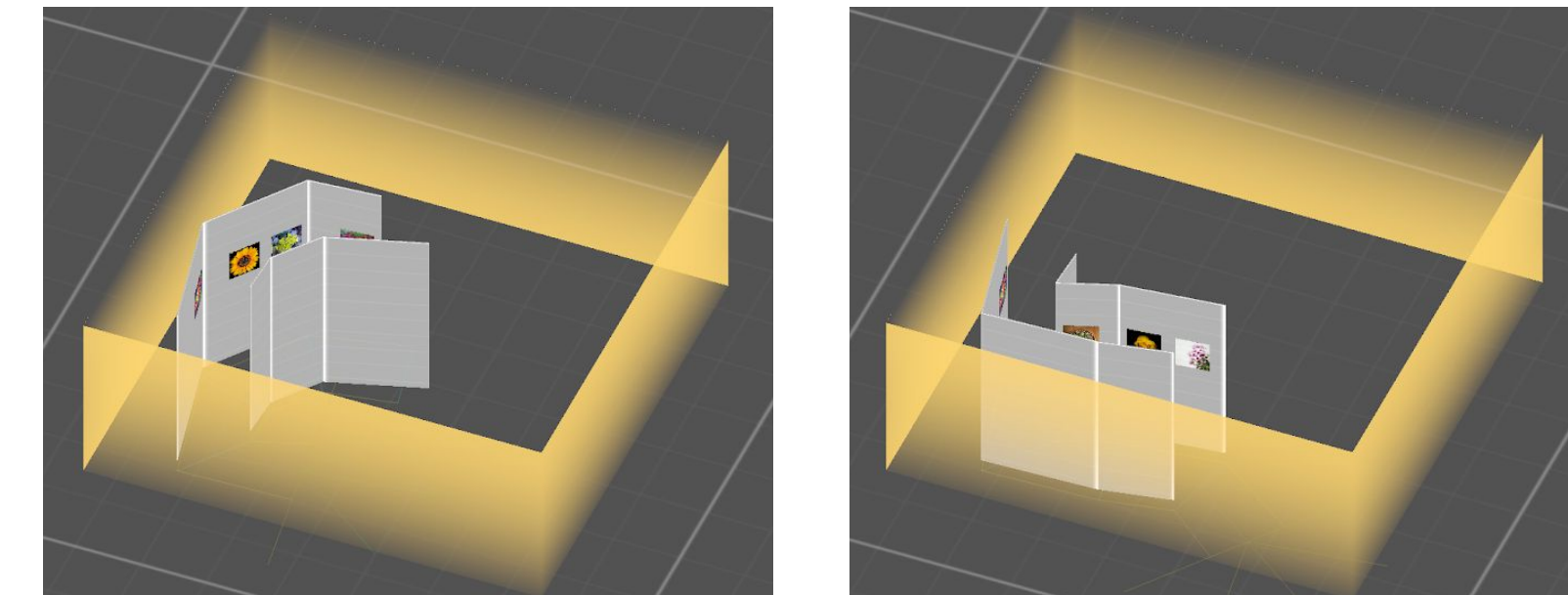
It is challenging to explore a large virtual environment designed in a limited physical space. External hardware support like an omnidirectional treadmill may be required to achieve such an act. Our work solves this problem by generating a continuous virtual environment within a limited physical space with no additional external hardware support apart from the regular VR headset itself. Our system creates a perception of being in a limitless virtual space. As part of our work, we developed a Virtual Art Gallery as a use-case (shown in the pictures).

USE CASES

- **Healthcare:** Mental health therapies, serious gaming to motivate physical activity
- **Sports and gaming:** virtual jogging and cycling, fun activities for children
- **Behavioural studies:** Spatial cognition experiments, learning ability testing, user perception studies
- **Education:** Information presentation, exhibitions, training
- **Tourism:** virtual museums and heritage walk



Top-view and a first-person view of the environment being generated



The third-person perspective of the environment being generated within room boundaries

REFERENCES

Raghav Mittal, Sai Anirudh Karre, Y. Raghu Reddy, "Designing Limitless Path in Virtual Reality Environment." In proceedings of 23rd International Conference on Human Computer Interaction (IHCI), Washington DC, USA, 24-29 July 2021. Lecture Notes of Springer Publication.