



# Sandboxed Physics

# Why?

Due to lack of real-life experience and interactivity with physics-related problems, lots of students disregard physics as a subject.



# What?

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.

# Gamified Learning



- A person will be able to choose any of the main topics of physics.
- Each topic will contain corresponding sub-topics for better granularity.
- The chapters will include both, the explanation and the problem statement.
- Depending on chosen difficulty the person will have to take into account different factors in the system.
- Since everything can be generated automatically, it will be possible to play the game multiple times.

# Gamified Learning - Problem Description



- Game will include real life situations in order to demonstrate the physics people face every day.
- For being felt more natural, problems will be illustrated with corresponding animations and pictures.
- In some cases, the solution will be interactive, for example when the person has to push brakes to avoid car accident, in what angle and velocity ball should be thrown to go into a basket, or which component of the circuit might cause a problem



# Sandboxed Physics

- Will allow users to express their ideas and will let them experiment with various devices and machines.
- Will provide tools and frameworks to create, save, and modify custom electromechanical devices.
  - Basic circuit design.
  - Basic mechanics.
- Users will have the option of creating complex problems and puzzles for others to solve.



## Social platform

- Users will be allowed and encouraged to share their work with peers and collaborate with them in real time.
- There will be a system in place to download and import public projects.
- Users (mainly teachers, professors) will be allowed to create and distribute custom problems that can be built in the sandbox.



# How?

- 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.



Thank you for your attention!

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