

For Immediate Release



Innovative engineering student projects awarded first and second prizes in Istanbul

Beirut, Lebanon- 15/06/2012 - Sponsored by the Department of Electrical and Computer Engineering, two groups of engineering students from AUB took home awards at the 18th annual "International Cultural and Academic Meeting of Engineering Students" (ICAMES), an international forum organized by the Engineering Society of Bogazici University in Turkey in May 2012.

Armed with sophisticated engineering projects, the undergraduate students competed with other students from Europe and the Middle East for a trophy and the prestige of winning such a competition.

The first place was awarded to Munya Hatem, Caren Zogheib and Johnny Kamel, working with assistant professor Mariette Awad, associate professor Fadi Karameh, and with the close assistance of Mihran Gurunian from the ECE labs; while the second place went to the group formed of Nourhan Farhat, Rakan Nimer, Hadi Najib El Hosni, Nour Alawieh, Chadi ElMasri, and Mark Saroufim, working with professor Hassan Artail.

The project of the first-placed group combined engineering with art to create a smartphone/tablet application to enhance artistic expression, inspired by the neurological condition called synesthesia which results in the stimulation of two sensory or cognitive pathways. In other words, people with this condition might simultaneously perceive numbers or letters as colored.

"One common type of synesthesia is color-auditory in which the perception of colors, textures, and shapes produces sounds or smells in the person's mind," explained Hatem, one of the team members.

"Imagine what it would be like to listen to the Impression Sunrise of Monet at Marmottan Museum, or some abstract painting in your living room," said Mariette Awad. Using a computerized method, different colors and tones of the art will be taken from an art piece and associated with a certain mood, which will create background music conveying that mood.

Gurunian explained that after the initial processing, the user becomes the soloist over the music, generating notes and melodies in real time while looking over the art piece.

"We create a link between two forms of art: music and colors to engage visual and audio senses. When the user interacts with a painting, a unique and personalized sound interpretation of the experience is created instantaneously," said Karameh.

Meanwhile the second-placed group worked on a the pervasive problem of traffic congestion, which is particularly frustrating in Lebanon.

In Lebanon, the most common form of public transportation is the shared taxi system, known as "service". Taxis charge a fixed fee per passenger, increasing their revenue by picking up as many passengers as possible.

"This process involves uncertainty and luck, and often taxi drivers drive chaotically, like stopping in the middle of the road, while looking for, picking up, and dropping off passengers," explained Artail. "The result of this is traffic build-up, anxiety among taxi drivers, wasted fuel and long wait time for passengers."

The project uses advanced communication technology by proposing a shared taxi system regulated by a scheduler that communicates with passengers' and taxi-drivers' smartphones to receive information about their locations and requests, and to send them updates.

"The taxi drivers, who make up a large portion of the Lebanese population, are constantly demonstrating their discontent with the current economy of their business and would widely benefit from this new system. It can also be a means of social networking where people can be paired together in the same car depending on their preferences or locations," said Alawieh.

The system is run by a server that collects GPS data and requests from smartphones, using a cost minimization function to find the best fit for both passengers and taxis alike, while accounting for fairness among taxis and passenger wait times.

"The idea of the project is innovative. It has a positive impact on the community as a whole," said Alawieh. "It aims at increasing the taxi utilization rate, eliminating the uneven distribution of profit among taxis, increasing profits per cab and decreasing costs, hence fuel consumption. The decrease of fuel consumption would favor making our system environment-friendly and pollutant-free."

The competition lasted for nine days, three of which were dedicated to project presentations while during the remaining days students spent their time becoming acquainted with other international students through various interactive activities like "Culture Night" and also sightseeing around Turkey.

"I think the biggest benefit for the students was the international exposure their projects received, the professional and intercultural interaction they had with other students, and of course the good time they spent in the historical silk road city Istanbul," said Awad.

"ICAMES gave us the opportunity to experience and learn about engineering projects executed in many countries. We were impressed by the high level of technicality and gained a lot of insights about different engineering tasks," said Hatem, part of the winning team.

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Note to Editors

About AUB

Founded in 1866, the American University of Beirut bases its educational philosophy, standards, and practices on the American liberal arts model of higher education. A teaching-centered research university, AUB has more than 600 full-time faculty members and a student body of about 8,000 students. AUB currently offers more than 100 programs leading to the bachelor's, master's, MD, and PhD degrees. It provides medical education and training to students from throughout the region at its Medical Center that includes a full service 420-bed hospital.

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