



A Study on the Utilization and Module Configuration Diagram of the User Path in Virtual Reality Using Unity



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INTRODUCTION

- There were not many cases of using data from the user's movement path in virtual reality.
- In virtual reality, information about a user's route can be used in many fields.
- Among them, we use the information of the movement path on the content of the occurrence of the disaster and create the diagram of the module configuration system on which direction can be used and how to store the data.

MODULE CONFIGURATION DIAGRAM

- In Figure 1, the Unity production tools have a navigation system, which is developed as a complement to automatically generate a simulation navigation graph during the design process without any additional work.
- So, the automatic navigation chart generation module in which there is a navigation system that produces virtual reality content in Unity automatically switches to the navigation chart.
- Through this method, data on time, distance and trajectories taken for the subjects' tasks are identified in real-time.
- Save this data and extract it in the MS EXCEL data form and convert it into the DATABASE.

UTILIZATION OF USER PATH

CURRENT SITUATION

- Recently, many evacuation simulation contents with VR technology have been developed and marketed.
- Assuming various disaster situations, such as fires and earthquakes, elementary, middle and high schools conduct disaster evacuation drills through virtual reality devices.

IMPROVING

- We can know how users behave and move in case of fire or earthquake through the user's path in virtual reality.

- By collecting this information, we learn how people generally move in the event of a disaster, so we can **efficiently install emergency supplies, such as emergency lights and fire hoses.**
- Also, children tend to hide under their beds and in closets in case of a disaster. We can **analyze how children behave in virtual environments and predict where they will be in the event of a real disaster.**
- This will allow rescue workers to carry out more precise and faster rescue operations when carrying out rescue work on children.

CONCLUSION

- We create a **module configuration diagram** that stores user route data with virtual evacuation content in virtual reality.
- The route information can be used to analyze the user's route, install emergency supplies in the real environment and improve efficiency.
- Analyze how the child moves primarily and allows quick rescue work when real rescue workers perform rescue work.

FUTURE RESEARCH

- We will create **virtual reality evacuation content in case of fire for children under 13 and adults.** Therefore, we collect movement path data and compare the two groups to analyze the difference in the movement path.
- Also, analyze the child's movement path and, in the case of a child, **analyze how it moves and why it moves** in case of fire.
- And by concluding, we will teach rescue workers the main routes of movement of children and create **guidelines** that can be rescued quickly.

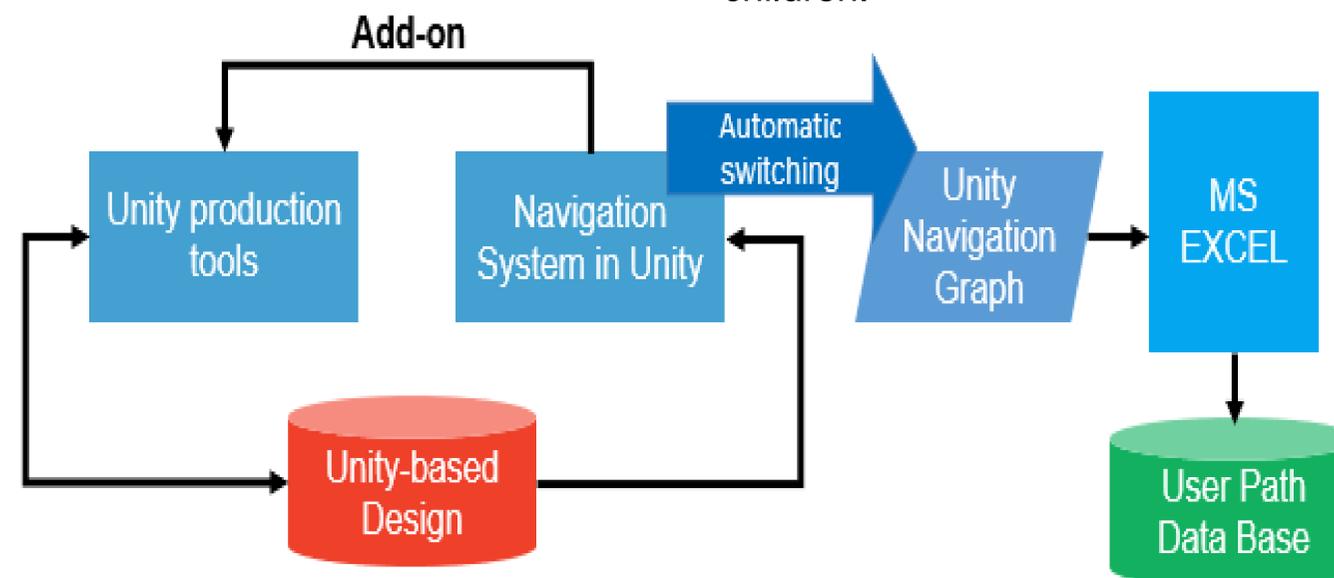


Figure 1. Module Configuration Diagram

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