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Jumpstarting a Global Mobile Computing Lab at Pace University

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Report

January 2012

Jumpstarting a Global Mobile Computing Lab at Pace University

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Seidenberg School of Computer Science and Information Systems

Cornerstone 2 Community Outreach and Empowerment

A. Abstract and Original Goals

Mobile applications are the future of computing. This project focuses on jumpstarting a mobile lab at Pace University. It reaches out to the university community and beyond by integrating different events including a competition on mobile application development and hosting external speakers. A high school event and a panel discussion with experts in the field are planned.

B. What progress have you made towards your original goals on your project to date?

The Thinkfinity grant fulfilled its original goals in that it permitted to establish and jumpstart the activities of the lab. It also provided the lab with some visibility (e.g., work with students and attendance to conferences) within Pace and outside Pace; this is important to sustain its activities and apply for funding.

C. What activities have been completed to contribute to meeting/progressing toward these goals?

Projects

Different projects were realized under the umbrella of the lab. Four students participated in projects of the lab in Spring 2011. Four students were involved in projects in Fall 2011. The lab met once a week with all its participants. Two students were paid under the Thinkfinity grant. Some of the students were paid through external grants and some students volunteered their time to work on projects.
The students paid under the Thinkfinity grant worked on the following projects:

- One student worked on a mobile marketing campaign to increase the audience of the Pace University radio station on the New York City Campus (http://wpub.org). He also explored the use of voice to develop solutions for population in the developing world. These projects are described in two publications that are provided with this report.
- Another student worked on the development of an Android application for smarter energy as part of a global team. His team was composed of students from Pace, India and Senegal. Students collaborated in the development of this application. One of the students, an undergraduate student in Psychology at Pace University, was in charge of the research on smarter energy; she developed part of the content of the app. A prototype of the application was developed but it still needs to be improved.

Courses

The Thinkfinity grant permitted to buy material to support the teaching of the 2 courses described below. Phones and tablets were bought.

Mobile Application Development

This course was offered in Fall 2011.

This course surveys the specificities of the development of native applications for different mobile platforms including phones and tablets. The software engineering of application development including user-centered design, testing and quality assurance is emphasized. Students learn how to design and develop applications for the Android platform. The following topics are covered: user interface, events processing, services management, location based facilities, accelerometer and other sensors, network / web access, and sound and multimedia. The parallels with Blackberry and iPhone development are presented. The distribution of mobile applications and business models for monetization are covered. A significant project is integrated in the course.

Mobile Web & Content

This course is offered in Spring 2012.

This course introduces students to the techniques used to create web sites for basic and smart phones. Particular attention will be on gathering data about web traffic (e.g., visitors, visits, devices, operators, and locations) and analyzing the data to engage the users and for business decision making. Content including social networking and privacy will be discussed in depth. The course also covers the development of mobile web applications using HTML, CSS and JavaScript for multiple platforms. Tools like PhoneGap and Titanium will be used. HTML5 will be presented. SMS, Voice and TV technologies will be surveyed. User-centered design, testing, quality assurance and performance will be covered throughout the course. The course integrates comprehensive assignments and significant readings.

Contests

Spring 2011 - Contest

The first contest of the Mobile Lab ran from April 1st to May 5th. The theme was: Smarter Cities. The web site of the contest is available at: http://wildfireapp.com/website/6/contests/107519. We got *three* submissions only but they were impressive. The submissions were judged by Drs. Dwyer, Hill, Tao and Kline at the award ceremony on May 5th. Students were awarded Apple gift cards.

- **Smarter City Ranking, Palak Shah,** ps85612n@pace.edu **(1st Prize)**

Smarter City Ranking shows how the 10 largest cities in the US are making progress in some important criteria such as Standard of Living, Air Quality, Green Building, Recycling, Transportation, Water Quality, Energy Production and Conservation.

- **Student Dashboard, David Gethers,** dg67420p@pace.edu **(2nd Prize)**

Student Dashboard provides users with the ability to keep track of grades, homework assignments, feedback and get real time tutoring from professors. It centralizes data needed to help students and teachers to be more effective.

- **PolyEats Mobile Solution, Eric Greene,** eg03872n@pace.edu **(3rd Prize)**

PolyEats.com is an online/offline social network for restaurant recommendation. The users enter what kind of restaurant they are looking for, in what area, and they get suggestions. The site is developed using Drupal, an open source CMS based on PHP. The form itself is developed in PHP using Drupal's Form API. The mobile application was developed in CSS and HTML using mobify.me's mobile development platform.

Fall 2011 – Contest

The second contest of the Mobile Lab ran from October 1st to December 5th. The theme was: Smarter Energy. The web site of the contest is available at: https://sites.google.com/site/mcontestf2011/. We got *seven* submissions. The submissions were judged by Drs. Dwyer, Coppola, Coutras, Hill, and Tao at the award ceremony on December 6th. Students were awarded Apple gift cards. One of the applications is available in the Android Market.

- **Energy Watcher, Peter Franceschini,** pf17985p@pace.edu**, Ariana Abramsonaa,** aa08299p@pace.edu**, Marc Kowtko,** mk57412p@pace.edu **(1st Prize)**

Energy Watcher calculates annual wattage energy cost of different appliances, provides tips to save energy, and gives access to important resources to be an "energy watcher". The application is available in the Android Market.

- **Green Friends, Mani Shergill,** ms34286n@pace.edu**, Nikhil Fernandes,** nf33051n@pace.edu **(2nd Prize)**

Green Friends helps users determine their electricity and water consumption. Users can share tips with friends and find recycling points nearby.

- **RideShare Cost Estimator Mani Shergill,** ms34286n@pace.edu **(3rd Prize)**

RideShare Cost Estimator is an app which helps users to estimate how much they could save and how much they could do for the planet if offer/take shared rides. The goal of this app is to reduce the carbon emission and traffic problems.

Facebook for the Mobile Lab

We did not create a web site for the lab but we are reporting all our achievements on a Facebook page at: http://facebook.com/pacemobilelab. We are also sharing information and events related to mobile technology happening in New York City. The Facebook page supports the community.

D. What activities have not been completed? Please indicate why they have not been completed.

The high school event and the panel discussion with experts in the field did not take place because the other activities took a lot of time to organize.

E. Please outline the outcomes you have received as a result.

Part C. listed our outcomes.

F. Did you create a Class? If so, is the class running?

No class was created as part of this grant. However the grant permitted to buy material to support the teaching of the 2 classes in mobile application development.

G. Has your project impacted students? If so, how many?

There were eight students who were actively involved in research and projects in the lab. Many of the students of the Seidenberg School of CSIS are fans of the lab on Facebook. Students are getting more interested in mobile and aware of what Pace is doing in this area. We had more submissions to the second contests than in the first one. Some of the participants were not students of courses and projects described in this report.

H. Has your project impacted other faculty members? If so, how many?

Faculty of the Seidenberg School are aware of the lab. Five faculty were involved in the contests. Some of the faculty proposed to co-organize the future contests in the School. Based on the observed enthusiasm of the students, they also decided to integrate mobile projects in their classes.

I. Were there any unintended outcomes achieved?

No.

J. Did you present at a conference?

We wrote and presented two papers that involved undergraduate and graduate students at Pace University. The two papers are attached to this email.

- Mike Gargano's Research Day, May 2011
    - Enriching Students' Learning Experiences through a Mobile Lab Initiative, Serene Su, Palak Shah, Alex Michel, Kelly Stottlemyer, Billy Gerhard, Allon Hadaya, Christelle Scharff
- IEEE Frontier In Education (FIE), October 2011 (accepted for publication)
    - Teaching Mobile Solution Development in a Global Context: Comparing Solutions Proposed by Students in the Developed and Developing World, Christelle Scharff, Jean-Marie Preira, Roslyn Kay, and Serene Hang Su

K. Do your outcomes reflect the change or benefit you were hoping to receive?

The outcomes reflect the change we were hoping to introduce. The grant permitted to create a community that would not have been possible otherwise.

L. How has your project furthered the Thinkfinity Cornerstone you selected? COMMUNITY OUTREACH AND EMPOWERMENT

Students worked on real-life projects that impacted the community at Pace and beyond. The Pace Radio project targeted the Pace University community. The project on Green Awareness follows the Pace initiative on sustainability. In the global software development projects students could collaborate with students outside the US and develop solution that could fit 3 different countries: US, India and Senegal.

M. Future plans for sustaining the project

- Organization of a panel on mobile technology for social change in collaboration with the Wilson Center (Dr. Rebecca Tekkula)
- Preparation of publications with students
- Organization of events on mobile technology for students at Pace University (integrated in the course "Mobile Web and Content" currently offered)
- Seeking more funding to support students and organize events
- Organization of a mobile contest (based on funding)