



Workpackage 4

Product using location and context sensitive technologies

Plovdiv University



Scenario 6 – context sensitive, location based (LMS)

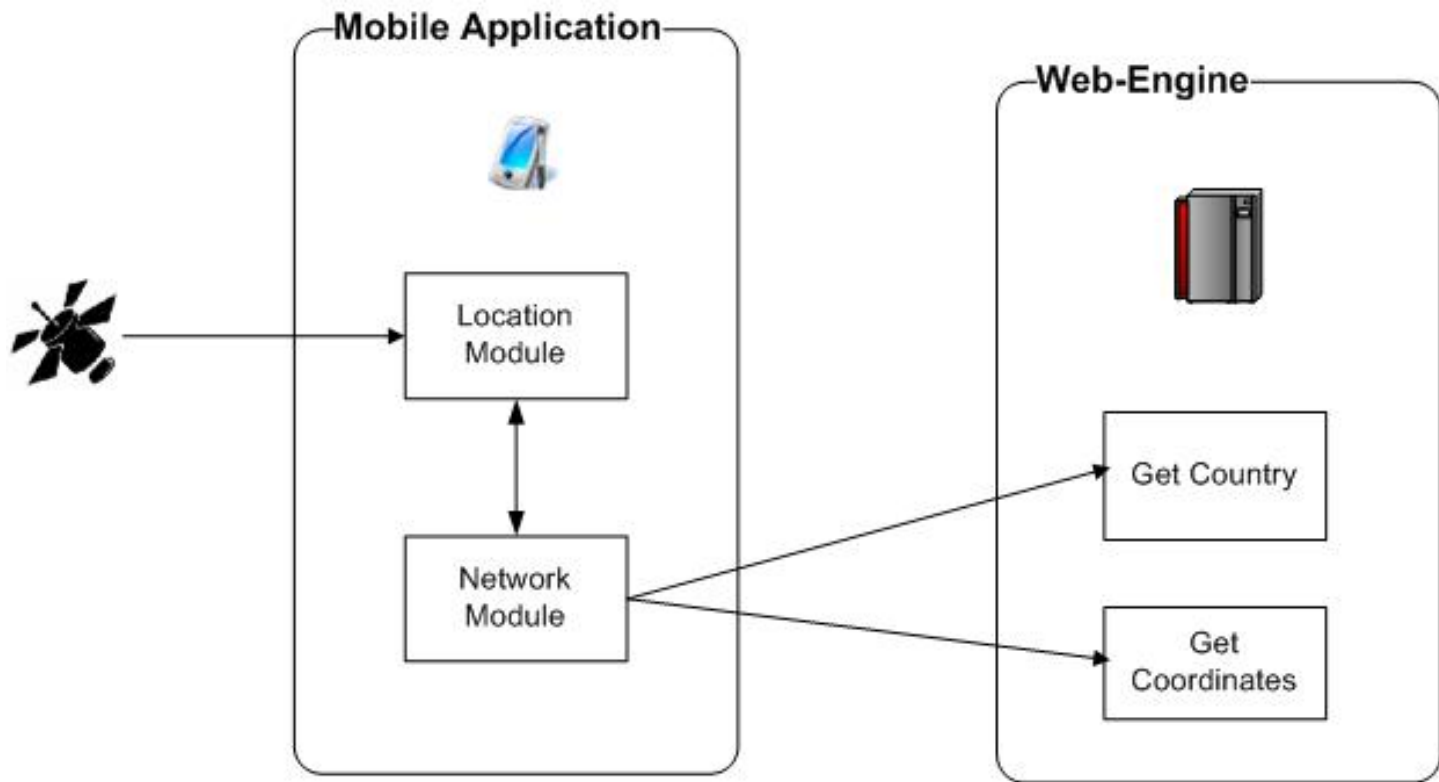
- Mike is a learner (student/trainee). He has a registration and login to a mobile Learning Management System, which he accesses via the web browser on his mobile device. The LMS recognizes Mike's location, and which country he is accessing the system from. This recognition can be carried out by using mobile positioning, or GPS. The system then offers the learner content that has been designed to match the specific language of that country.



Scenario 6 – context sensitive, location based (LMS)

- The system also interrogates the mobile device to identify its characteristics, the quality of mobile services at Mikes' location and will then present the learning material according to the results from this interrogation. For example, when a high bandwidth connection is available, the learner may be offered streaming video / text / voice, whereas for a lower quality connection he may be only offered text and voice.

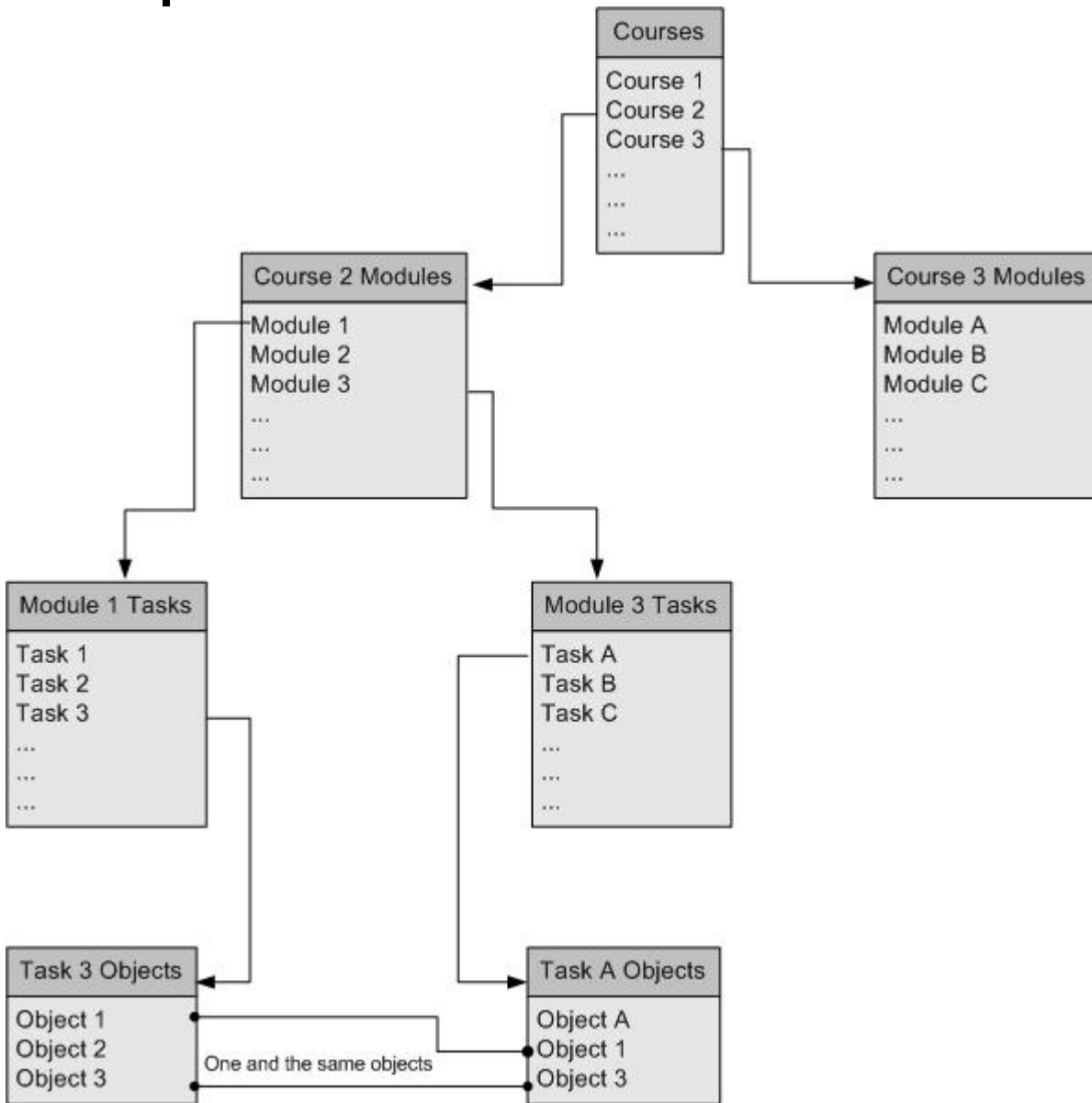
mDIPSEIL solution





The title of the course

- “Analogue Electronics” for third year students, “Physic engineering” specialty
- Winter semester October 2008 till December 2008



Structure of the content



Course content

Module 1 Passive circuits

- Task1 Resonance of a series RLC circuit

Task description: For the resonance circuit shown on the figure make the following:

1. Draw the schematic using Orcad 9.2
2. Make simulation using the built-in SPICE and find the Frequency Response of the series resonance circuit.
3. Find the quality factor Q



Course content

Module 2 Semiconductors

○ Task2 I-V of PN diode

Task description: For the circuit shown on Figure make the following:

1. Draw the schematic using Orcad 9.2
2. Make simulation using the built-in SPICE and find ON voltage, where the diode starts to conduct. The analysis type must be DC SWEEP.

Sweep Variable:

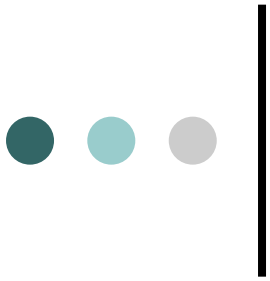
Voltage Source: V1

Sweep type: Linear

Start Value: - 0.2 V

End Value: 1V

Increment: 0.01V



You can look at the course content on
<http://dipseil.ath.cx/mobile2/gsmweb/index.php>

E-mail: milevi@mtel.net password: 1

Check Resonance of a series RLC circuit

Click on Learn selected



The procedure...

- We asked our students to perform the task from the course using mobile devices:
 - We bought mobile devices, SIM cards. Students used them 2 hours per week in DIPSEIL Lab
 - Ask them to go through the material using mobile devices
 - They performed the tasks on PC



The procedure

- We have two versions of the materials – for advanced devices with audio and video support, 3G and WiFi
 - for old phones with text, graphics, 2G
- mDIPSEIL identifies the device and automatically presents the correspond version
 - we had 3 old phones, others were advanced



The procedure...

- We gave them the Mobile questionnaire after all tasks performance and collect their opinion
- We performed statistical analysis to receive results from the experiment
- We used Survey Monkey for data-analysis



Results

- 60% of our responders were male
- All our responders own at least one mobile device, 18% have two
- Half of the group uses the mobile devices for telephone calls, the other half –for calls, Internet, chat and SMS
- Half of the responders finds learning by GSM interesting and funny, small part thinks that it's necessary

[SurveySummary](#)



Results

- More than 50% of responders will recommend learning by GSM to others and agree that learning was easy
- Almost 70% will take another m-learning course and for them it was funny
- 61% think that mobile learning doesn't increase quality of learning although they think that the learning outcomes were met

[SurveySummary](#)



Results

- Almost 80% are satisfied from communication with tutor, other students
- Interface for 70% is good
- All agree that more illustrations, graphics are necessary

[SurveySummary](#)



Results

- Students working with the old mobile devices were not satisfied using them, they found the screens too small, the download too long, although the graphics and text were enough clear

[SurveySummary](#)



Conclusions

- It's necessary to use advanced mobile devices (big screen, 3G, with operational system, browser etc.) for learning purposes
- The device characteristics need to be matched to requirements of content
- Students prefer to work with their own mobile devices



Conclusions

- Less text, large font size, more illustrations and graphics. Animation and video are the best solution
- While small screen size and the lack of a keyboard were noted as limitations, they did not generate the level of dissatisfaction that the poor wireless network functionality did



Conclusions

- Mobile learning is interesting, funny: “To use mobile phone for learning – why not!!!!”
- Using DIPSEIL via mobile devices is not an alternative to using DIPSEIL via PC – it is an option!



Lessons learned

- It is difficult to guarantee that the using file-format for content presentation will be opened on all kinds of mobile devices. The good solution is to present the one and the same content in at least 2 common file formats



Lessons learned

- It is not a good solution to experiment new technology, new system, on new devices, with the content in different from native for the students language. We will perform the next test of mDIPSEII with the course in Bulgarian



Lessons learned

- More strong experimental design is needed
 - more learners, preliminary questionnaires
 - comparative analysis: for example Control group working with DIPSEIL; Experimental group working with mDIPSEIL
 - stronger control on using only mobile devices: the scheme “last minute content-fix working time-knowledge test” is appropriate