

Development of evacuation training system for Earthquake disaster utilizing mixed reality

Hitoshi Inomo

Professor, Faculty of Engineering and Design, Program of Disaster and Crisis Management

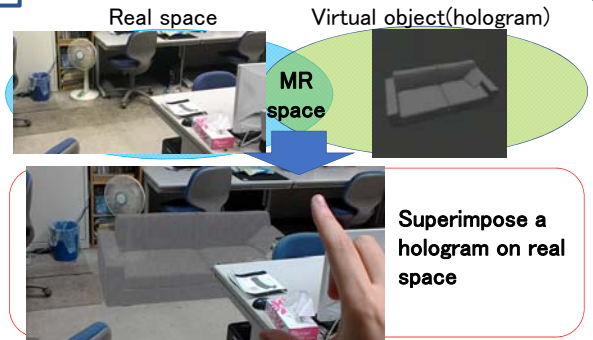
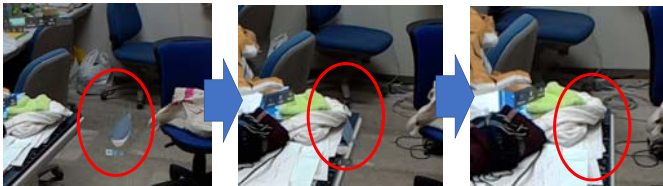
Purpose of this study

- In the evacuation training of a school, Children are training under the same conditions as usual. In order to train the ability to deal with unexpected situations during a disaster, it is necessary to change the training situation and training scenario according to the training situation. An evacuation training system using mixed reality technology is developed.

What is mixed reality?



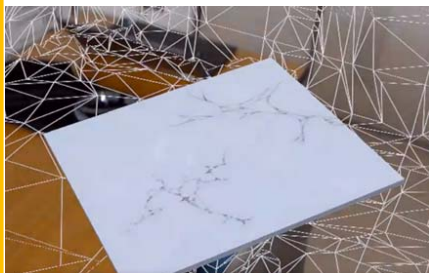
- MR(Mixed Reality)
Mixed reality (MR) is the merging of real and virtual spaces to produce new environments and visualizations, where physical and digital objects co-exist and interact in real time.



Evacuation training system utilizing MR

Reproduce various situations at the time of disaster

- Produce **unexpected events** by combining holograms, motions, and sounds



Scene of Ceiling board falling



Scene of falling boxes

Reproduction scene of the injured person



Utilization in other evacuation training systems

- Disaster response competency development training using a disaster simulation/response competency training system (Located in Kagawa University)
- Disaster situation images are shown on three 80-inch screens using 3D-VR.
- Training on situation judgment, decision making and flow of actions in critical situations.
- Scenario changes depending on the ability of the experience person to respond.
- It is difficult to add a new event that reproduces the disaster situation (constrained by scenario production time and cost)**



Utilization of MR

- It is possible to easily add various disaster situations**

[For example]

- Scene of locker falls and a child is sandwiched between locker and floor.
- Scene of fire (in science laboratory, cooking room etc.)
- Scenes where students are injured with laboratory equipment and chemicals etc.



Advantages of using MR technology for evacuation training

A real school can be used for evacuation training

- Real space can be used for evacuation training scenarios.
- It is possible to carry out training that reproduces various disaster situations at schools where children are attending school. Therefore, children can easily imagine the disaster situation.



The various accident situations can be reproduced easily.

Fire Scattering of a glass fragment Fall of a object Broken wire Inundation above floor level etc

