Design and technological aspects of e-Learning multimedia content

Sridhar Iyer

(work with: Sameer Sahasrabudhe and Farida Umrani)

Department of Computer Science & Engg

Indian Institute of Technology Bombay

Focus of this talk

Is on:

- Content creation methodologies for elearning.
- Technologies and tools – Flash, Java, Blender etc.

Not on:

- Delivery mechanisms – Internet, Offline etc.
- Multimedia querying and other aspects.

What is different in e-learning?

- Luxury of face-to-face communication may not be available.
- Multimedia content has to be meaningful and useful even in stand-alone mode.
- Interactivity plays an important role.
  - Why is interactivity important?
  - How to include interactivity in various modes of e-learning?

Forms of e-learning content

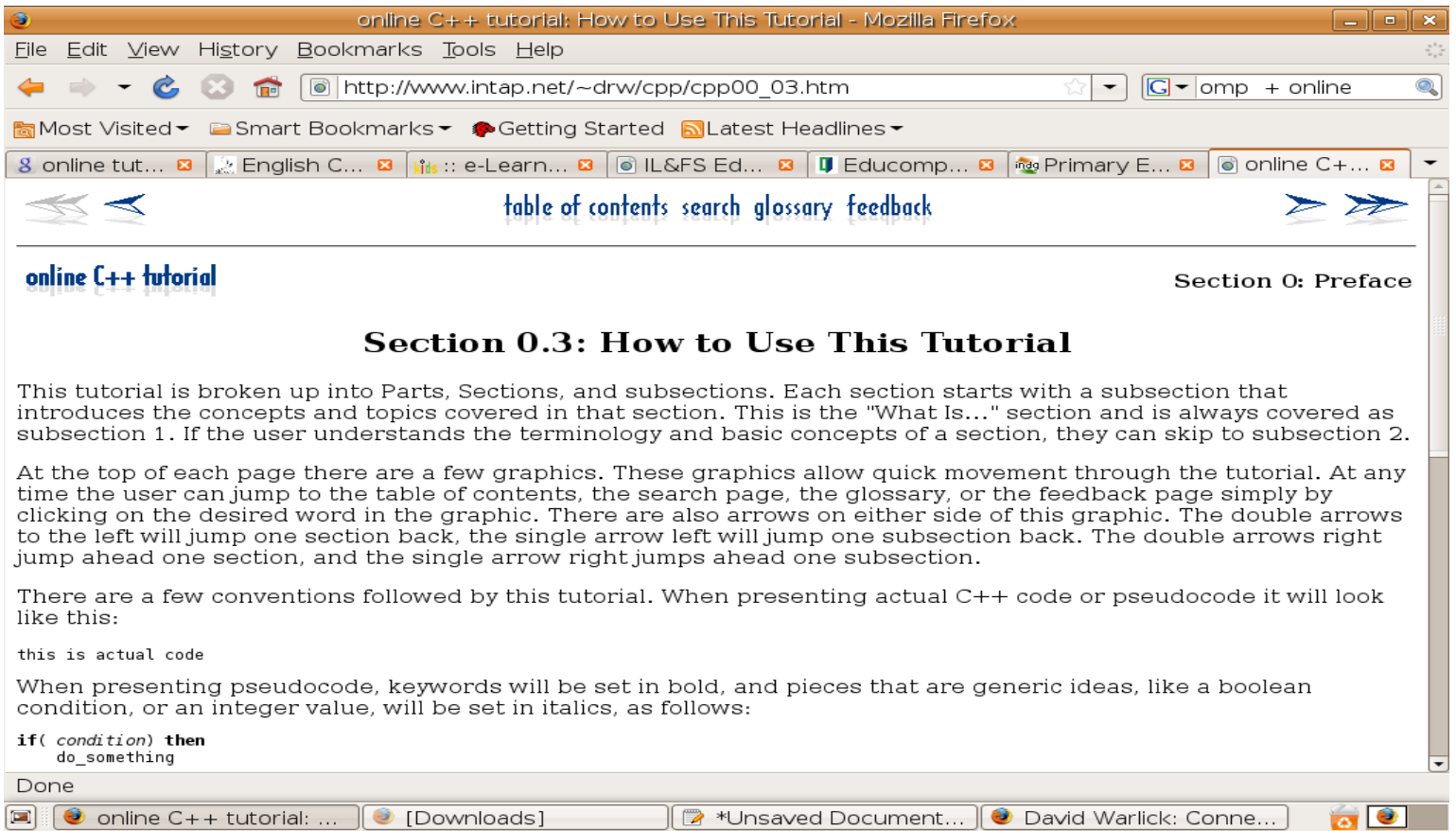
- PPT
- PDF / HTML
- Animations
- Videos
- Simulations
- Mobiles
- Any other?

Some questions

- How to get students to use e-learning?
  - They are the final consumers of the content!
  - Students naturally have a positive attitude towards new media and technology.
  - We need to adapt the content to their requirements – flexibility (anytime-anywhere-anydevice), interactivity, modularity, short attention span, ...
- Quality of content is the deciding factor.

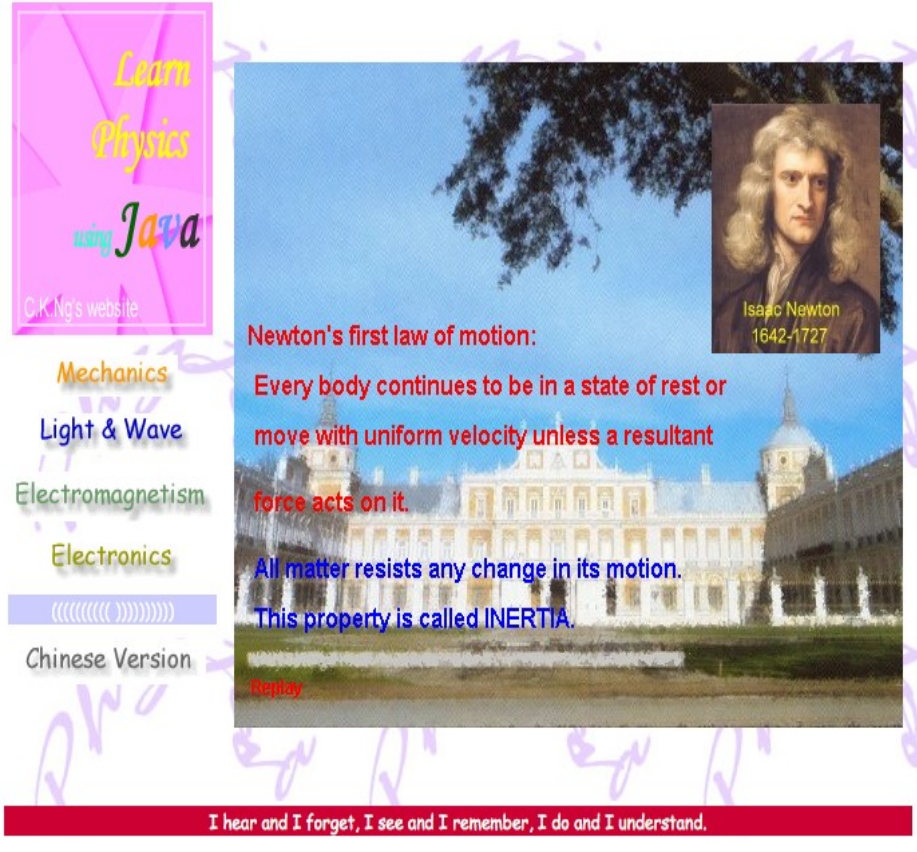
When is e-learning not meaningful? -1

- It consists of text pages with next buttons.
  - Might as well print it and read the book.



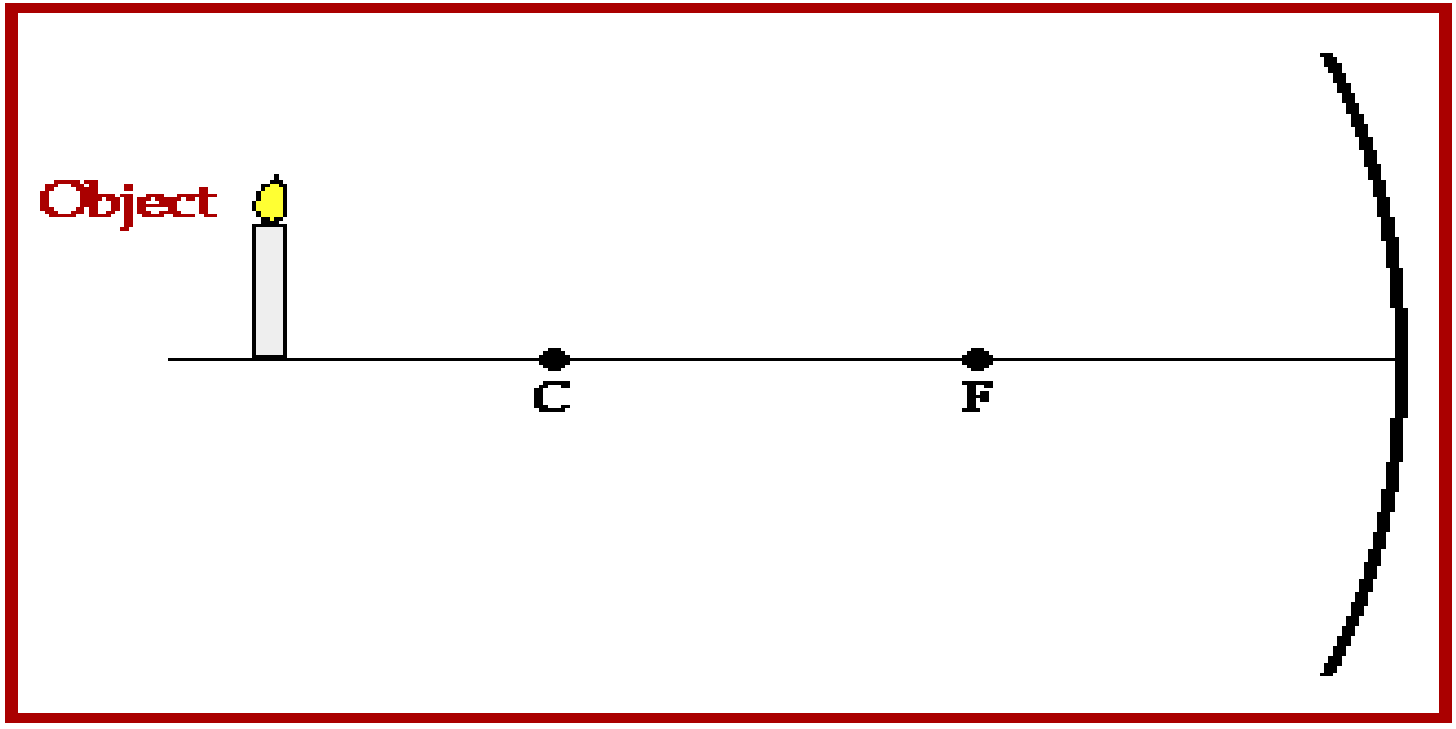
When is e-learning not meaningful? -2

- It has more frills than substance.
  - Distracts the user.



When is e-learning not meaningful? -3

- Interactivity is low.
  - Difficult to keep reader interest without this.



What usually goes wrong?

Content creators focus on effort minimization.

- Teachers convert their classroom teaching into audio lectures or video lectures.
- Add some slides and in some cases animations.

Why?

- Overworked, underpaid teachers.
- Forget to keep in mind that the learner is remote.

Effect of under-designing

poor design principles => ineffective appeal

Vertical Projectile Motion 1 - Throw a hammer in the air!

[Wait until the applet loads completely {you will see a message down in the status bar saying it is "running"} before pressing PLAY.]

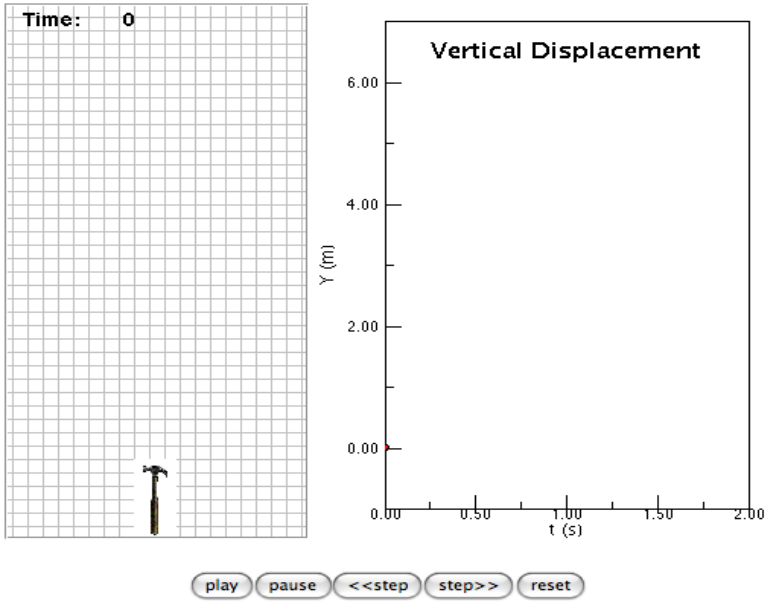
Description : We throw a hammer in the air .. where it lands .. well, let's put it this way - wear a hardhat! [Use the head of the hammer as the point for measurements. Also note that the "origin" is shifted upward in each figure so the head of the hammer starts at the origin.]

Questions

A) What is the highest point in the flight of the Hammer?
B) What is the initial speed of the Hammer?
C) How long does the Hammer take to reach the very top? D) If you doubled the initial speed, how high would the hammer go?
Try double the initial velocity! [Watch the vertical scale!]
Or go back to the original conditions.
E) What happens to the time it takes to reach the top if the intitial velocity is doubled?

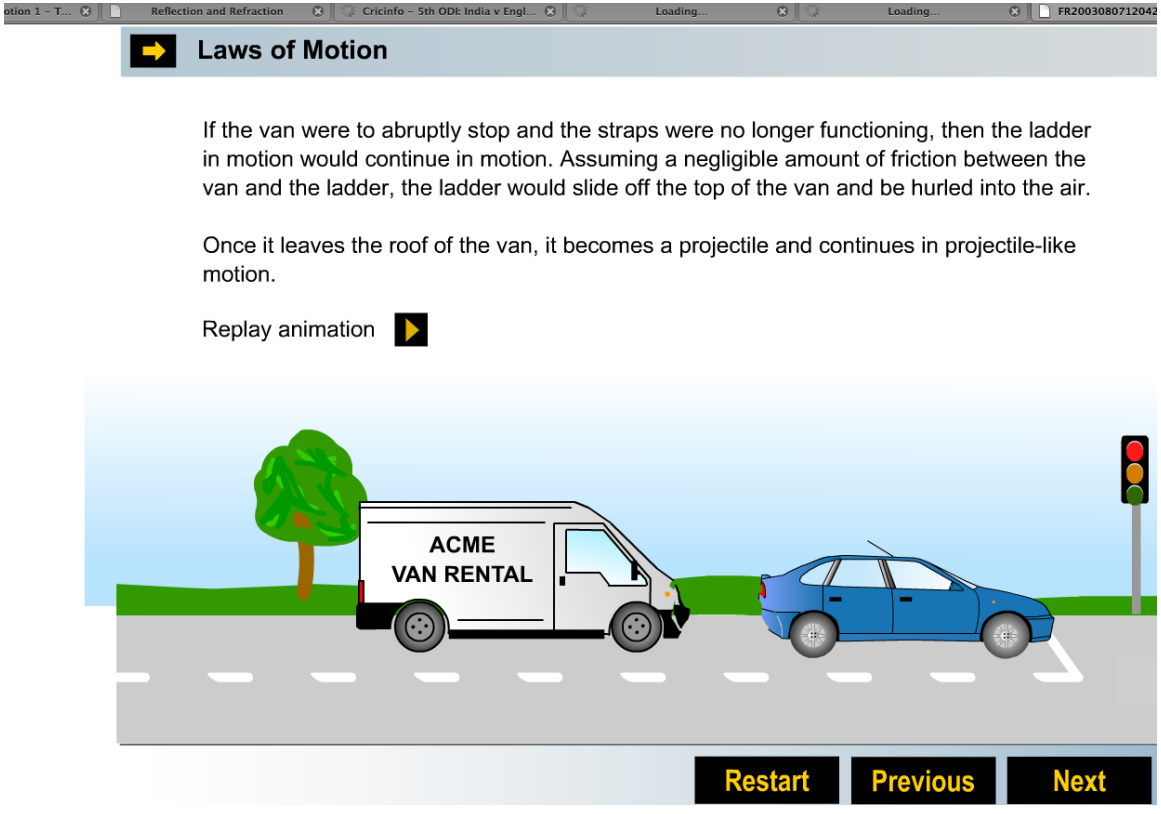
Answers

A) The vertical maximum should be about 5.1 meters.
B) The initial velocity of the Hammer is 10 m/sec
C) The Hammer should go take 2.04 seconds to come

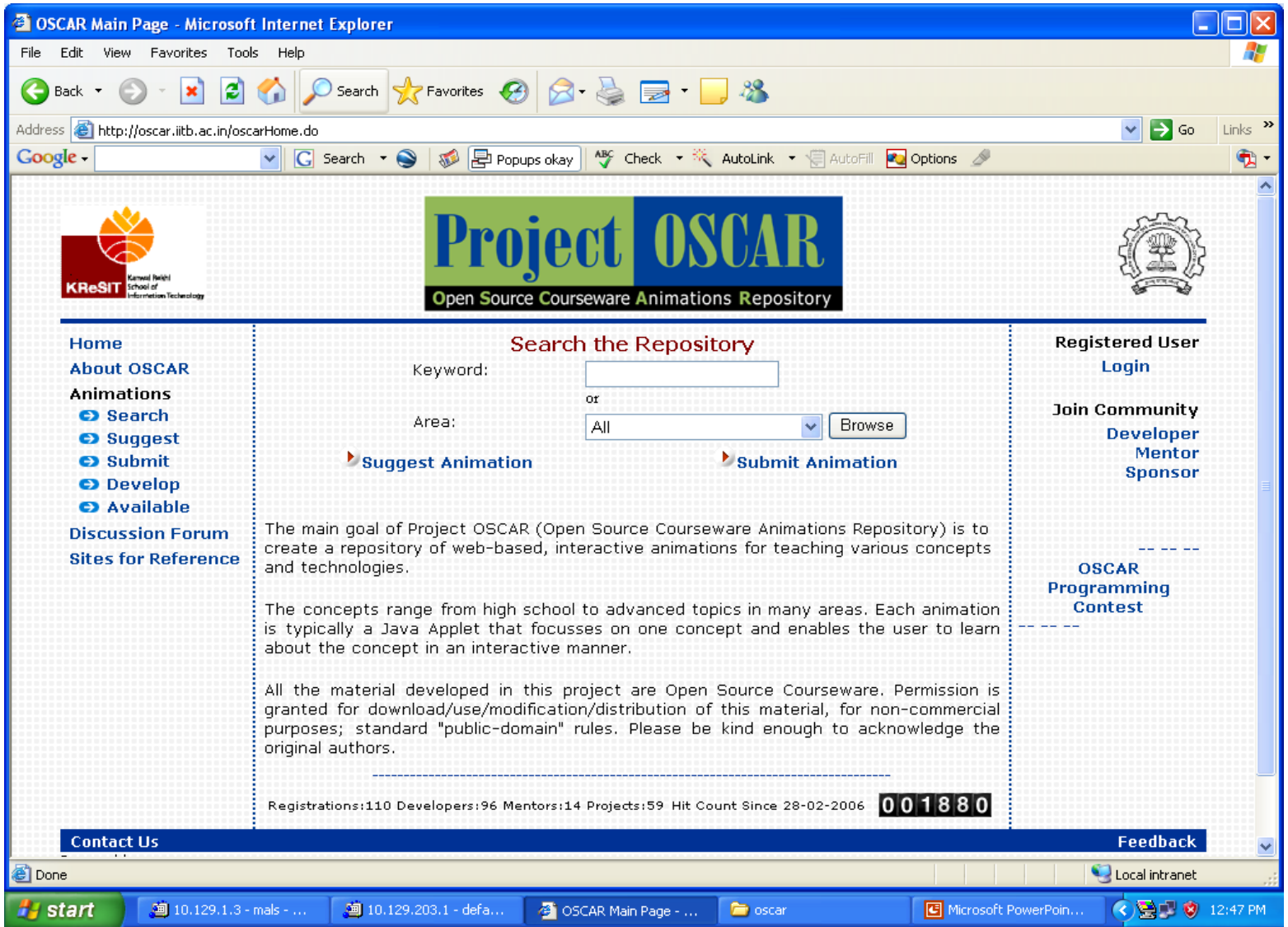


Effect of appropriate design

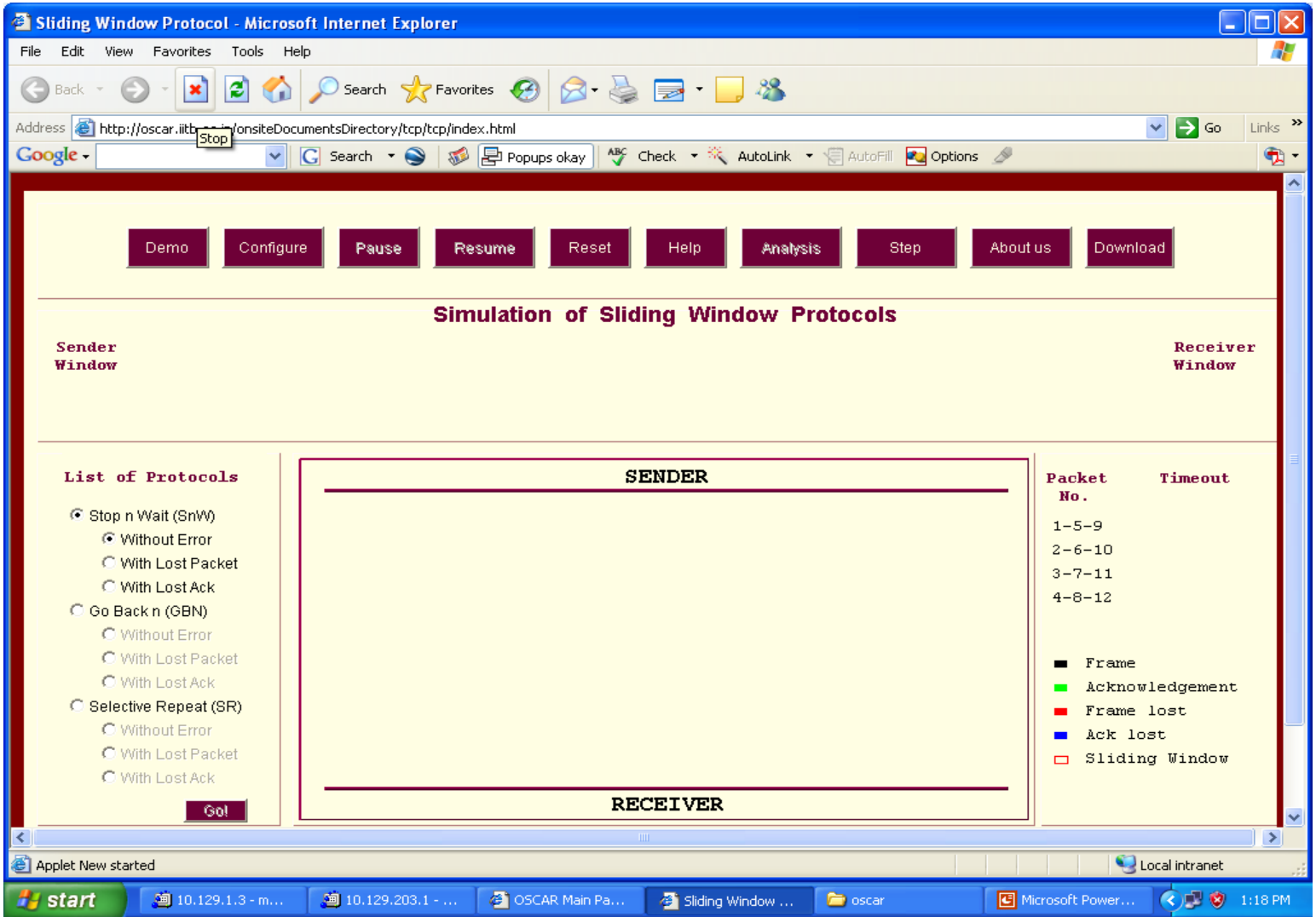
appropriate design => clarity



Project OSCAR (oscar.iitb.ac.in)



Project OSCAR: example



OSCAR on Mobiles

Technological issues in migration (Desktop to Mobiles):

- Form Factor
- Interactivity
- File Size

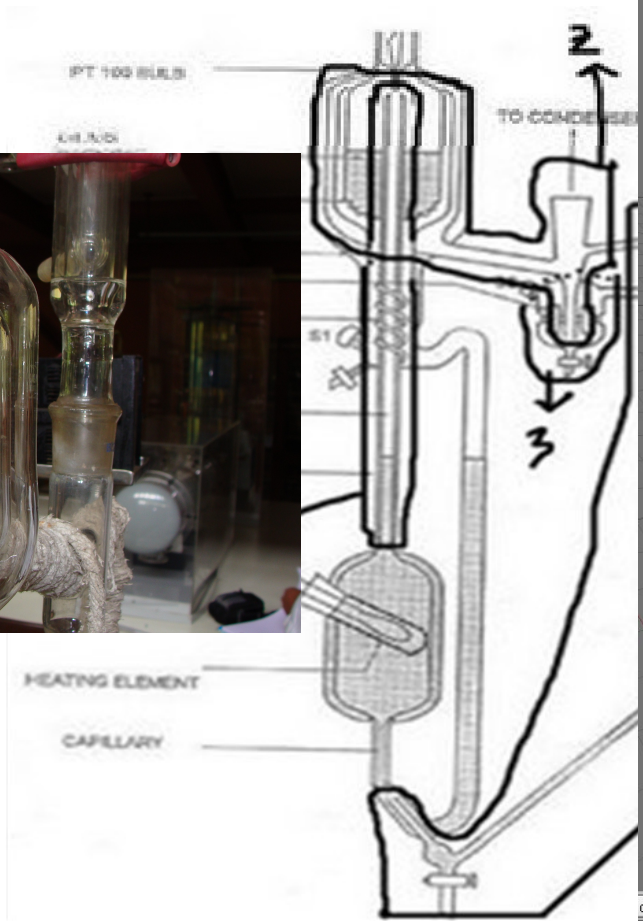
Fun with Science

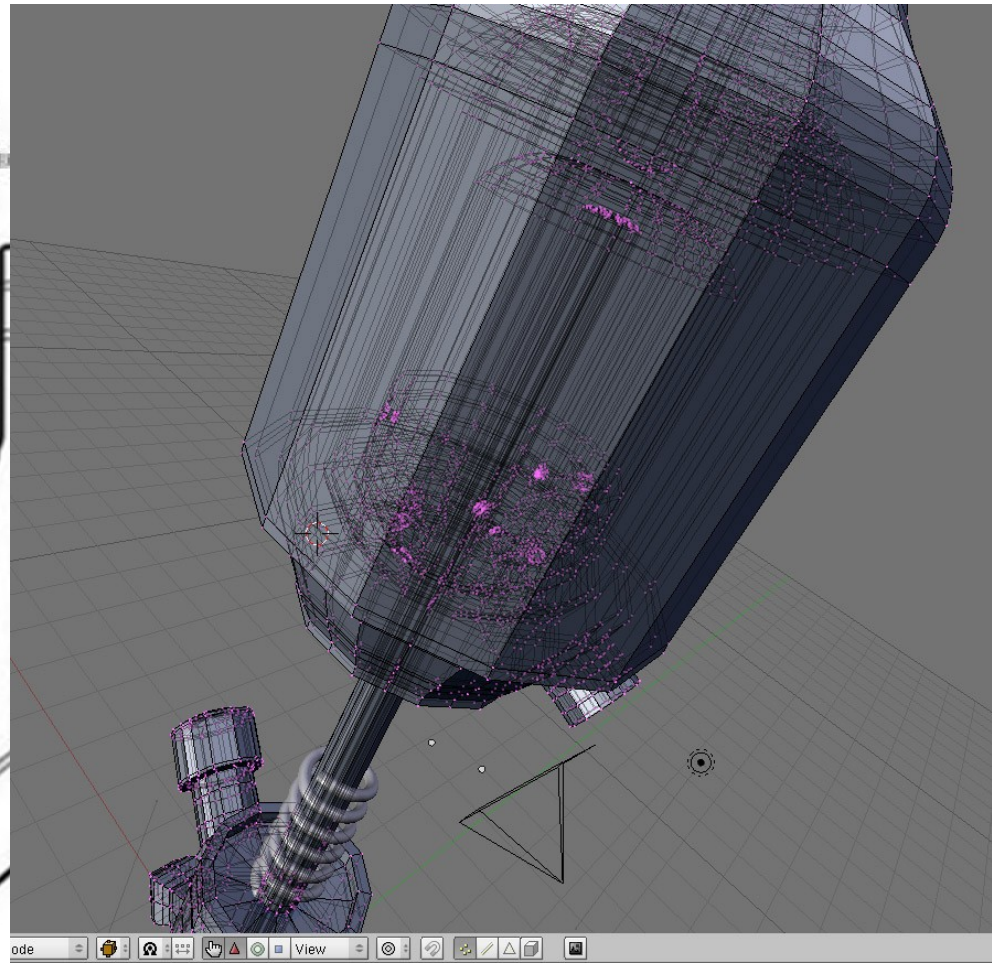
Science Popularization:

(ArvindGuptaToys.com)

- Captures interest
- Entertains and educates
- Opportunities for rural entrepreneurship

Advanced Lab Experiments (Blender)





Take Away

- Decisions on appropriateness and quality of content are key!
  - Otherwise lot of effort can go into creating ineffective content.
- Fine-grain modules are likely to be more useful than monolithic.
  - Interactivity is essential in most cases.
- Look for Open Source or Creative Commons content repositories before creating your own.
  - Release your own work into above repositories.
- Quality contents will require collaboration among experts in:
  - Domain (Teachers)
  - Technology (Programmers)
  - Design (Artists)

Some useful resources

- http://www.oercommons.org/
- http://learn.creativecommons.org/
- http://ocw.mit.edu/
- http://cnx.org/
-
- http://nptel.iitm.ac.in/
- http://www.cdeep.iitb.ac.in/
- http://oscar.iitb.ac.in/

Thank you

Contact information

http://www.cse.iitb.ac.in/~sri

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