

# Human and Robot Interaction in a Construction Site Through Virtual Reality



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## Introduction

The research conducted by Professor Becerik-Gerber and Ph.D. student Soyoung Moon illustrates the interaction between various robots and humans in a virtual reality environment. Some of the robots in which the workers are able to control are demolition robots, bricklaying robots, robots that collect data, and robots that gather debris. The virtual reality will help train workers in a realistic environment very similar to an everyday construction site environment with various sound and objects that mimic a construction site.



PC: Open Business Council

## Objective & Impact of Professor's Research

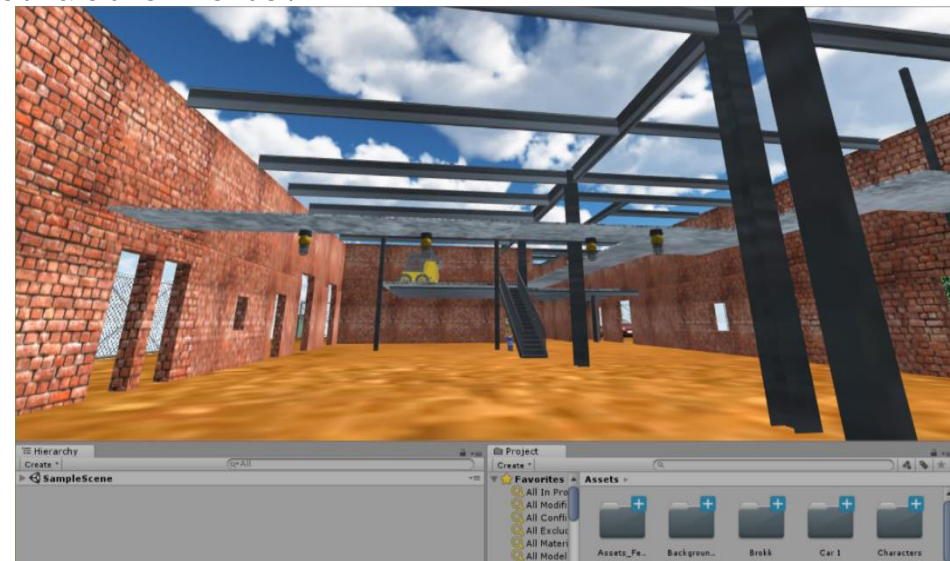
The objective of the research is to help construction workers learn and understand to work with different robots. Due to unoccupied jobs, a substitution of workers need to be taken place, which is the role of the various robots. Another reason the research is being conducted is to increase the productivity of construction work in a safer environment.



Computer animated destruction robot, Brokk, within the construction site  
 PC: Erica De Guzman

## Skills Learned

Throughout the course of the summer, I have learned new skills which include new programs and basic understanding of coding. As I progressed throughout the various weeks in the lab, I was able to navigate around Revit, 3Ds Max, and Unity. Through Revit, I was able to receive the building previously created by Soyoung and Professor Becerik-Gerber, then export to 3Ds Max in order to import it into Unity. In Unity I was able to modify the building that was previously designed to make it seem as if the current environment was a construction site.



Through the use of the program Unity, the construction site was modified and designed  
 PC: Maylin Martinez

## Next Steps for You

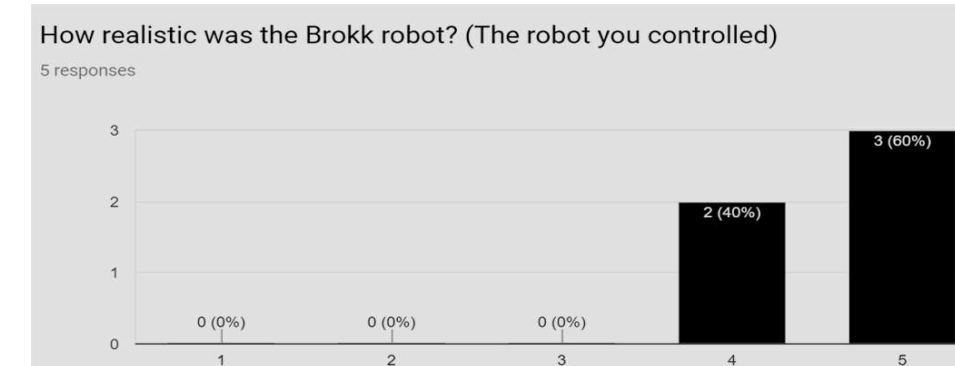
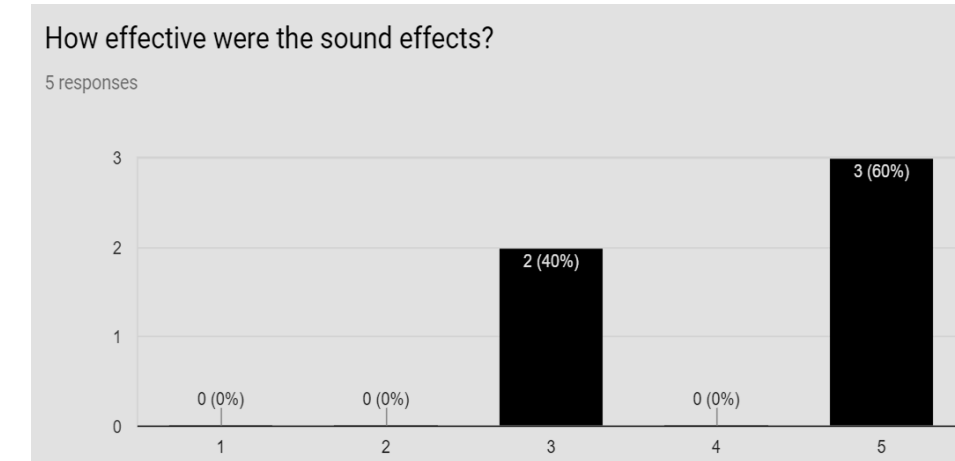
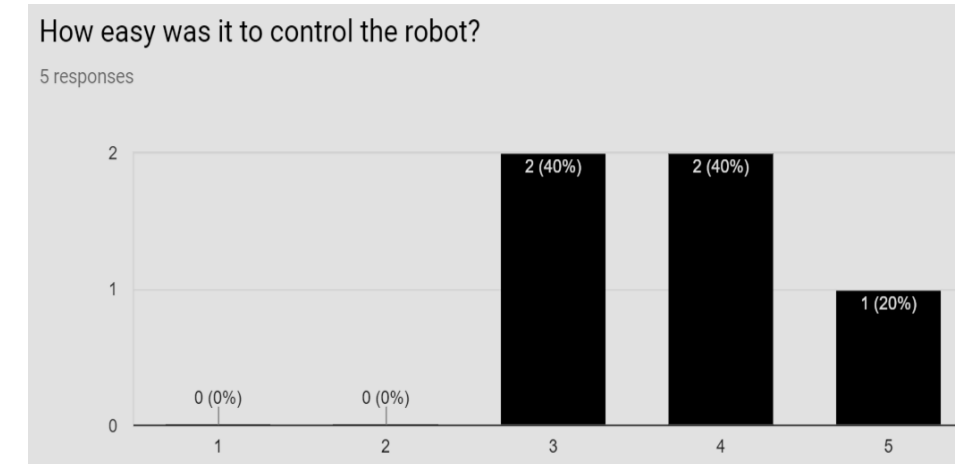
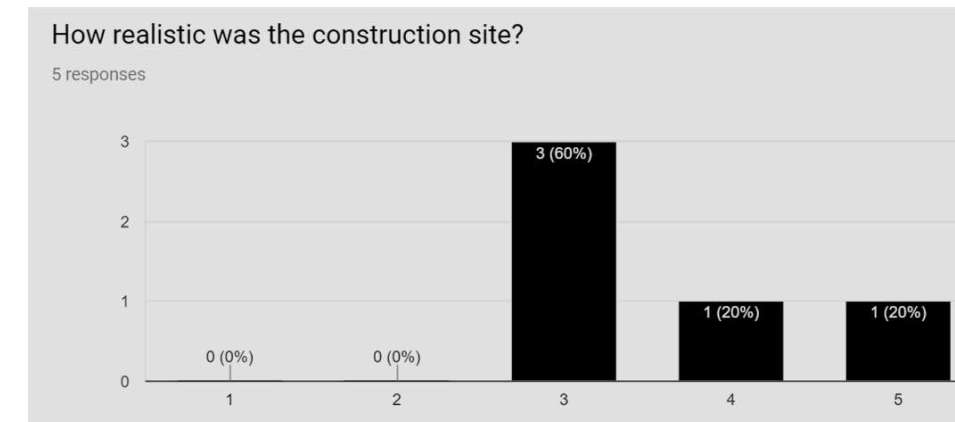
As I continue pursuing my interests in civil engineering, I will be able to apply these new skills to my current education, such as AP Computer Science. I will also be viewing other fields in engineering such as computer science and robotics due to this experience of using virtual reality.



PC: Athens State University

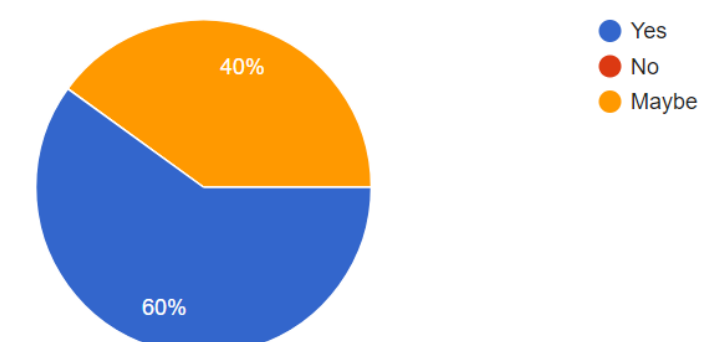
## Results

As we allowed various people to experience the virtual reality, we received feedback.

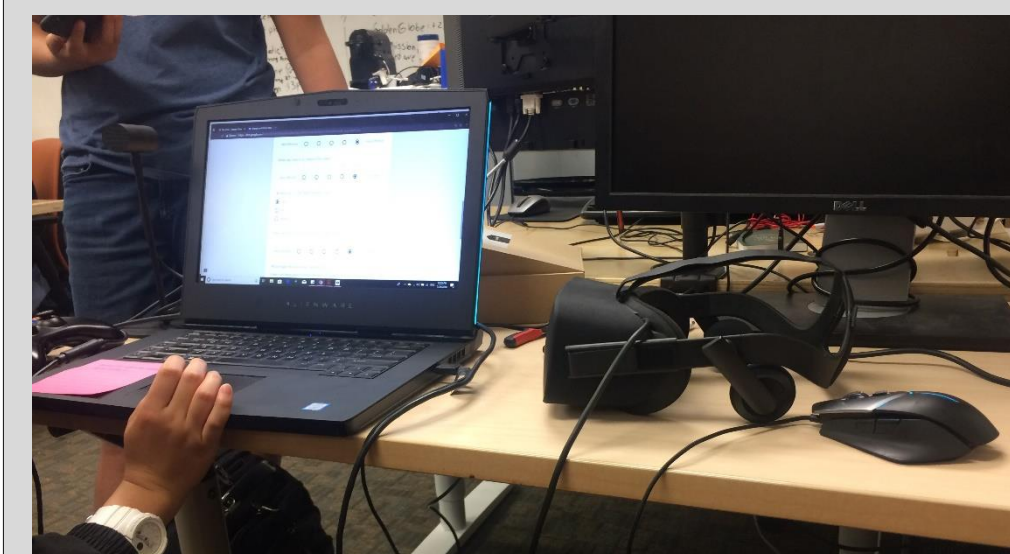


Would you try this again another time?

5 responses



An aerial view of the construction site and surrounding environment  
 PC: Maylin Martinez



A guest providing feedback on the virtual reality  
 PC: Maylin Martinez

## Acknowledgements

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