



DigiEduHack Solution

**Georgia - Educational Games
Hackathon**

**Challenge: Georgia - Educational Games
Hackathon Challenge 2020**

Sandboxed Physics

How do we bring a less-popular subject back to the mainstream?

We aim to improve interactivity and retention in physics courses through a social sandbox-based platform that provides not only pre-compiled topics, problems and puzzles, but allows users to bring their ideas to life and share them with others.

Team: Tritium

Team members

Tamaz Gochitashvili, Giorgi Kurkhuli

Members roles and background

Tamaz Gochitashvili: Programmer, Computer Scientist (San Diego State University), studying Materials Science for Nanoengineering.

Giorgi Kurkhuli: Computer Engineer (San Diego State University), studying Materials Science for Nanoengineering.

Contact details

tazo.gochitashvili@gmail.com ; giorgi.kurkhuli1@gmail.com

Solution Details

Solution description

We propose a solution that can provide three powerful frameworks to improve interactivity and

involvement in physics and other less popular subjects.

- A gamified learning tool.
- A sandbox to allow students to exercise their knowledge and express themselves through simulations.
- A social platform that will allow students to share their achievements and creations.

Solution context

Due to lack of real-life experience and interactivity with physics-related problems, lots of students disregard physics as a subject. This makes them less likely to pursue a career in physics and related fields, which causes a shortage of professionals.

Solution target group

This solution can be used by nearly everyone and in all levels of education. Pupils and students can use it to improve comprehension and retention, teachers and professors can use it to create custom, more interactive puzzles and problems for their students to solve.

Solution impact

- Encourages extracurricular activities and experimentation, improving comprehension of the topic.
- Provides close to real-life examples making study materials more understandable.
- Allows users to collaborate on larger projects, improving their teamwork skills and encouraging them to perform better.
- Provides a platform for educators to create custom, interactive experiences.

Success can be measured by implementing this system in some classrooms and comparing the results.

Solution tweet text

Conquer physics in your browser.

Solution innovativeness

Similar products with these feature-sets can not be found on the market to our knowledge, there are products that contain some features but none that are nearly as extensive.

Solution transferability

The general concept of breaking a learning tool down into three parts can be applied to nearly every field, certainly every STEM field.

- The problem-solving portion can be adapted to every subject, provided there are enough resources to create and maintain a library of problems and puzzles.
- The simulation portion can be used in subjects like chemistry, but unlikely to be very useful in humanities.
- The social platform can be used in every conceivable field or subject that values teamwork and collaboration.

Solution sustainability

The solution's implementation should be broken down into phases to allow the different parts to mature.

1. The problem-solving part can be implemented separately from the other two, since it does not have to directly rely on them and can be reintegrated later.
2. The sandbox portion has to be finalized and matured before work on the social platform can begin.
3. The social platform should be the last, as it directly relies on the first two parts.
4. Finally, it's important to dedicate some time to integrate all the parts into a single seamless experience.

Solution team work

Through initial analysis we found that STEM fields, particularly physics, are less popular in Georgian middle schools. As a team we researched the available products that could solve this problem, but found none that had all the features we had envisioned. We found no major issues in the way we work as a team and could certainly continue working together.