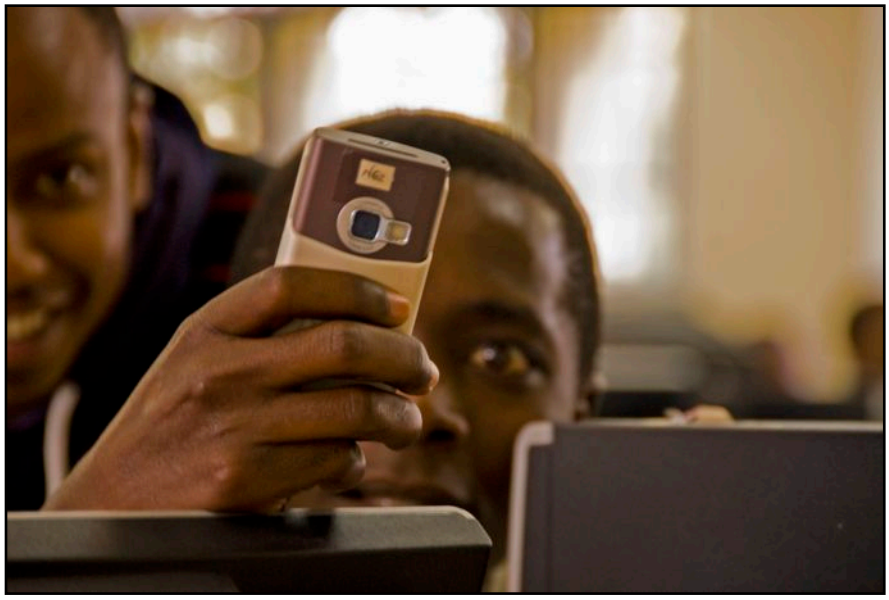
EPROM Update

10 Countries and Counting

Mobile Phone Programming now taught in 12 African universities



The EPROM initiative has expanded its mobile phone programming courses to 12 Computer Science departments across Sub-Saharan Africa. This continued growth has led to hundreds of mobile phone applications developed specifically for the African market. Several of these student projects have gathered international media attention, while others are being formed into start-up ventures based in Nairobi, Addis Ababa, Kampala, Kigali and beyond. *See page 6 for more details on the expansion.*

To our Sponsors:

The 2007-2008 academic year has resulted in significant growth for EPROM. Our team has grown to 15 African Computer Science professors and lecturers who are running their own EPROM application development laboratories. Some universities are incorporating the EPROM curriculum into new Masters degree programs, while others are focusing these materials on their incoming undergraduate computer science students.

It is my hope for the 2008-2009 academic year that we work to ensure the success of our new members, continue to empower African mobile phone application developers, and broaden EPROM's impact across the continent.

Thank you for your support!

-Nathan Eagle

DEVELOPMENTAL ENTREPRENEURSHIP SUCCESSES

After Jeff Gasana graduated from the Kigali Institute of Science and Technology (KIST), he started SMS Media, EPROM's latest industry partner. Some of Jeff's most commercially successful SMS applications have been unique to the Rwandan market, ranging from auto insurance to local market price information to matchmaking. In 2007, Jeff developed an application that enabled graduate high school students to access their national exam results without having the travel to the capital, and 30,000 students now use the service annually. This year he launched a mobile electricity payment system that has been adopted by over 30% of the households in Rwanda that have electricity; *a venture described on page 2.*

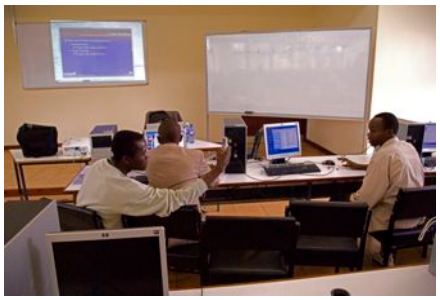
SMS MEDIA "POWER CARD" - PREPAID ELECTRICITY SCRATCH-CARDS IN RWANDA

In the beginning of 2008 Rwandan start-up and EPROM partner SMS Media partnered with Electrogaz, the national electricity company, to sell prepaid electricity scratch-cards. Using the proven airtime scratch-card model, entrepreneurs purchase the prepaid electricity cards in bulk and then sell them throughout Rwanda. Not only has this created thousands of jobs, it saves Rwandans from having to travel into Kigali and wait in line to purchase electricity at the main Electrogaz office. While the system has only been operational since the beginning of 2008, already 30% of the country's electricity consumers are now purchasing their electricity through their mobile phones using the SMS Media "Power Card".

Beyond selling prepaid electricity, SMS Media is also partnering with KIST to enable EPROM students in Rwanda to deploy and sell their own SMS applications using existing short-codes with a 50/50 revenue-sharing agreement.

UNIVERSITY OF NAIROBI MOBILE PHONE SERVICES FOR THE VISUALLY IMPAIRED

The School of Computing and Informatics (SCI) at the University of Nairobi has recently started a collaboration with the Kenya Society for the Blind (KSB) in an effort to develop innovative mobile phone services for local visually impaired people (VIP). In this project, EPROM faculty members are attempting to empower VIPs through the development and deployment of mobile phone applications designed specifically for physically disadvantaged Kenyans. Functionality of these new applications include a text-to-speech tool that converts the text in a received SMS or printed text (captured from the phone's camera) into an audio file which is played back to the VIP.



MOBILE PLANT AND TXTEAGLE LAUNCH LOCAL LANGUAGE SYSTEM WITH SAFARICOM

In a collaboration with Kenya's largest mobile phone operator, Safaricom, and East Africa's largest value-added service provider (now partially owned by Google), MobilePlanet, txteagle (http://txteagle.com) is building a system that sends translation tasks for software localization to mobile phone subscribers who are compensated with either airtime or cash via the mPesa mobile payment system in Kenya.

EPROM & MTN RWANDA COLLABORATE ON CDR ANALYSIS

Mobile phone operators in Africa are inundated with data about the calling patterns of their subscribers. EPROM is working with Rwanda's only mobile phone operator, MTN Rwanda, to analyze calling patterns in effort to answer a variety of research questions ranging from the impact of urbanization on Rwandans' social networks to inferring influence based on product and service adoption rates.

HIV/AIDS EDUCATIONAL PROGRAM PILOTED IN EASTERN KENYA

Dr. Eduard Sanders has been developing educational programs about HIV/AIDS for sex workers in Kenya for over a decade. In a pilot study, participants in his program will be given EPROM N70 handsets with custom software to augment the existing sex worker diary program. The phones will also be used to provide targeted educational messages about risk behaviors and information about free services at local health clinics.

EPROM'S MOSOKO PROJECT NOW DEVELOPED AT NOKIA RESEARCH CAMBRIDGE

People in developing regions have limited knowledge of the marketplace of goods and services beyond their immediate friends and neighbors. "Mosoko" is a audio-based "Craig's List" application for mobile phones designed to provide more information about available goods and services. While Mosoko was originally an EPROM project with student Billy Odero at the University of Nairobi, Jonathan Ledlie and his team at Nokia Research Cambridge have recently hired Billy to help them commercialize this service to create localized marketplaces in developing regions. Mosoko was designed with a "call-back" voice interface that anyone in East Africa may use free of charge.

TXTEAGLE AND GRAMEEN APP LAB TEAM UP FOR VOICE APPS WITH MTN UGANDA

Using a toll-free number from MTN Uganda, we are launching a service that enables mobile phone subscribers to rate radio advertisements during off-peak hours when the network is not at capacity. Using a collaborative filtering algorithm, we are creating an Asterisk application that serves targeted radio ads to mobile phone subscribers, who listen and rate the ads in exchange for airtime.

MOBILE PHONE PROGRAMMING COURSES BEGIN IN GHANA

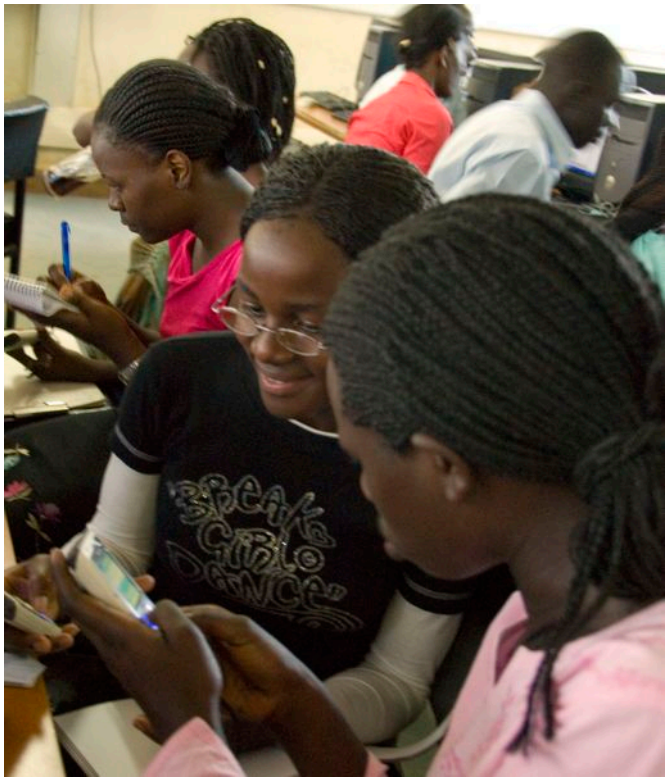
Prof. Nathan Amanquah, Chair of the Computer Science Department at Ashesi University, ran his first mobile phone programming course as a for-credit elective this summer, with 12 hours of lecture each week for 6 weeks - equivalent to the number of hours in a regular semester course. All 12 topics of Nokia's new Mobile Web Development material were covered, some in more depth. Students submitted weekly homework assignments and presented their individual projects at the end of August. This course received significant press coverage - both in the print media and several radio stations across the country.

"MOBILE COMPUTING & COMMUNICATIONS" LAUNCHES AT MAKERERE UNIVERSITY

Prof. Fisseha Mekuria is incorporating the EPROM curriculum into a new master's degree program at Uganda's largest university. The objective of the new program is to carry out relevant research in the areas of mobile computing, communications technology, services, and associated enabling policy and regulatory frameworks. The research is structured to promote the sustainable diffusion of wireless communication technology in collaboration with regional public and private industry and organizations. Prof. Mekuria hopes to promote novel usage of mobile phone services as a vehicle for economic development in Uganda and the eastern Africa region.

The objective of the new program is to produce graduates with the necessary skills in wireless communications technology, services, and content development. The subjects within the new degree program will include:

- Mobile & Wireless Communications Technology & Services
- QoS & Mobile Multimedia Networking
- Mobile Ad Hoc, Sensor & Mesh Networks
- Wireless & Mobile Broadband Access Networks (IEEE802.1XX S)
- Next Generation Networks and Developing Regions (NGN-DR)
- Enabling Regulatory & Policy Issues for Next Generation Networks (RP-NGN)
- Mobile Technology Usability, Content & Service Localization.
- Mobile Web Content & Web Services
- Mobile Application Software Development including M-Banking, M-health, M-Learning, M-Commerce, M-Gov



EPROM MOBILE WEB COURSES EXPAND IN KENYA

The University of Nairobi put their new application development laboratory to good use this August. Daniel Nyoka Mainye, a 2nd year computer science student and accomplished mobile phone programmer, led a group of his peers through the Nokia-driven short course Mobile Internet Services. Topics he emphasized included W3C guidelines, the ready.mobi developer tools, as well as his own experiences developing the University of Nairobi's mobile-friendly website.

TEACH-THE-TEACHERS: MOBILE WEB APPLICATION DEVELOPMENT

Top: *Discussion about an accredited certification process for the short-course.*
Bottom: *Dr. Peter Wagacha presents his work at the Univ. of Nairobi.*

On April 19-21 in Cape Town, South Africa, 15 Computer Science faculty members from across Sub-Saharan Africa completed a Nokia-sponsored training course on Mobile Web Service Development.

Computer Science professors came from as far as Senegal and Ethiopia to participate in the 3-day course. While the training covered an overview of phone programming languages (MIDP & Python), it also covered FlashLite, Actionscript, Mobile Ajax, Widgets, and SMS RSS applications. Additionally the session included industry best practices as well as free tools available to develop mobile friendly Internet content (design tool at http://site.mobi, testing tool at http://ready.mobi, and hints + guides at http://dev.mobi).

Upon completion of the course, these faculty members discussed methods of making mobile phone programming a standard requirement for all undergraduate Computer Science degrees at their institution. The course ended with a discussion of an EPROM wiki (http://eprom.mit.edu/wiki) that is now providing a forum for the instructors to share their experiences teaching mobile phone programming across Africa.

Special thanks goes out to the Compatibility and Industry Collaboration in Nokia Corporate Development Office in Espoo, Finland, for organizing and funding this teach-the-teachers session, particularly Katja Ratamaki, Iikka Vakiparta, Marjut Makela, and Jari Alvinen.

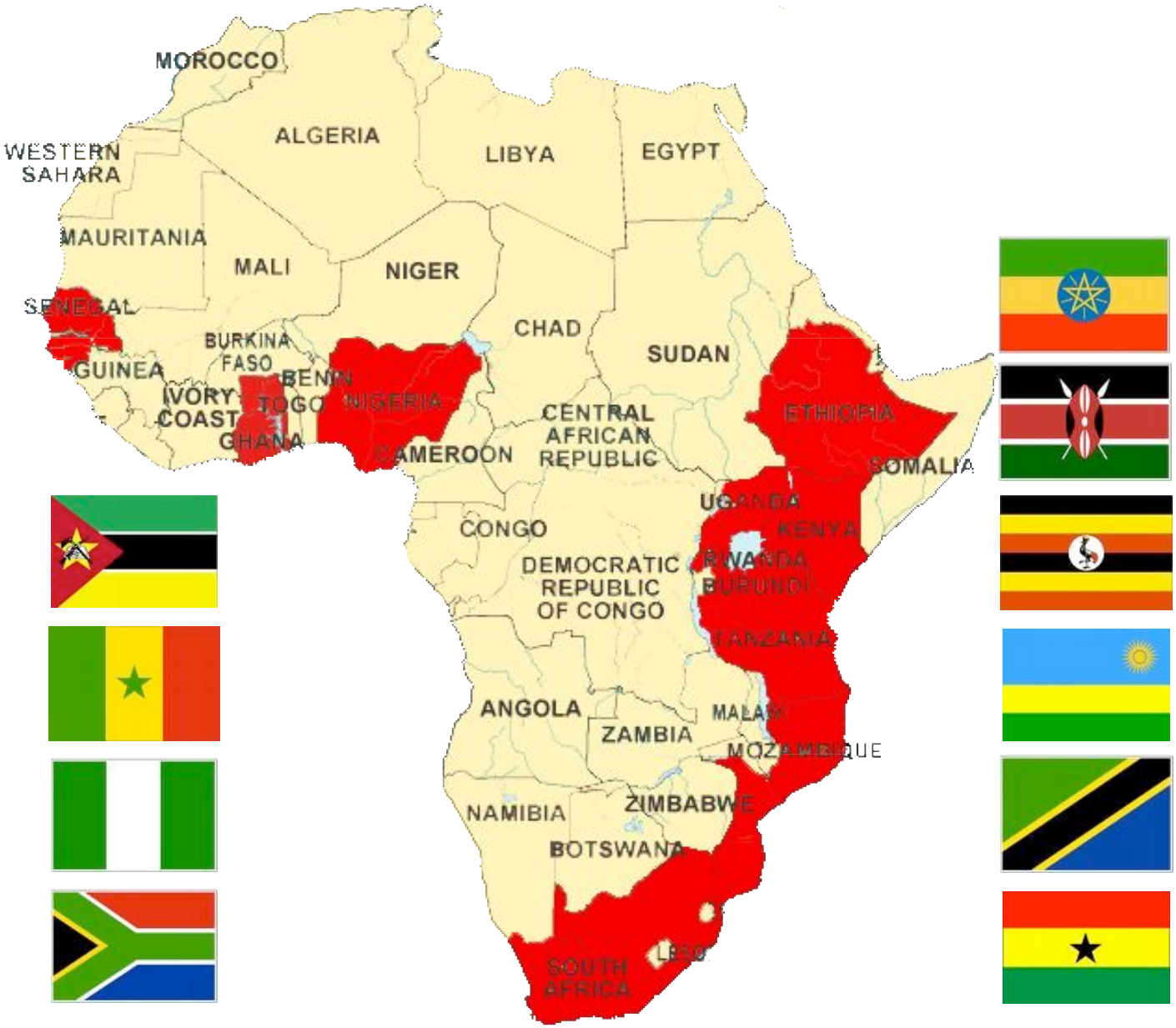
EXPANSION OF MOBILE APPLICATION DEVELOPMENT LABS

Thanks to a donation from Nokia's Corporate Development Office, Mobile Application Development Laboratories are now being established in Mozambique, Senegal, Tanzania and Rwanda throughout September and October. The Nigeria Lab will be opening by the end of October.

MOBILE INTERNET SERVICES DEVELOPMENT NOW TAUGHT IN 10 COUNTRIES

When news spread of MIT's initial EPROM initiative at the University of Nairobi in 2006, Computer Science departments across Africa have been requesting to have their universities also participate in the program. Thanks to Nokia's support, 15 new faculty members have been trained and mobile phone programming classes are being organized in 10 countries across Sub-Saharan Africa *(see the class calendar on Page 8 for more details)*. Nokia is also setting up mobile application development laboratories at each university to support the new courses on mobile web application development.

Scaling from a small group of a dozen motivated University of Nairobi undergraduates to thousands of students across 10 countries in Africa less than three years would not had been possible without the help of the new faculty team *(listed on Page 7)* and the generous support from our sponsors. We're looking forward to watching mobile phone programming continue to blossom within Computer Science departments across Africa and beyond.



THE NEWEST EPROM FACULTY

Prof. Solomon Besufekad
Professor and Chair of the Computer Science Department, Addis Ababa University, Ethiopia

Prof. Santhi Kumaran
Professor and Head of the Computer Engineering, Kigali Institute of Technology (KIST), Rwanda

Prof. Nathan Amanquah
Assistant Professor and Chair of the Computer Science Department, Ashesi University, Ghana

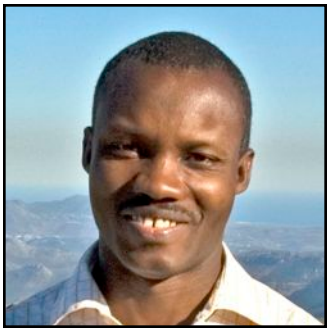
Rasna Walia
Tutorial Fellow, School of Computing and Informatics, University of Nairobi, Kenya

Libe Massawe
Assistant Lecturer, College of Engineering and Technology, University of Dar es Salaam, Tanzania

Prof. Orlando Zobra
Professor, School of Computer Science, Eduardo Mondlane University, Mozambique

Prof. Ajose Olumide
Professor and Chair of the Computer Science Department, Lagos State University, Nigeria

Prof. Roxan Cadir
Professor, School of Computer Science, Eduardo Mondlane University, Mozambique



Prof. Mamadou Bousso
Professor and Chair of the Computer Science Department, Thies University, Senegal

The Teach-the-Teachers Seminar in Cape Town, South Africa.

ABOUT EPROM

Today's mobile phones are designed to meet Western needs. Subscribers in developing countries, however, now represent the majority of 2.4 billion mobile phone users worldwide. Africa is now the fastest growing mobile phone market in the world.

Yet the computer science curricula of universities throughout Africa still focus exclusively on traditional desktop computer programming. As a result, *African computer science graduates are not qualified to address the computing needs of African people*.

In early 2006, MIT and Nokia launched a trial initiative called EPROM in East Africa to develop a mobile phone programming curriculum that equips computer science students with the skills to design mobile phone applications specifically for the needs of people in the developing world.

Now going into its third year, EPROM has undergone considerable expansion - and with requests from dozens of additional universities across Africa, the initiative appears to be providing a much-needed service to the African computer science community.

Upcoming Courses

June 15 - August 1, 2008
Prof. Nathan Amanquah
Ashesi University College, Ghana

August 15 - November 1, 2008
Dr. Peter Wagacha and Rasna Walia
University of Nairobi, Kenya

September 15 - November 15, 2008
Dr. Fisseha Mekuria
Makerere University, Uganda

September 15 - November 15, 2008
Prof. Roxan Cadir and Prof. Orlando Zobra
Eduardo Mondlane University, Mozambique

September 30 - December 1, 2008
Prof. Ajose Simeon Olumide
Lagos State University, Nigeria

September 30 - December 1, 2008
Prof. Santhi Kumaran
Kigali Institute of Science and Technology (KIST), Rwanda

October 1 - December 1, 2008
Prof. Solomon Atnafu Besufekad
Addis Ababa University, Ethiopia

October 15 - December 15, 2008
Prof. Mamadou Bousso
Thies University, Senegal

January 1 - June 1, 2009
Prof. Nathan Amanquah
Ashesi University College, Ghana

July 1 - December 1, 2009
Andre Van der Poll and Petronella Van der Merwe
University of South Africa, South Africa

EPROM PIs

NATHAN EAGLE

Dr. Nathan Eagle is a Research Scientist at MIT; he originally launched EPROM at the University of Nairobi in 2006 as a Fulbright Lecturer.

FISSEHA MEKURIA

Prof. Fisseha Mekuria is a Visiting Professor at Mekerere University and has been teaching mobile phone application development in Africa for over 5 years.

ALEX (SANDY) PENTLAND

Prof. Alex (Sandy) Pentland is the founding director of MIT's Developmental Entrepreneurship Program and the senior MIT faculty supervisor to the EPROM initiative.

PETER WAGACHA

Dr. Peter Wagacha helped to launch the original EPROM courses in Kenya. He currently is leading the mobile application development projects at the University of Nairobi.