Chemistry 4D

Presented By:
Majd Jabr
Dalia Batyeh
Nadeen Kalbouneh

Supervised By:
Dr. Ashraf Armoush
Dr. Mona Dmaidi

Outline

Chemistry 4D

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General Overview

- Chemistry 4D is a mobile application, which use augmented reality in order to improve chemistry understanding.

- Its used to help people who are just starting to learn chemistry by covering the basic concepts, and it can also be useful for more experienced users and chemistry students.

Motivation

- Augmented Reality allows the student to participate in the story, develop empathy to experience outside their current realm of understanding.

“The world of reality has its limits; the world of imagination is boundless.” -Jean-Jacques Rousseau

Objectives

The main goal of our app is to improve education in more powerful learning experience by:

- Offering students an easy way to visualize 3D objects for elements and reactions results.
- Providing low-cost, low-risk and effective methods of doing experiment.
- Helping them to understand chemistry concepts, which depend on experimental and laboratory work.

Tools and Technologies

Chemistry 4D

unity | vuforia™

blender™

OFFICIAL PARTNERS

SQLite

php

Features

Includes two parts, one for administration and the other for user

For Administrator

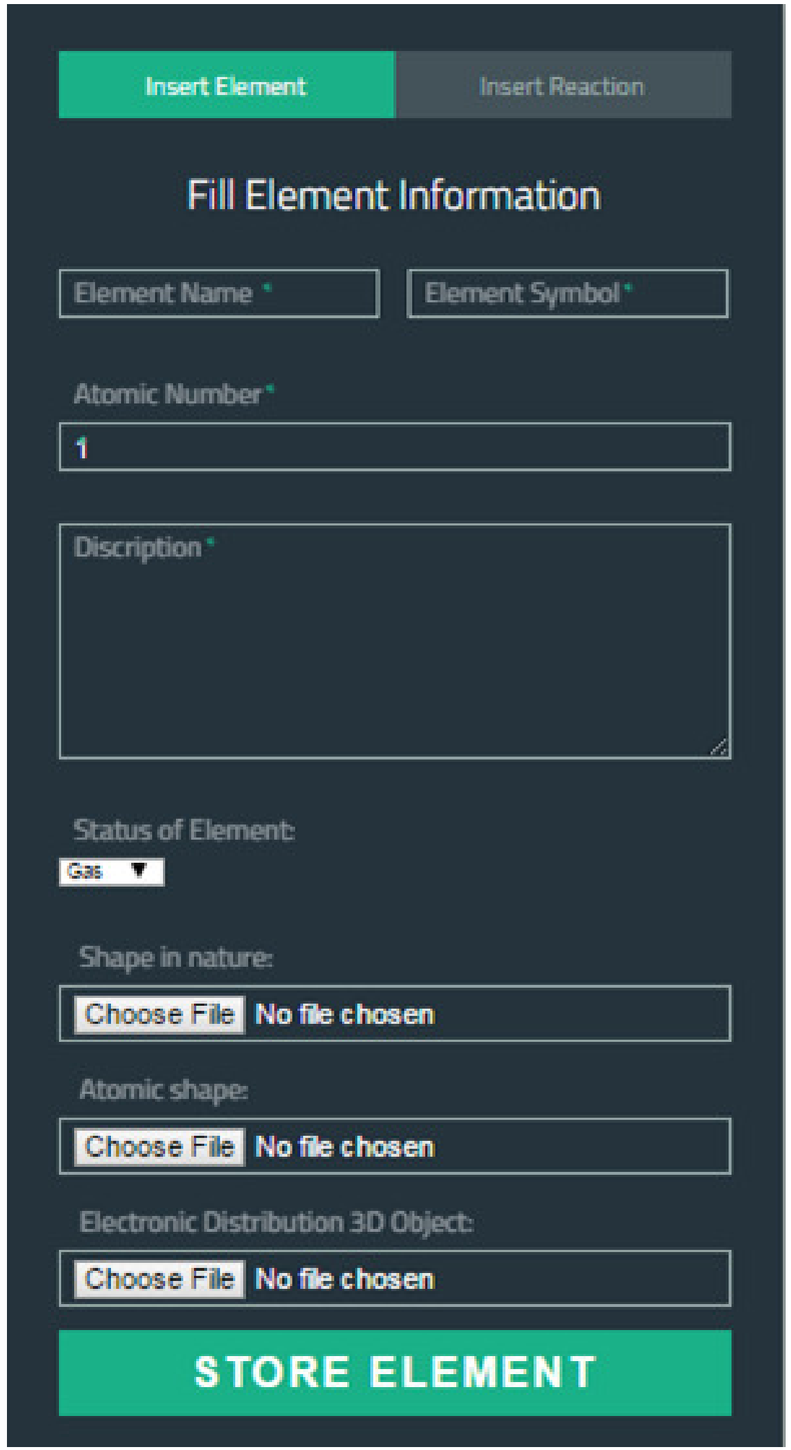
1. Insert Element

2. Insert Reaction

Administration

- Insert Element

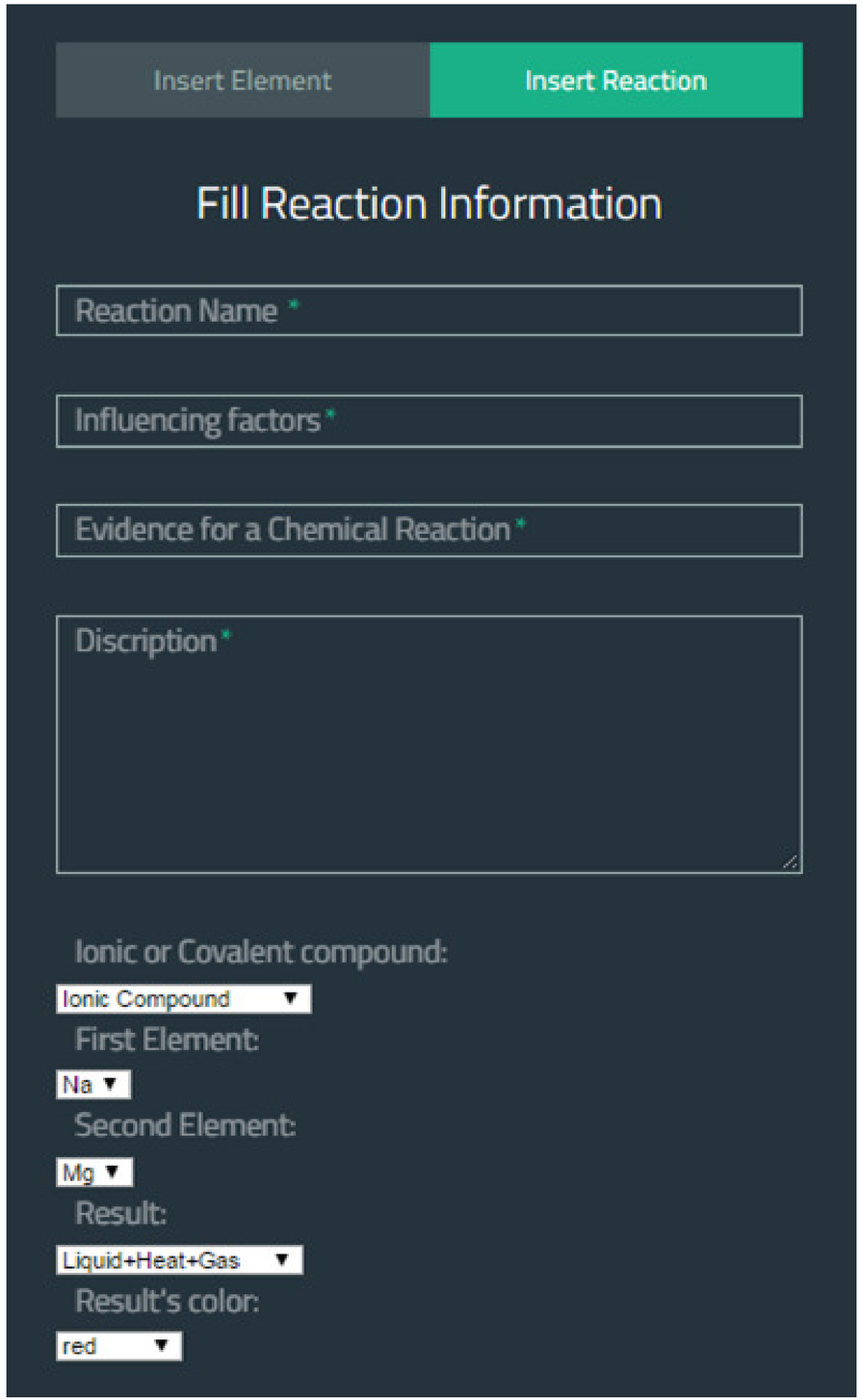
The administrator can insert any element with its information and uploading its 3D objects.



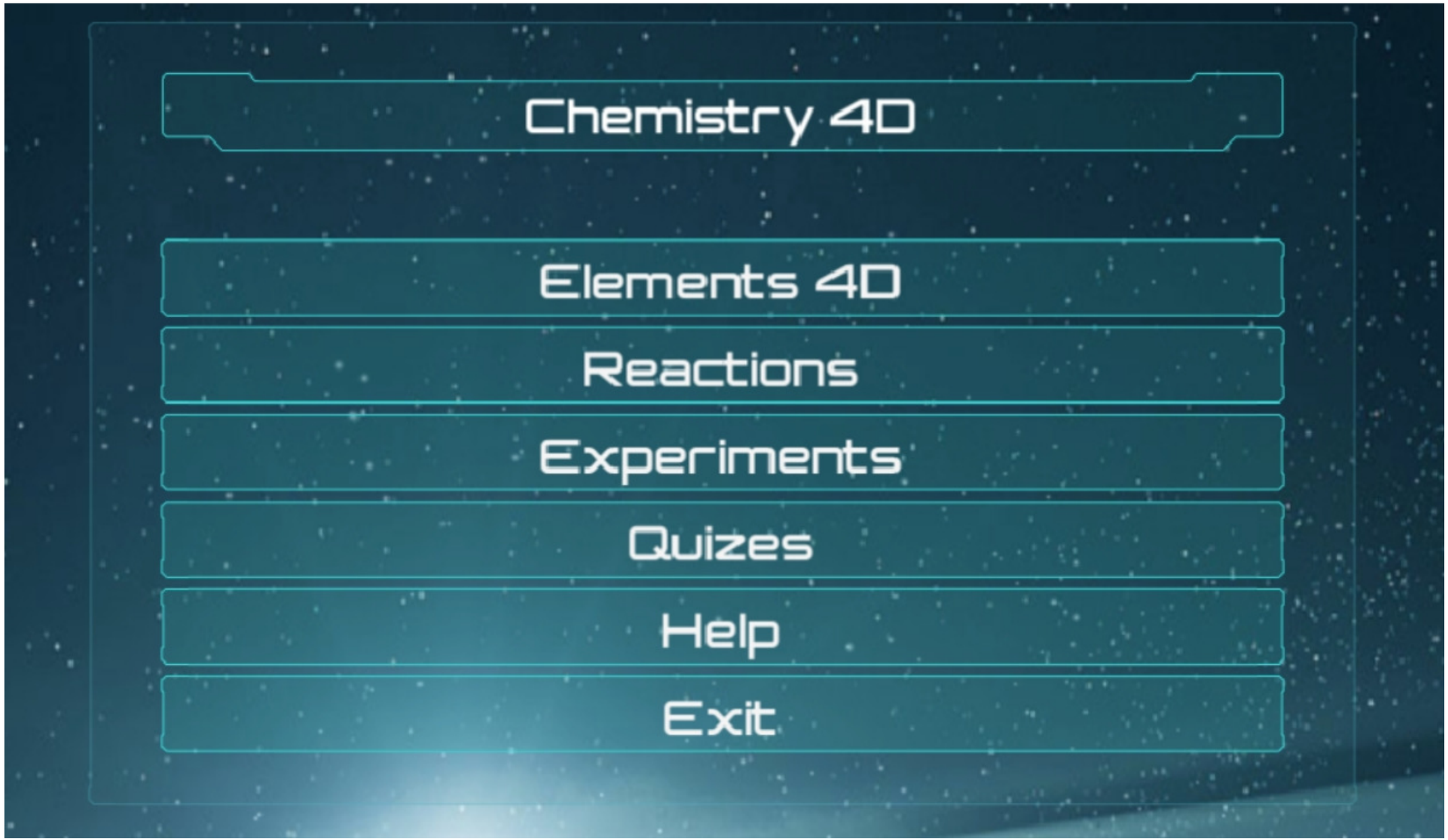
Administration

- Insert Reaction

The administrator can insert reactions by indicating the type of result and its color.



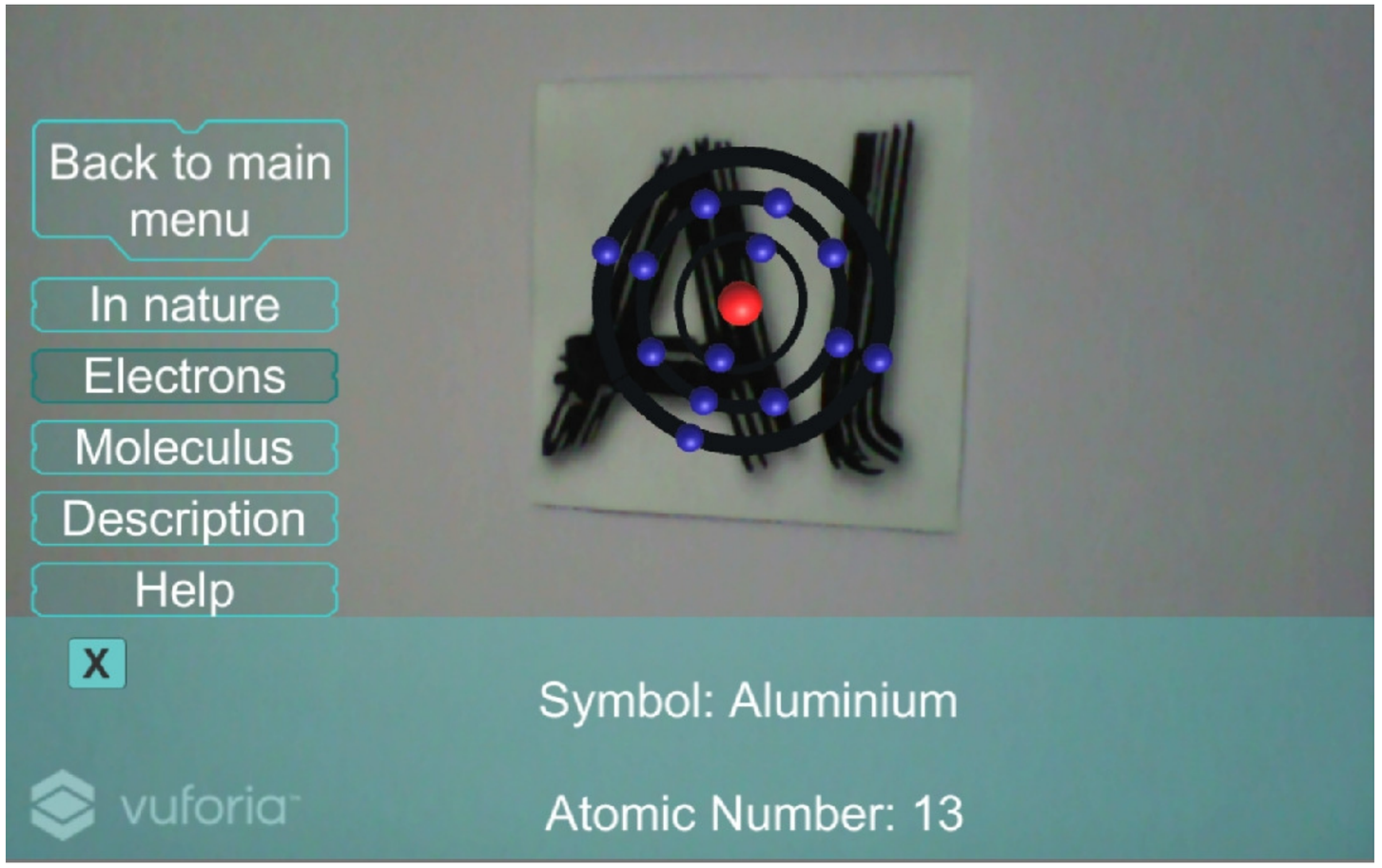
For User


Chemistry 4D
Elements 4D
Reactions
Experiments
Quizes
Help
Exit

User

- Elements

Display different representation of element which can be rotated, scaled and moved .
And providing a brief description about this tracked element.

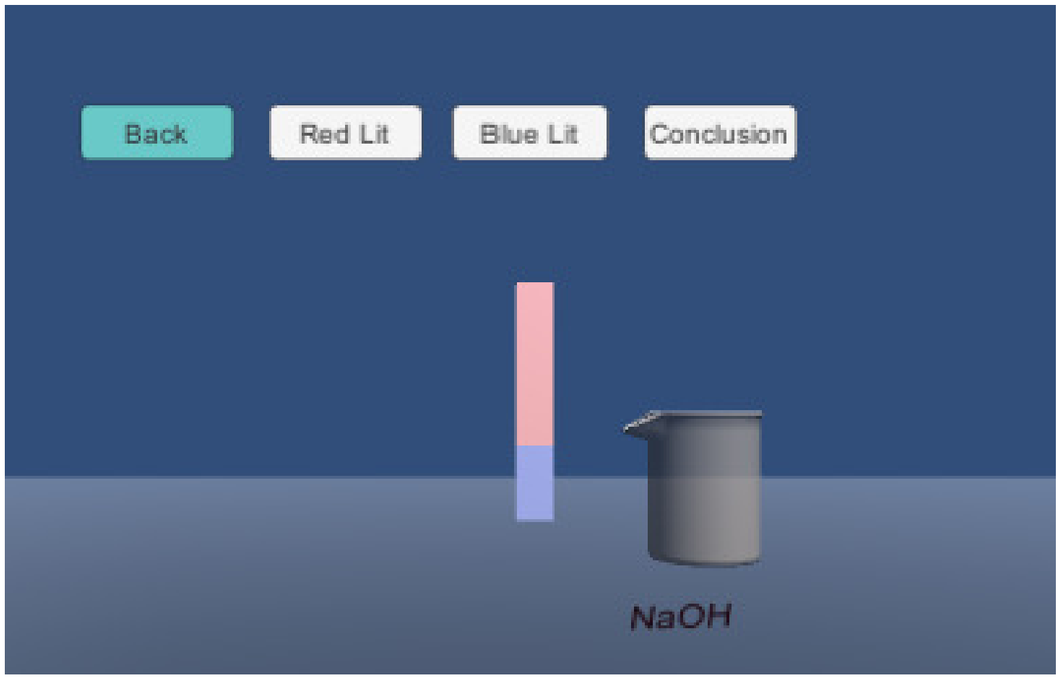


User

Experiments

The user display the targets of the main elements or compounds in the experiment.
Then going to the related experiment scene which contains all the equipment needed.

NaOH and Tea
for example

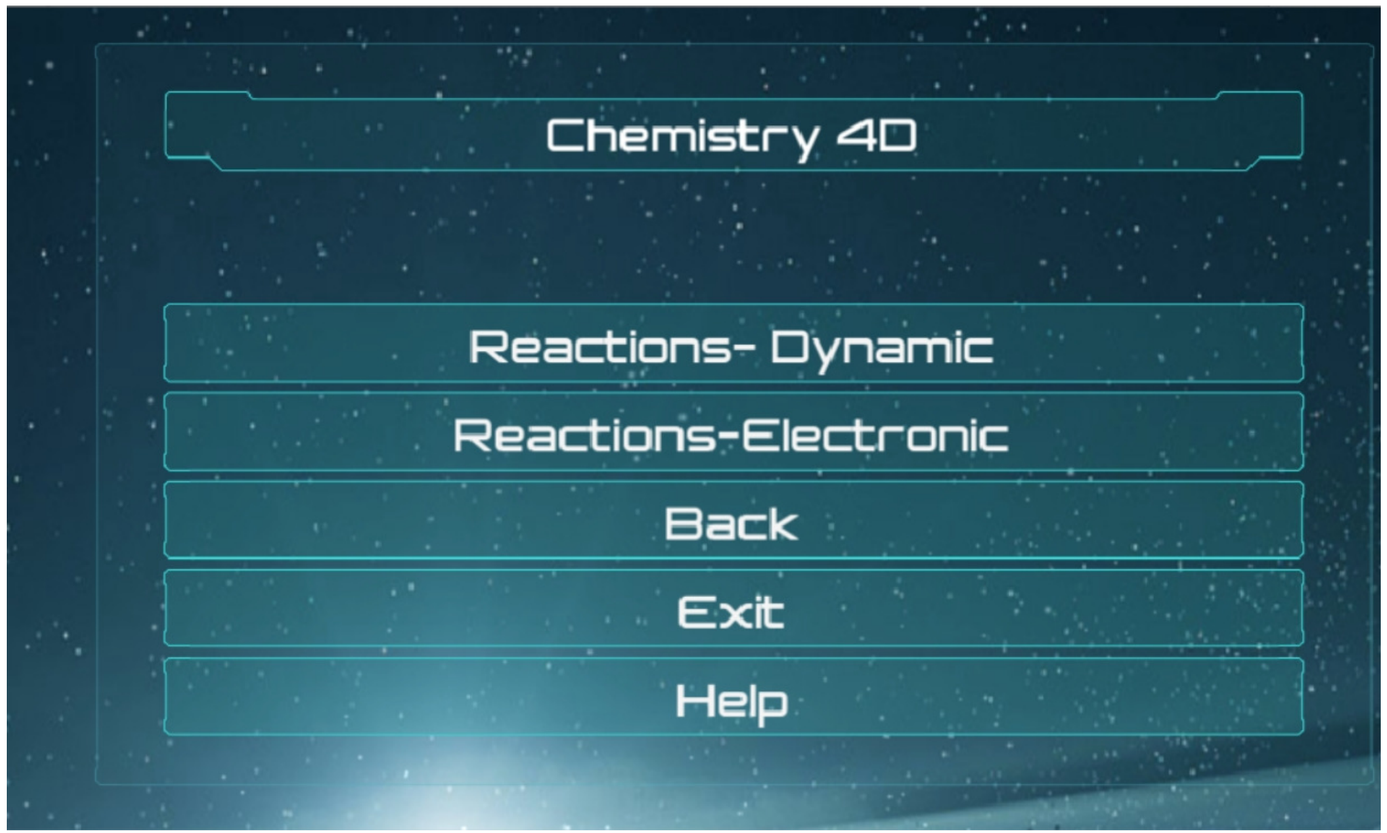


After mix them, user can check the acidity and base of the resulting compound

User

- Reactions

User have to choose type of reaction that he want

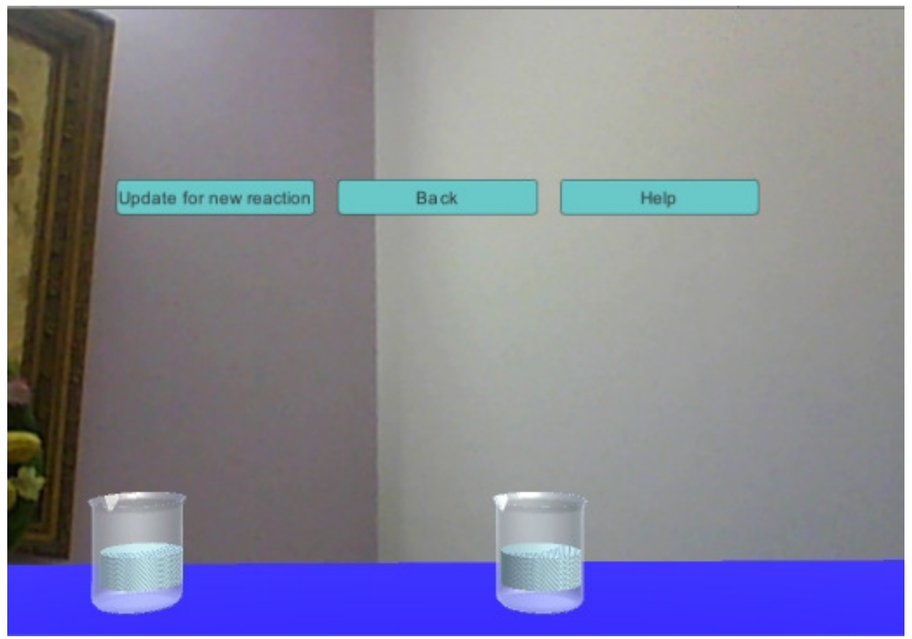


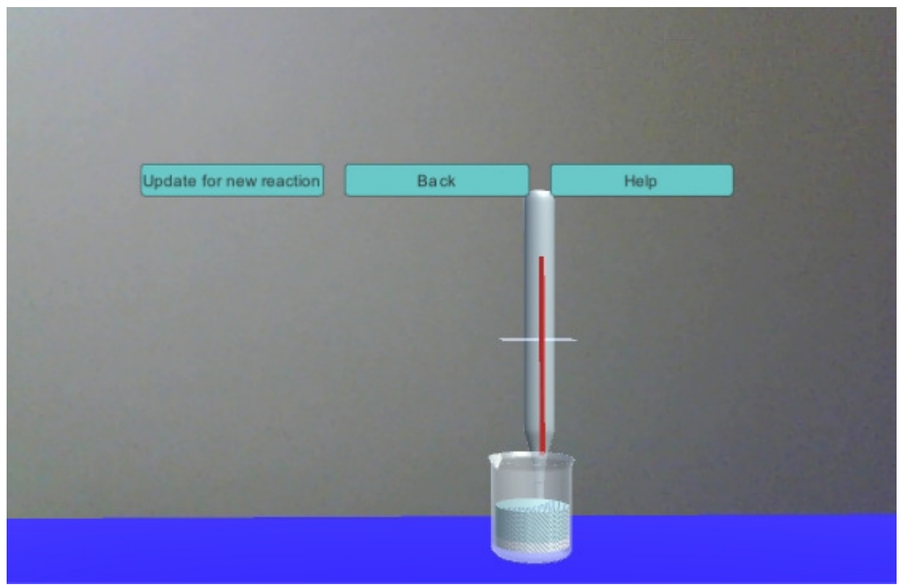
User

- Dynamic Reactions

The user has to adduct image targets to each other, in order to see the result.

NaOH and HCL
For example



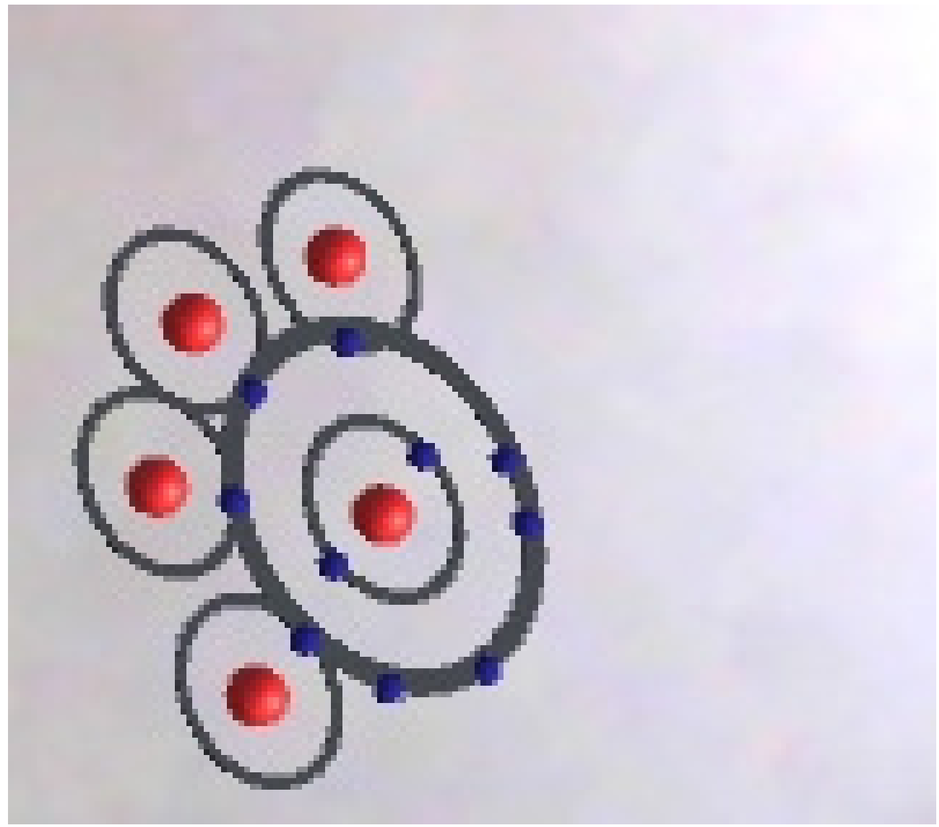


User

Ele□ □onic Reactions

The user has to adduct elements image target to each other, in order to see the result.

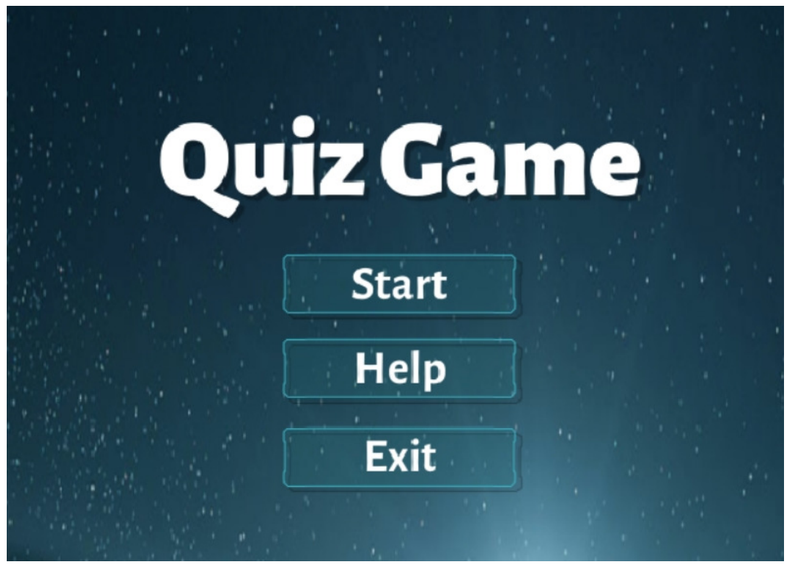
C and H
For example

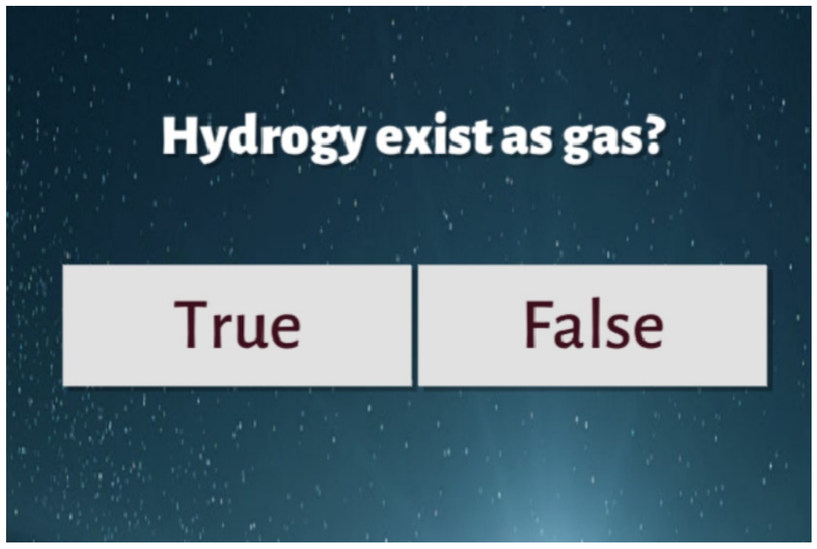


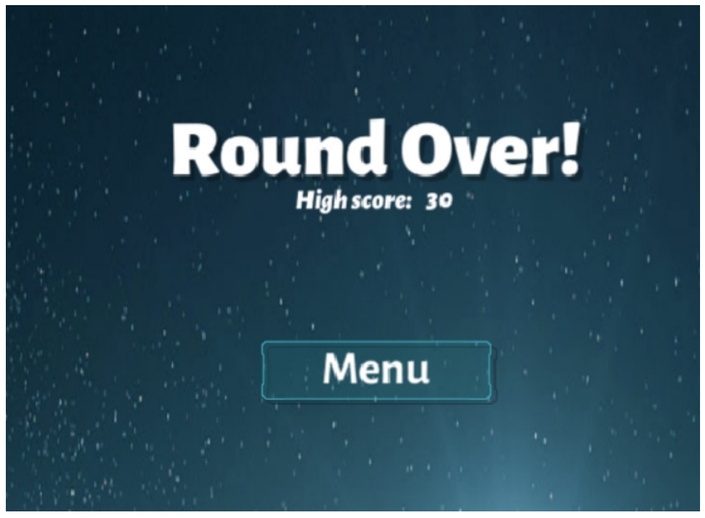
User

- Quiz

Also user can make quiz and save his high score







Challenges

1. Time

2. Database

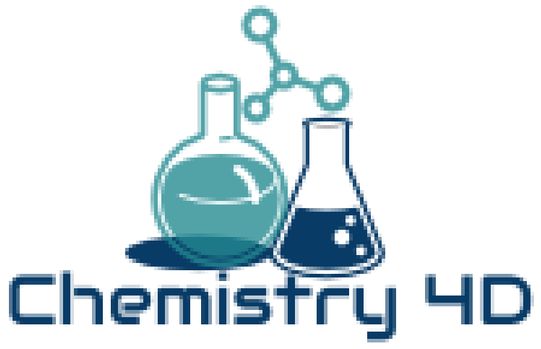
Chemistry 4D

Future Work

- Make laboratory part dynamic.
- Include additional subjects in chemistry that could help students in different classes, like hybridization and organic chemistry.
- Implement this application in all schools so that students could learn by visualizing as in reality.

Conclusion

Finally, we hope that Chemistry 4D will help any student to understand chemistry.



Thank You