Multimedia Interactive Simulations of Physical Experiments

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Overview

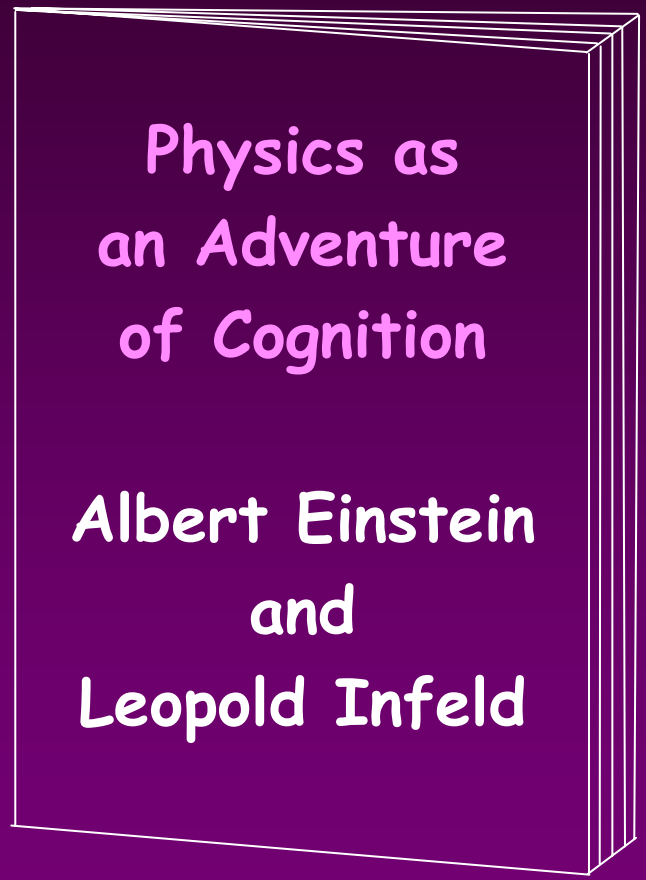
- Goal + Motivation
- Related Approaches
- Interaction
- Testing + Conclusions
- Demonstration
- Future Work

Goal

3 kg

To create an educational, interactive and multimedia application, which in the same way as our resource book,

helped to find and understand relations in physical phenomena.



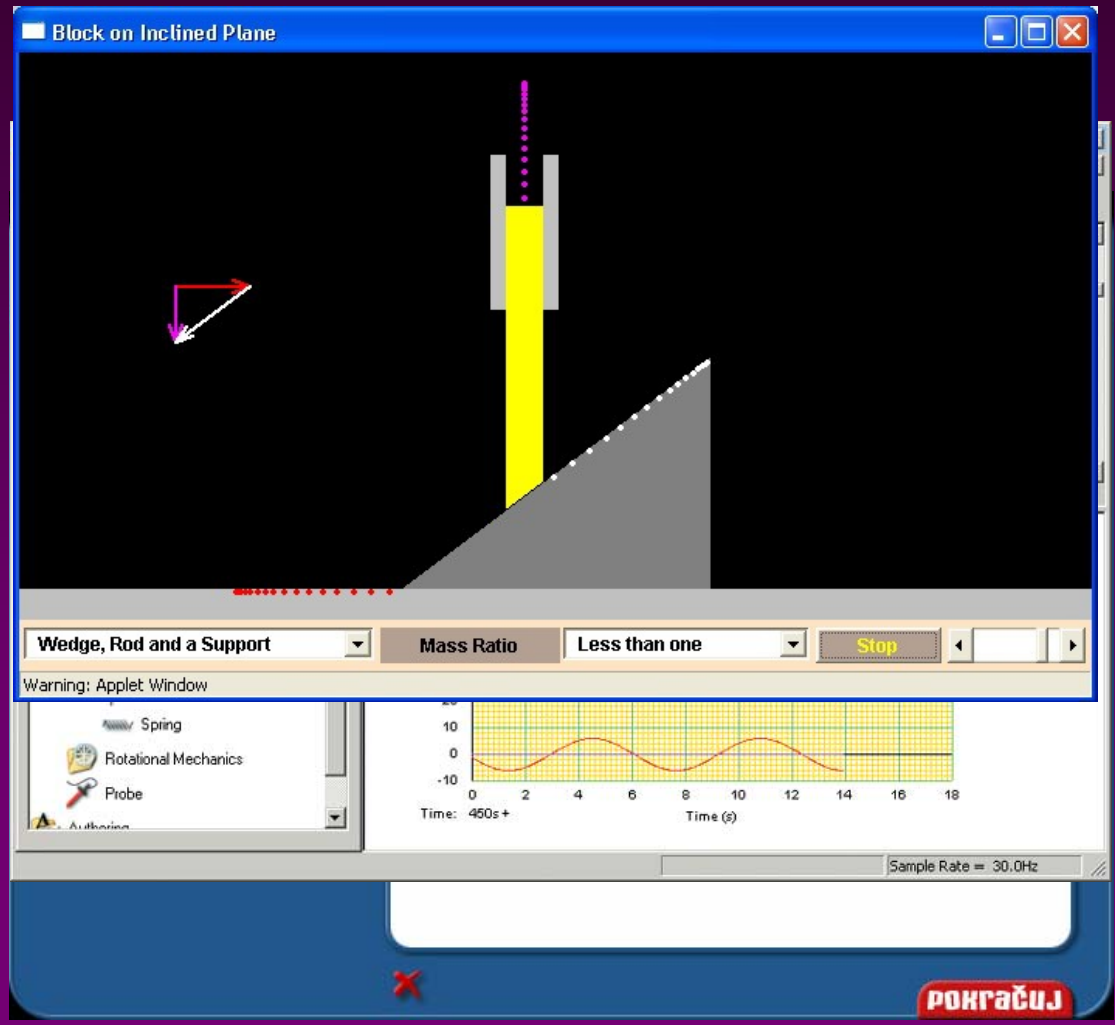
Motivation

Children want to play

- The real games (physical experiment)
  - + touch
- Experiment in our application
  - + possibility to change many other parameters

Related Approaches

- Applets on web pages
- Crocodile Clips
- Didakta -Fyzika



Interaction

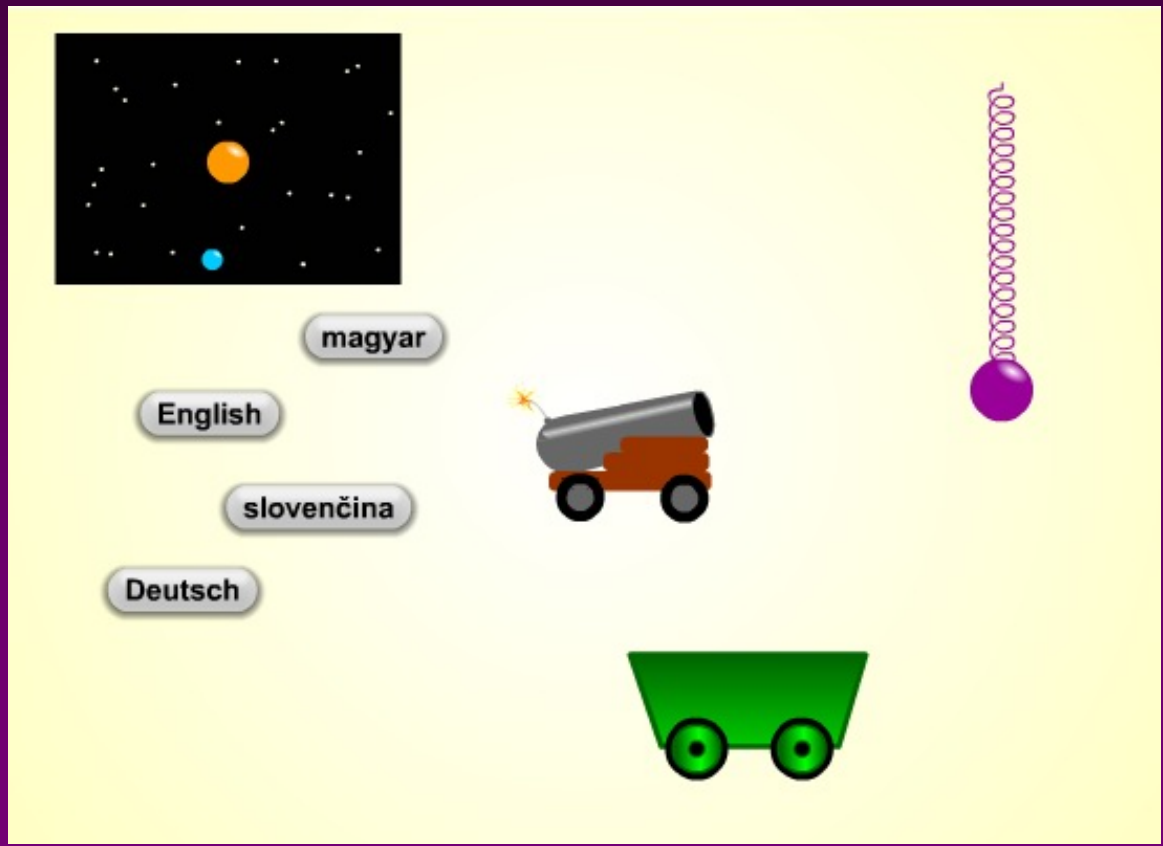
- Ones own experience is the best teacher
- People like to control

Scenario

level 1

7 kg

The Introduction



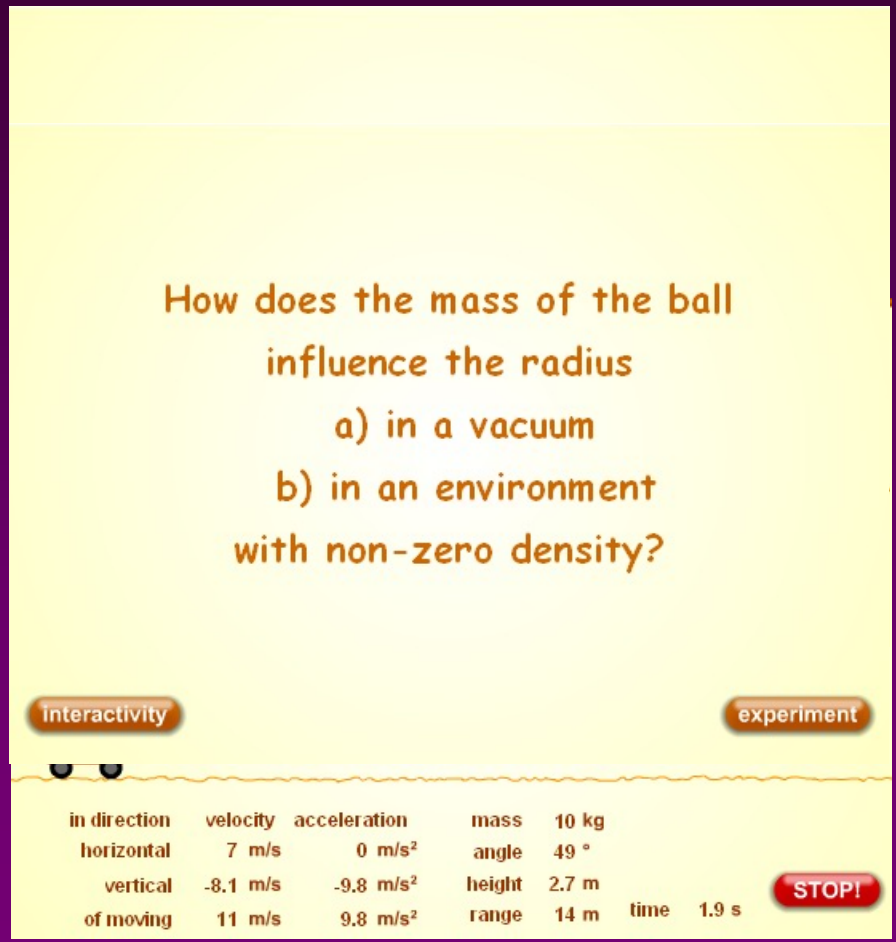
Scenario

level 2

8 kg

Each experiment contains

- Instructions
- Questions
- Interactive simulation

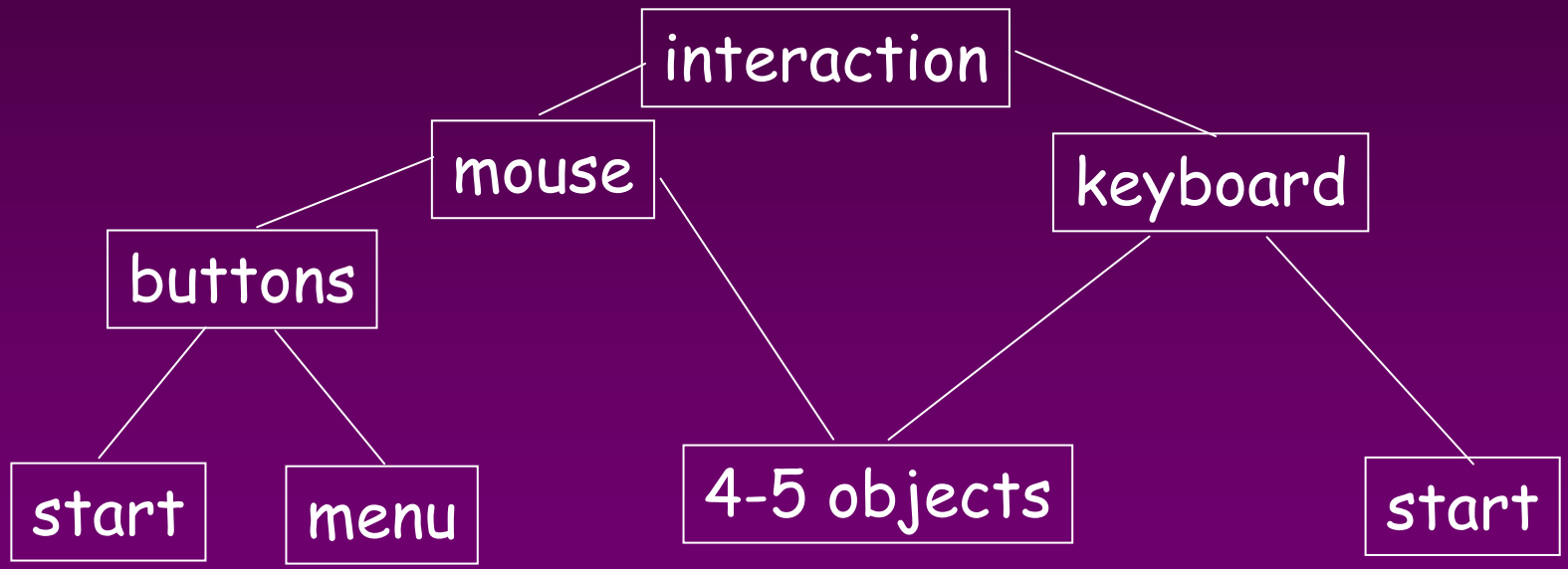


Scenario

level 3

9 kg

Interactive simulation



Scenario

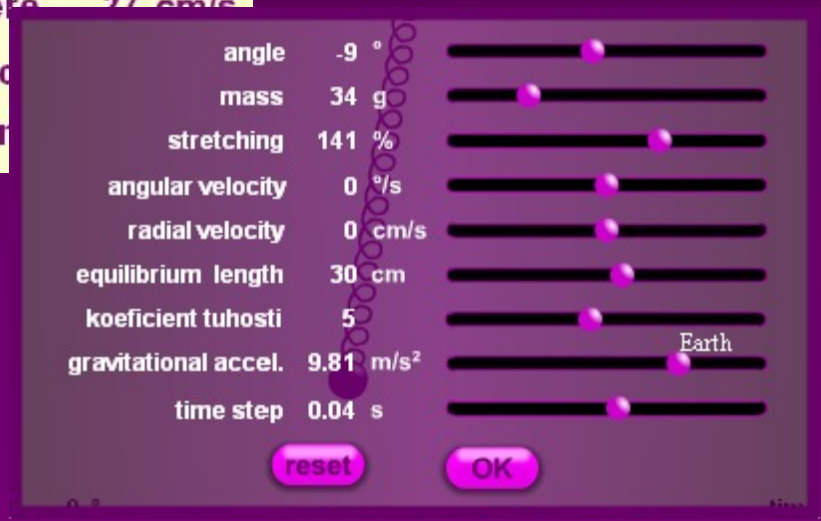
level 4

10 kg

MENU:

hide numbers | change numbers | interactivity | questions | content

angle	9 °	time	3.5 s
length	60 cm	velocity of sphere	27 cm/s
mass	34 g	velocity of rotatic	
stretching	200 %	velocity of stretchir	



Sounds

- To hear or to read?

- Recording wav-files
- Compression to mp3-files (Lame)
- The biggest part of application
- Multilingual

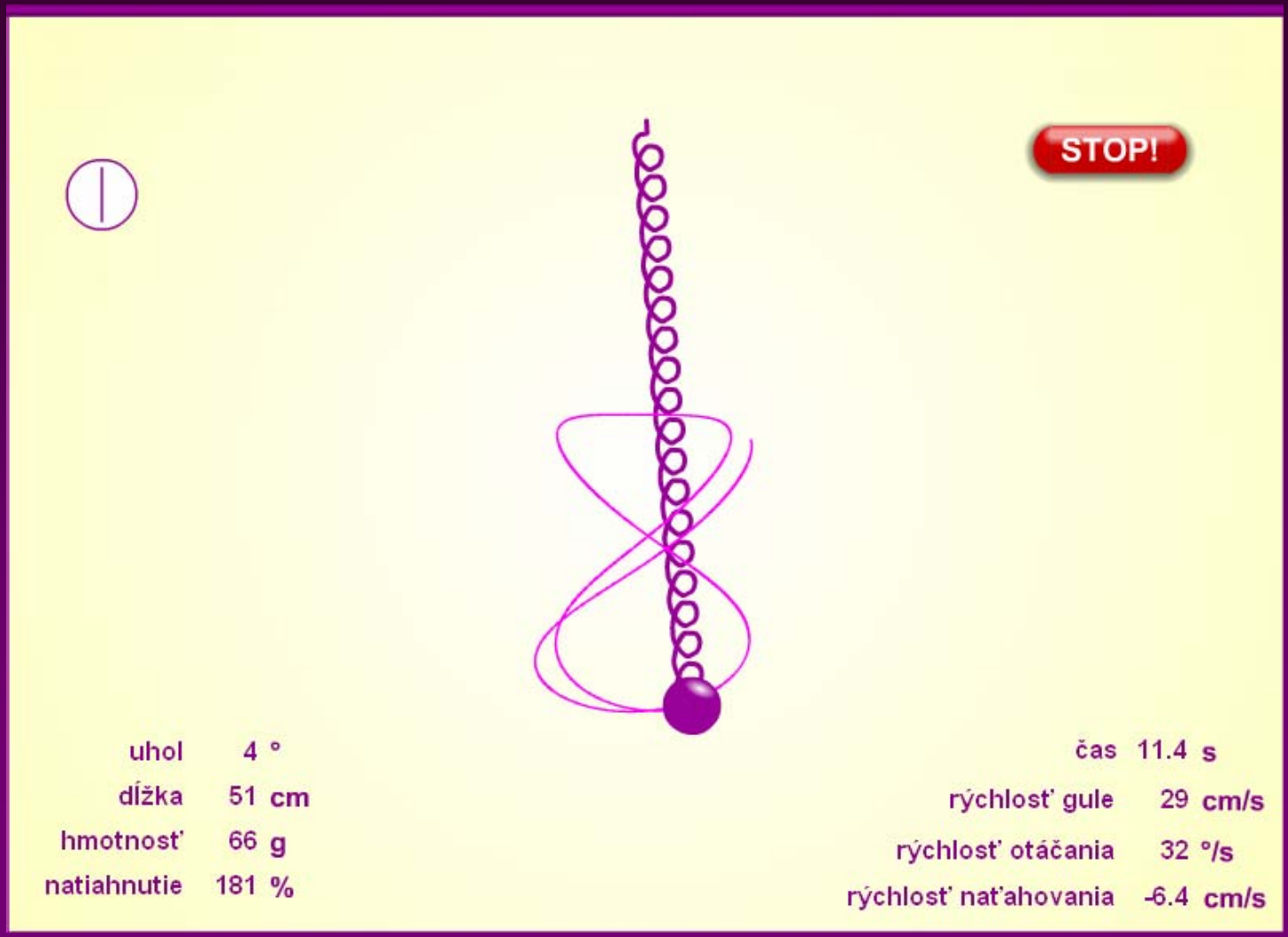
Testing

- Pre-testing (20 people)
- Testing with children
  - 8-9 years old (3x15 children)
  - 14-16 years old (2x15 children)

Conclusions

- Application is appropriate for children who have already started learning physics
- Supplementary learning tool in the educational process
- Support the children's understanding of physics

Demonstration



Future Work

- Record sounds also for questions
- Add some music to silent places
- Create more experiments
- Create version for Internet = sounds replaced by texts
- Create experiments as interactive realistic 3D models

Thank you for your attention

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