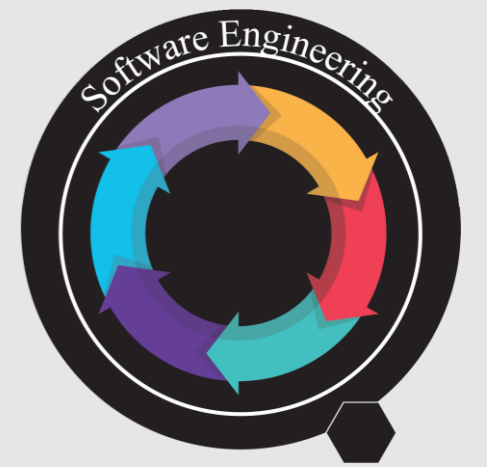




# VR LAB

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## Abstract

The "VR Lab" project aims to enhance chemistry education for middle and high school students by providing a safe, interactive, and immersive virtual reality environment. Traditional chemistry labs pose risks and logistical challenges. The VR Lab offers a cost-effective and accessible solution, enabling students to conduct experiments, observe chemical reactions, and take quizzes in a virtual setting.

## Introduction

Traditional chemistry labs present hazards and logistical difficulties. VR technology offers an innovative solution. The VR Lab project from Çankaya University provides a virtual lab environment for chemistry education, enhancing students' learning experiences through safe and interactive means.

## Solution

The VR Lab offers an immersive virtual environment accessible via Android phones and cardboard VR headsets. Key features include:

**Virtual Classroom:** Students can interact with virtual objects and chemicals.  
**Conducting Experiments:** Safely perform experiments, mix chemicals, and observe reactions.

**Quizzes:** Assess understanding with integrated quizzes.

**Offline Accessibility:** Operates without internet, suitable for various educational settings.

Developed using Unity for Android, the application provides an intuitive interface and smooth performance. The VR Lab's design ensures easy integration into school curriculums, making advanced educational technology accessible to a wider audience.

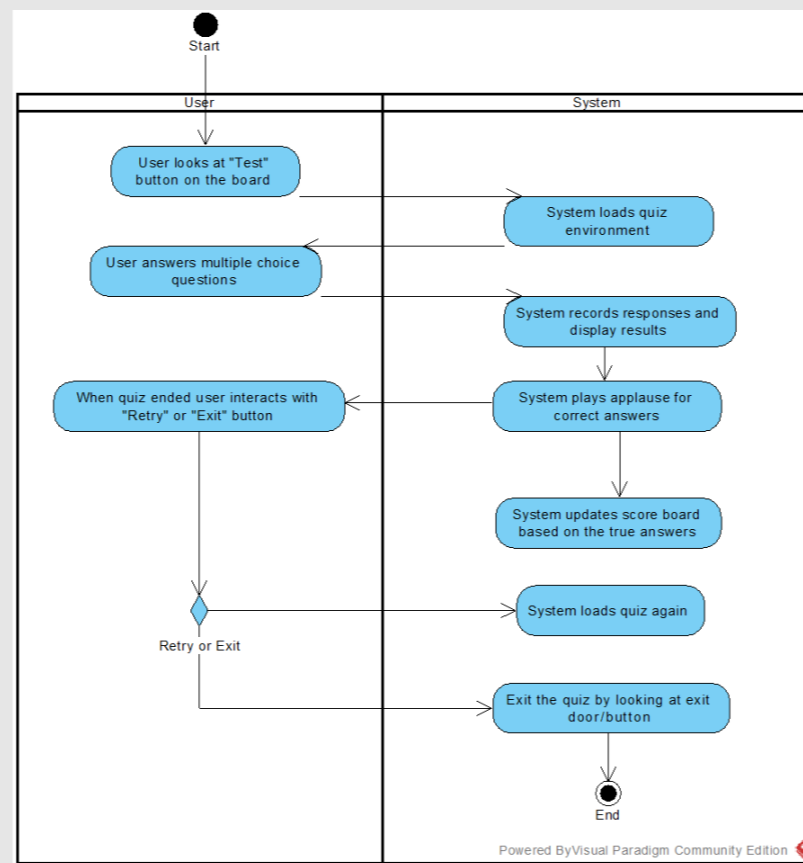


Figure 1 – Activity Diagram

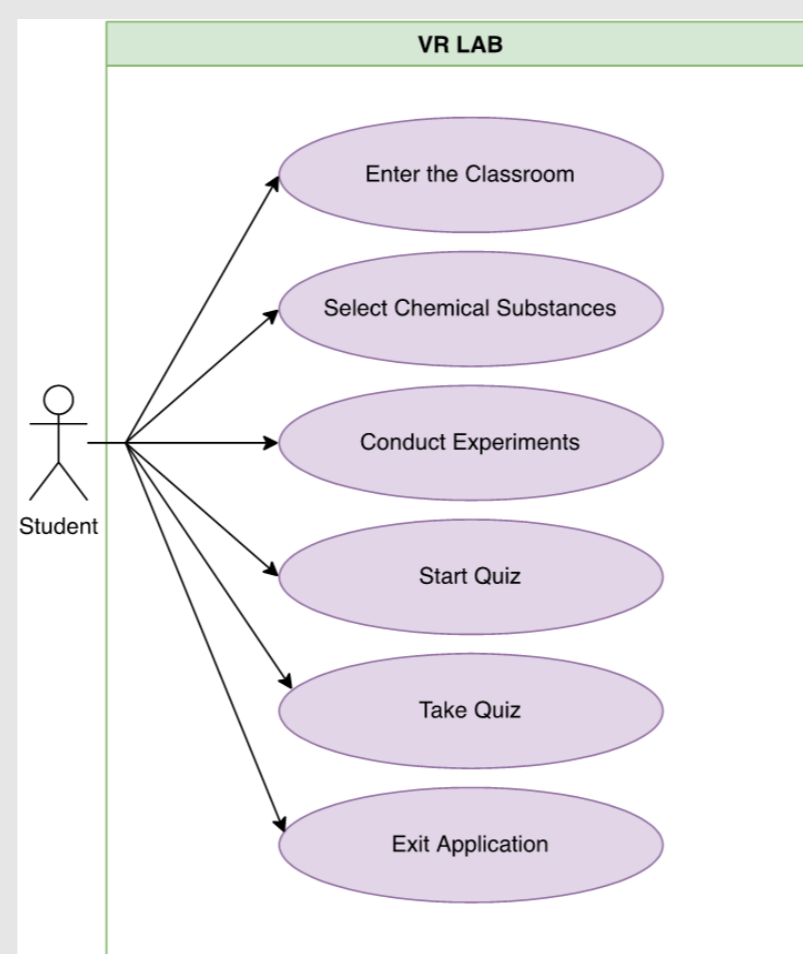


Figure 2 – Use-Case Diagram



Figure 3 – Finished Product



## Company Info

The VR Lab project is a collaborative effort by students from Çankaya University's Faculty of Engineering, Software Engineering Department. The project targets middle and high school students, educators, and educational institutions. By leveraging advanced VR technology, the project aims to bridge the gap in traditional chemistry education, providing a modern and effective learning tool that aligns with current educational needs and technological advancements.

## Results & Conclusion

The VR Lab enhances student engagement and understanding of chemistry, providing a safe and flexible learning environment. While requiring basic VR hardware, the benefits include cost-effectiveness and improved learning outcomes. Future improvements include expanding to other science subjects and adding more content.

## Acknowledgement

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