

Developing Maemo-based competencies at IT-park of PetrSU

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Cooperation with Nokia Research Center

Progress

- Cooperation since 2006 (participation in events organized by Nokia)
- 05 March 2008: “WidSets meets Russia” seminar at PetrSU. Attended by more than 50 students and staff members of PetrSU.
- 25-30 August 2008: Summer school “Internet-tablet 2008” at PetrSU. Attended by more than 50 students and staff members of PetrSU.
- 05 Sept. 2008: 1st Russian Conference on Smart Spaces (ruSMART), St.-Petersburg. 6 participants from PetrSU (sponsored by Nokia).

- **Current activity:**

Mobile and Wireless Systems Center of PetrSU (Software development for Maemo platform, Open Source courses, widgets, wireless sensors networks).

Discussions with Symbian Academy, HIIT, et. al.

Contents

1. Summer school “Internet-tablet 2008”
2. Contest of applications for N810
3. Annual research projects
4. “Software engineering” course
5. Specialization “Communication technologies” at the department of Computer science
6. Site of Russian Maemo Community (RMC)
maemo.cs.karelia.ru
7. Discussions with companies

1. Summer school “Internet-tablet 2008”

Duration: 25-30 August 2008 (6 days * 8 hours)

Location: PetrSU

Attended by: more than 50 students and staff of PetrSU

Goals:

- involve students into embedded systems development
- Give a demonstration of maemo SDK

Groups of students:

- Base group – introduction to development for Nokia Internet Tablets
- Advanced group – preparatory courses for student projects



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Mobile Technologies in Education

Sergey Balandin
Nokia Research Center, Office of CTO

Nokia Research Center, Office of CTO

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Технические характеристики

- Процессор TI OMAP 2420 с частотой 400 МГц
- Ядро ARM1136 (ARMv6)
- Сопроцессор TMS320C55x DSP
- 128 MiB RAM
- 256 MiB Flash (JFFS2)
- 2 слота SD, microSD, miniSD, MMC, RS-MMC
- Батарея 1500 mAh



www.TopCoder.com





Summer School — day 1

1. Welcoming speeches (incl. Rector of PetrSU, and Sergey Balandin)
2. Overview of Internet-tablet, development tools, fields of possible use
3. Brainstorm about possible project ideas for N810
4. Studying the development tools

Summer School — day 2

Topics

1. The X Window System. GTK+ and Supporting Libraries
2. GTK+ Widget Hierarchy
3. Hildon Widgets
4. Basic widgets and events processing

Results

1. Students are able to develop applications that use basic widget functionality
2. Students choose subjects for miniprojects

Summer School — day 3

Topics

1. Container Widgets
2. Menus and Toolbars
3. Creating and using dialogs
4. Drawing widgets

Results

1. Students are able to use boxes and tables
2. Students are able to add menus and use dialogs
in applications

Summer School — day 4

Topics

1. Creating custom widgets
2. Input Mechanism
 - Hardware keys and GTK+ key events
 - Maemo Text Input Methods

Results

1. Students are able to derive custom widgets from default ones
2. Students are able to create user-driven applications

Summer School — day 5

Topics

1. Integrating applications to framework
 - Task navigator menu
 - LibOSSO library
2. Writing control panel applets and plugins

Results

1. Students are able to get applications to task navigator menu

Summer School — day 6

Topics

Practices in computer labs, working on projects

Results

Students present their projects

2. Contest of applications for N810

23 project ideas generated by participants of the Summer school. The best 6:

- WorDic – program to help extending one's vocabulary of foreign words
- MegaTune – a complex of applications for guitar players
- GTK LAN tetris
- “Corners” game
- Receiving and processing data from 1C:Enterprise 8.1 Trade management.
- проект А. Соловьева

The winner to be decided in November.

2. Contest of applications for N810

WorDic – program to help extending one's vocabulary of foreign words.

Authors: Lomov A., Karavaev S. (5th year students)

- The application will regularly remind the user about studies, and monitor, which words he/she have learnt, and which words should be learnt later.
- Plenty of similar programs for PC, but a mobile device is more efficient for that purpose.
- During a lesson the user must type in translations of words. In case of correct answer the program increases the word's counter by 1. When the counter reaches some defined value, the word's status is changed to "Learnt" and the word is not shown anymore.

2. Contest of applications for N810

MegaTune – a complex of applications for guitar players

Authors: Epifanov S., Sannikov A. (3rd year students)

- The complex contains an elementary guitar tuner, a metronome, and a visual analyzer of guitar tablature.
- A user can tune the guitar by listening to the sounds of each string that are played by the tuner application.
- The metronome application produces visual and audio signals according to defined rate and volume.
- The visual analyzer application plays a tune, according to specified tablature, and visualizes every tab played.

2. Contest of applications for N810

GTK LAN tetris – Tetris game for N810

Authors: Mezhenin A., Andrianov P., Gagarin A. (3rd year students)

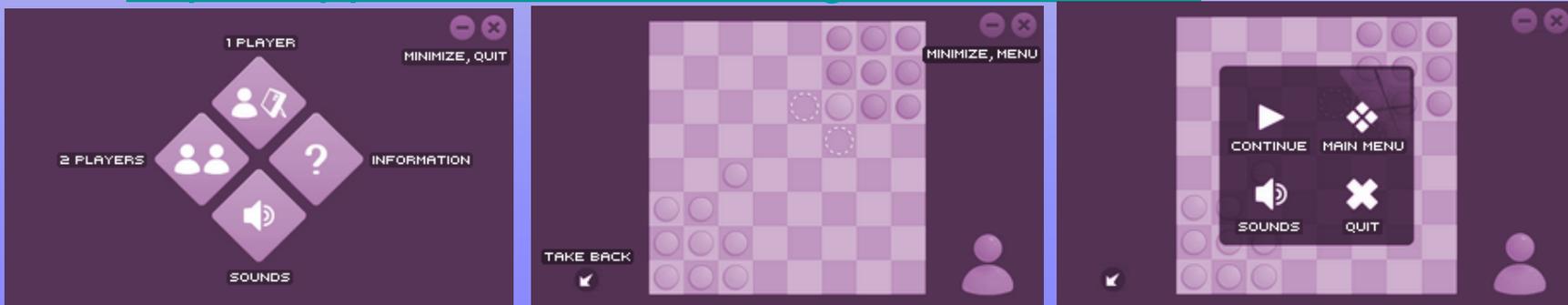
- Shapes fall from the top of the screen and can be moved sideways and rotated in order to get the best fit when they reach the bottom.
- Complete horizontal line disappears. When the screen is full, the game stops.
- In two-player mode, when one player completes more than one line, the other user gets extra lines at the bottom. The game can be played against a human player, or against a program.

2. Contest of applications for N810

“Corners” – “corners” game for N810

Authors: Bogachev A., Zaharov S. (3rd year students)

- “Corners” is a well-known board game played on 8*8 board with 2 sets of 9 pieces placed in opposite corners – 9 pieces of one color in one corner for one player, and 9 pieces of another color in another corner for another player.
- The goal for each player is to transfer all his/her pieces from starting corner to the opposite one.
- At each turn a player either moves a single piece to an adjacent open square, or jumps over one or more pieces in a sequence.
- <http://kappa.cs.karelia.ru/~bogachev/maemo/>



2. Contest of applications for N810

“1C:Trade management” interface on Nokia N810

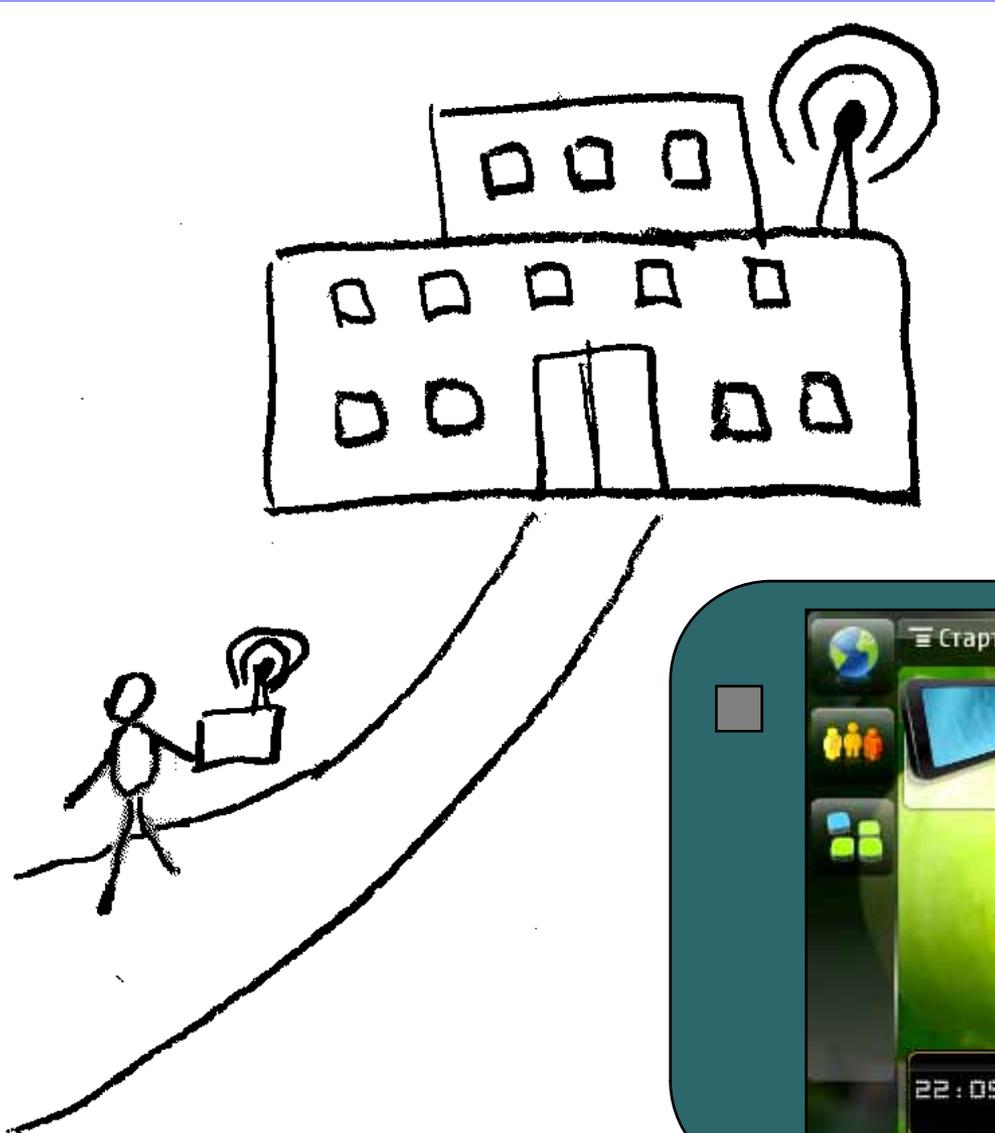
Author: Semenov I. 2nd year M.Sc. student.

- The products of 1C:Enterprise 8.1 family are very popular in Russia and include “1C:Payroll and HR management”, “1C:Accounting”, “1C:Trade management”, “1C:Manufacturing enterprise management”
- The application provides an interface from N810 to “1C:Trade management” databases for viewing, entering, modifying and administering data
- Data exchange is based on web-services provided by “1C:Enterprise” platform using the SOAP protocol.

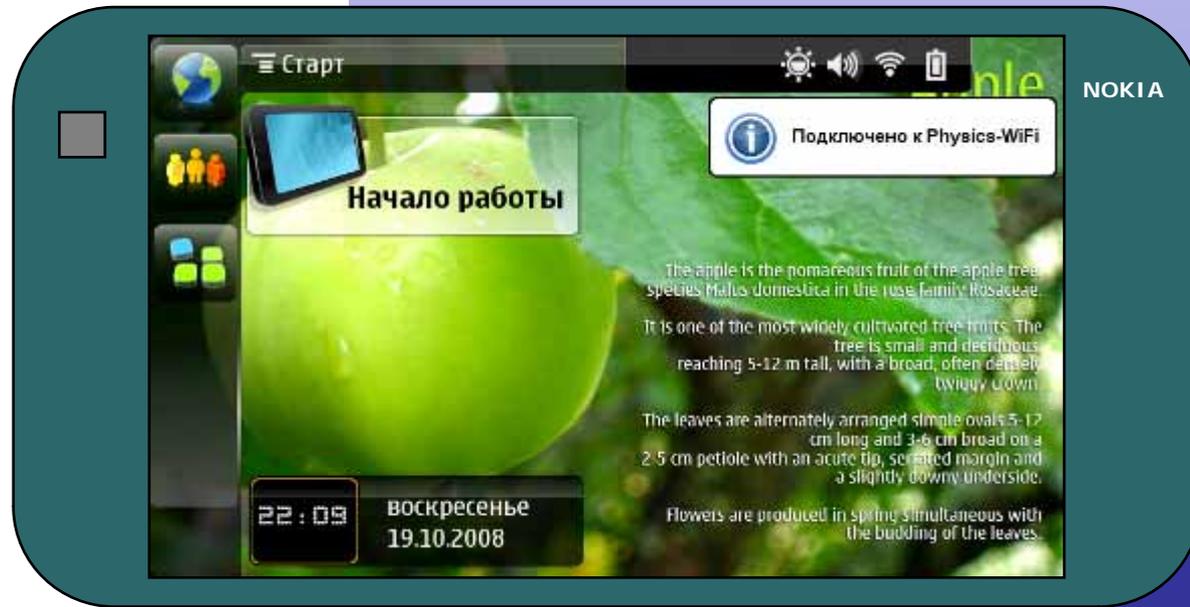
2. Contest of applications for N810

Notifications service for N810 at the physical-technical faculty of PetrSU

Author: Soloviev A. (researcher at the physical-technical faculty)

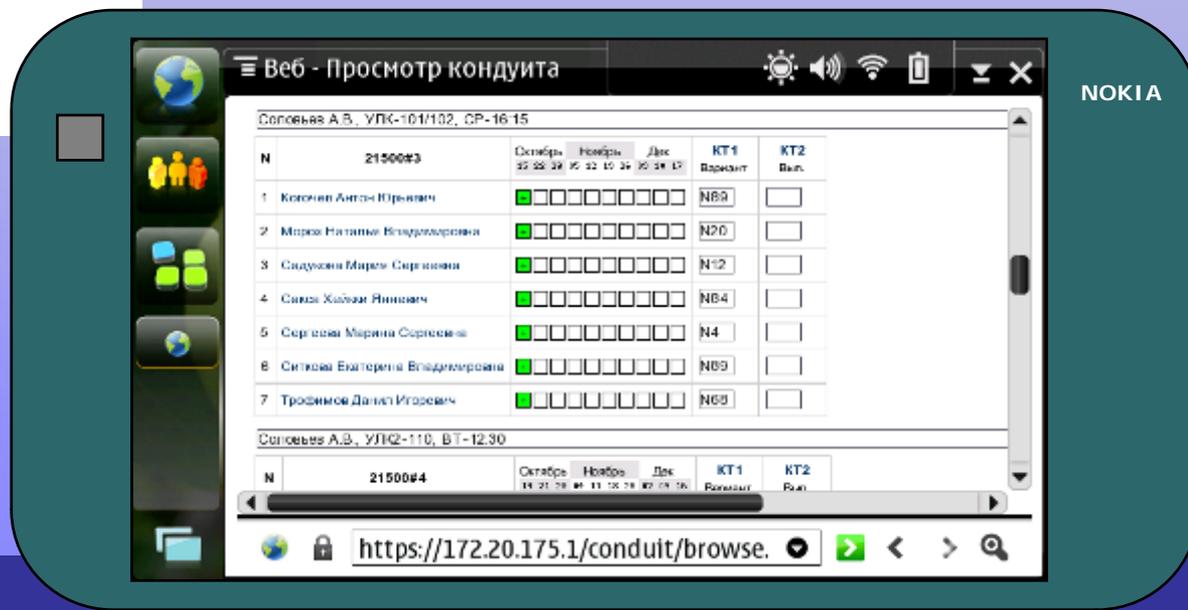
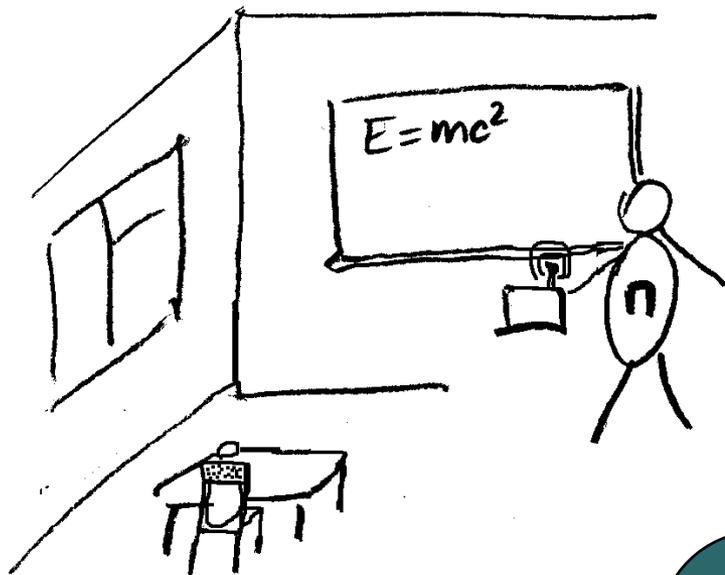


A student enters the building and registers in the local Wi-Fi network



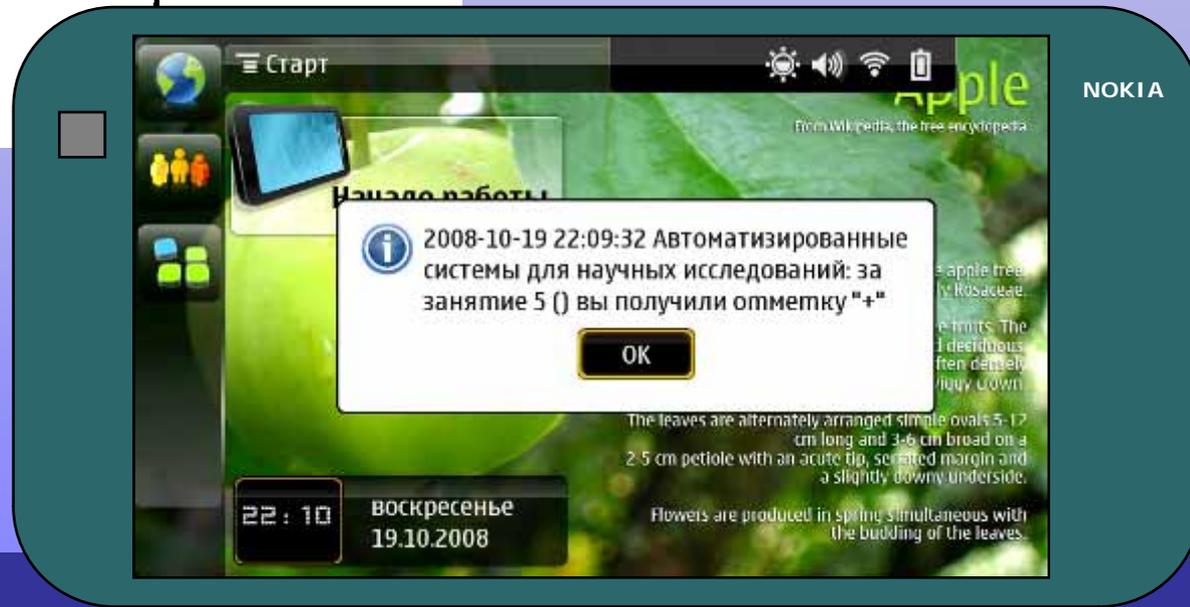
IT-park of Petrozavodsk State University

An instructor registers that the student has attended a lecture or seminar in the information system of the faculty (or the student gets a grade)





The student receives
a notification on
his/her N810 device



3. Annual research projects

All projects supervised by senior lecturer A. Borodin

1. “Porting of Wi-Fi kismet sniffer to maemo platform and implementation of additional services (graphic interface, packet statistics analysis)”
Students: Elkin M. (4th year student), Epifanov S. (3rd year)
2. Porting of software tool for full control over student computers from instructor’s computer to maemo platform
Student: Shulgin A. (2nd year)
3. Developing a desktop applet for memorizing words or other facts by using “flash cards“ method
Student: Samoryadova A. (2nd year)
4. Developing a desktop applet for faster access to selected applications
Student: Deinichenko I. (2nd year)

4. “Software engineering” course

- The “Software Engineering” course is given for 3rd year students by associate professor D. Korzun (HIIT...)
- 1st semester – lectures and a “mini” project for each group of students (up to 3 students)
- 2nd semester – seminars and a “big” project
- In 2008-2009 academic year 7 of these projects will be Maemo-oriented

5. Specialization “Communication technologies”

- At the Computer science department of the mathematical faculty of PetrSU
- Currently 5 3rd year students
- Target: deeper studies and extra courses in the field, e.g. optional course “Maemo platform for Nokia Internet-tablet” as a follow-up of the summer school

6. Site of Russian Maemo Community

- <http://maemo.cs.karelia.ru>
- Since summer 2008
- Originally – to organize and support the summer school “Internet-tablet 2008”
- Now being transformed into the site of Russian Maemo Community jointly with NRC



Курсы по разработке для платформы maemo

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 Учитель: [Юрий Анатольевич](#)
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 Учитель: [Ольга Богоявленская](#)
 Учитель: [Vladimir Kovalev](#)
 Учитель: [Вадим Пономарев](#)
 Учитель: [Александр Бородин](#)
 Учитель: [Dmitry Korzun](#)
 Учитель: [Вячеслав Димитров](#)

Календарь

Октябрь 2008

Пн	Вт	Ср	Чт	Пт	Сб	Вс
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

Новости сайта

Консультации по проектам
 от [Александр Бородин](#) - Четверг 16 Октябрь 2008, 23:35

Представители проектных групп по прежнему могут получить консультации по своим работам по вторникам в 17:00 в ауд. 217.

[Обсудить эту тему](#) (Пока 1 ответ)

Регистрация проектов в Nokia
 от [Александр Бородин](#) - Четверг 16 Октябрь 2008, 17:21

Убедительно просим все продолжающие работу над проектами коллективы выслать аннотацию проекта на английском языке (1 страница текста) А. В.

Последние действия

Элементы курса с Вторник 21 Октябрь 2008, 15:40
[Полный отчет о последних действиях](#)

Со времени Вашего последнего входа ничего нового не произошло

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(последние 5 минут)
[Антон Шабеев](#)



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Забыли логин или пароль?

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Общие материалы школы

Регламентирующие документы

- [Программа летней школы](#)
- [Зачет по спецкурсу по выбору](#)

Средства коммуникации

- [Новостной форум](#)
- [Конкурс идей по разработке ПО для платформы maemo](#)

Документация по используемым инструментам

- [Maemo Diablo 4.1 release documentation](#)
- [Maemo Diablo 4.1 release documentation examples](#)
- [Maemo Diablo 4.1 API Reference](#)
- [GTK+ Documentation \(API and Tutorial\)](#)
- [GTK+ Tutorial \(перевод\)](#)
- [SDL Documentation](#)
- [GNU Autoconf manual](#)
- [GNU Automake manual](#)
- [ISO/IEC 9899:TC2 \(C Standard\)](#)

Новостной форум

(Пока новостей нет)

Наступающие события

Не имеется никаких наступающих событий

[Перейти к календарю...](#)
[Новое событие...](#)

Последние действия

Элементы курса с Четверг 23 Октябрь 2008, 15:37
[Полный отчет о последних действиях](#)

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Обмен сообщениями

Нет новых сообщений
[Обмен сообщениями...](#)

1 Инструменты разработки для Интернет-планшета



-  [Демонстрации к лекции](#)
-  [Задания для лабораторной работы](#)
-  [Пошаговый план создания дистрибутива](#)
-  [Руководство начинающего разработчика Debian](#)
-  [Linux на борту: Разработка приложений для Nokia N800](#)

2 Базовые средства библиотеки GTK+ и среда Hildon

-  [Слайды лекции](#)
-  [Задания для лабораторной работы](#)

3 Диалоговые окна . Меню и панели инструментов

-  [Слайды лекции](#)
-  [Стандартные темы проектов](#)
-  [Выбор темы собственного проекта](#)
-  [Пример карточки проекта](#)
-  [ZetCode GTK+ Tutorial](#)
-  [Multiline Text Editing Widget by Vijay Kumar](#)

4 Использование средств ввода планшета

-  [Слайды лекции](#)
-  [Демонстрации к лекции четвертого дня](#)

5 Интеграция с платформой. Использование подсистем планшета

-  [Desktop Entry Specification 1.0](#)
-  [Desktop Menu Specification 1.0](#)
-  [Linux на борту: Работа с камерой Nokia N800](#)
-  [Linux на борту: Автоматическая загрузка фотографий Nokia N800](#)
-  [Слайды лекции пятого дня](#)

7. Discussions with companies

- Metso Automation Inc.
- Software development contracts since 2003, currently involving 25 people full-time, +8 being hired now
- Maemo – t.b.d. on October 30th

Thank you!