

Project Title: VirtualChem

Brief Description :

VirtualChem is an application that allows college Chemistry students to get familiarized with the structure, bonding, and properties of chemicals by using an interactive 3D model of molecules in virtual reality. Students will be able to see molecules in 3D and manipulate them with motion-detection technology, allowing them to practice identifying molecules and predicting their shapes.

Target Audience(s) -

- College students taking Organic Chemistry
- Ages 18-22,
- higher technical literacy (enough to work VR and a computer or smartphone),
- would need access to VR headset/Google Cardboard and smartphone or computer,
- Student
- Would use to study at home
- Middle to higher, since need to afford smartphone or computer & VR headset
- N/A
- English, some terms from chemistry but very few
- None
- None

Client or Collaborator (potential funding partner, content expertise, site for field testing):

Contact information

Team Leader: Shannon Keane -- shannon.m.keane@stonybrook.edu

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Organization web site

<https://you.stonybrook.edu/323virtualchem/>

Similar/competitive products in genre:

MolView: Allows the user to build chemical structures and view them in 2D or 3D. Their limitations include not being able to tell if your structure is correct or not as there is no “clicking into place”. You have to be completely familiar with chemical structures. Our application allows for users to learn about certain structures and the click in feature ensures that the user is creating the correct structure.

Full Description:

VirtualChem is an interactive 3D model of molecular structures using virtual reality and motion detection technology, in order to help Chemistry college students get familiarized with structure, bonding, and properties of chemicals. Students will be able to see molecules in 3D and manipulate them, and can practice identifying molecules and predicting their shapes.

This technology can help college students in General Chemistry and Organic Chemistry classes with understanding the properties of chemicals by getting to know their structures very well through visualization and by playing the game to study them. The application is more pleasurable to interact with than traditional approaches, and will encourage students and enhance learning.

VirtualChem uses LeapMotion and VR technology to visualize and interact with molecular structures, and this hands-on interaction will enhance learning and help motivate students.

Special Requirements:

Google Cardboard, LeapMotion device