CODE3D

3D Printing to Motivate Introductory Programming

PROBLEM

- CS is growing increasingly relevant in society
- Students are intimidated by learning programming
- Motivation helps

OBJECTIVES

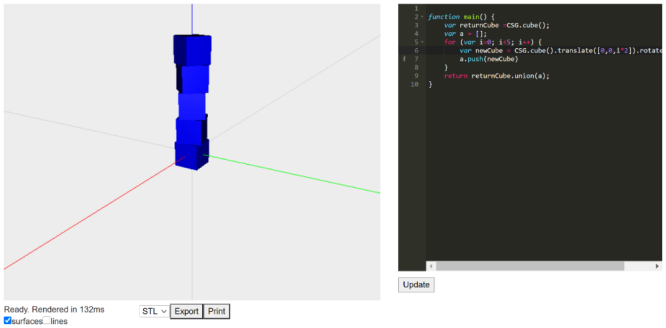
App for learners to:
1. Code 3D artefacts
2. Simulate 3D printing

Investigate if this system:
1. Is usable
2. Motivates users to program

CODING FOR 3D

Features/functionality:
1. Text editor to code 3D objects with graphics library OpenJSCAD
2. Rendering windows to view objects

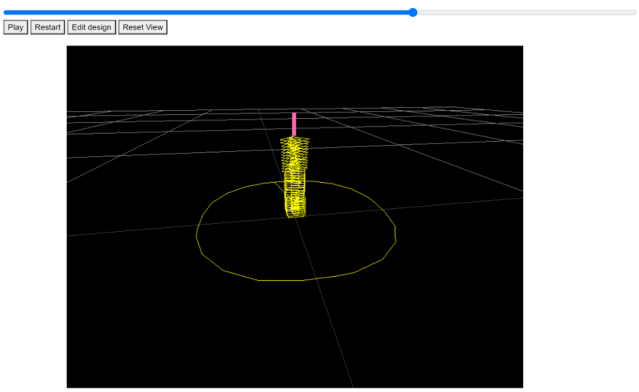
Model3d



PRINTING 3D (Simulation)

Features/functionality:
1. Rendering window to simulate 3D printing of artefacts.
2. Controls to view and control the simulation.

Print3d



PROCEDURE

- Testing by CS educators
- Two standardized surveys used
- Interviews conducted

RESULTS

Educators rated this system as
1. Useable (5.90/7)
2. A motivating tool for students to learn programming (4.53/5)

CONCLUSIONS

3D printing can be used as an effective intervention to improve student motivation in learning programming.

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