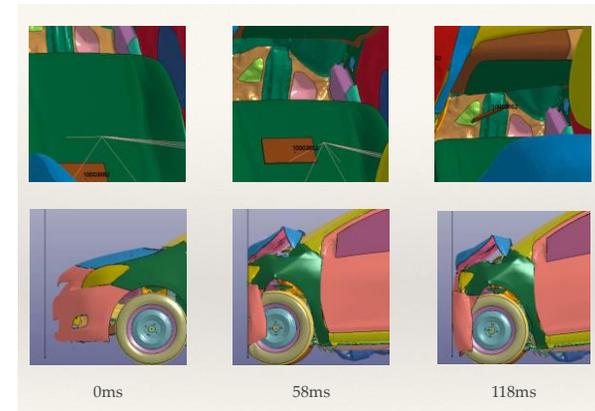


BlinkApp! Reporting Car Accidents in a Blink of an Eye!

EJUST and BlinkApp Company

Researchers from Egypt-Japan University (EJUST) and BlinkApp company have developed a novel mobile application called “BlinkApp” that uses the smartphone to automatically detect car crashes and transmit assistance notifications while it’s happening and yet does not consume much power. Mr. Wael Nofal, BlinkApp CEO, stated that rapid emergency services calling when an accident occurs can potentially save 1200 lives in Egypt, annually. “This research provided novel technologies that rely on fast on-phone graphics processors, artificial Intelligence as well as accurate crash dynamics.” An initial prototype is developed and tested using detailed simulation, micro crash labs, and mathematical models; “results show high detection accuracy of 98%, and low power as GPS is not used,” says Prof. Ahmed El-Mahdy, professor at EJUST and the principal investigator of the project.

[More info](#)

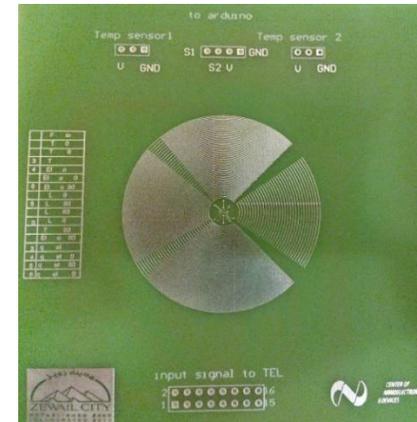


Solution Concept

Microfluidic Platform for Liver Cells Detection, Identification and Sorting *Zewail City of Science and Technology*

A group of researchers from Zewail City of Science and Technology and Helwan University has presented a microfluidic platform that has been successfully utilized to identify and characterize the liver cancer cells based on their electrokinetic reaction when exposed to a non-uniform electric field, i.e., dielectrophoresis force. “The study of the dielectric properties of liver cancer cells is of interest to scientists worldwide and particularly in Egypt. Egypt is ranked fourth in the world for liver cancer disease. Thus, it is critical for the Egyptian economy to find ways to reduce the cost of liver cancer cells detection and identification,” says Prof. Yehya Ghallab, associate professor at Helwan University. The microfluidic platform includes three different dielectrophoresis configurations. They are travelling wave, electro-rotation and levitation. The platform employs planar microelectrode array, which is fabricated using the low-cost Printed Circuit Board (PCB) technology. “Analysis of the electro-kinetic properties showed that Adipose stem cells (ASCs) displayed different traveling wave velocity and rotational speed compared to bone-marrow mesenchymal stromal cells. Interestingly, ASCs seem to develop an adaptive response when exposed to repeated electric field stimulation,” Ghallab Says.

[More info](#)

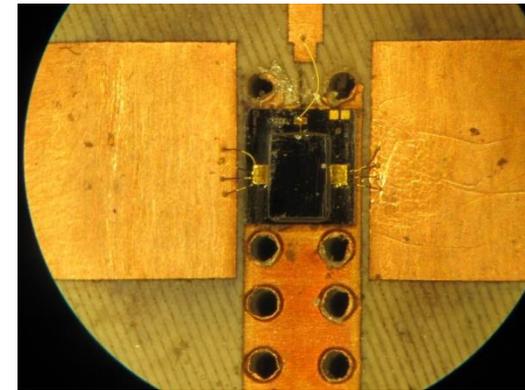


The proposed microfluidic platform

Optimizing Tuning Mechanisms in Radio Frequency (RF) Resonators *British University in Egypt*

Researchers from the British University in Egypt and University of Bristol, UK have proposed a new geometric method of bandwidth control that automatically allows center-frequency preservation in RF resonators. “Advanced telecommunication systems, such as 5G and agile radio, are complicated radio systems that require a new approach in design and optimization. RF filtering forms a “bottle neck” in the face of achieving full frequency agility (multi-band/-mode operation), due to its inherently frequency-tuned nature. Designers today need to find new solutions that would enable agility in these filters,” says Prof. Adham Naji, project principal investigator. “In this work we focused on optimizing the building blocks that make up RF filters; namely, RF resonators. By addressing tunability at the resonator-level, we leverage filter-level design with greater understanding,” Naji says.

[More info](#)



Microscopic image of an RF MEMS switches used on a reconfigurable resonator

Development of Inertial Stabilization Platform

Si-Ware Systems

Researchers at Si-Ware Systems and Cairo University have developed indigenous technology for inertial stabilization platform (ISP) systems and their components. “ISPs are electromechanical platforms attached to moving vehicles and are intended to carry a payload and maintain the payload line-of-sight or track external objects irrespective of the motion and disturbance caused by the vehicle,” says Dr. Amr Wassal, Professor of Computer Engineering, Cairo University. The developed ISP combines Si-Ware’s Micro-Electrical-Mechanical-System (MEMS) inertial sensor integrated circuits expertise with newly developed mechanical design, embedded control, sensor fusion algorithms and inertial measurement unit expertise. It can be used to mount light payloads such as daylight cameras, infrared cameras, laser range finders, small phase array antennas on moving vehicles. “Si-Ware is aggressively marketing its production-ready ISP and is expecting a small-volume production order from a potential customer currently assessing the product.” Wassal says.

[More info](#)



Si-Ware Systems' ISP product

Detecting Emotional Tone and Sentiment Targets in Arabic Tweets

Nile University

A group of researchers at Nile University has developed a working prototype that has the largest and most diverse Arabic dataset for emotional tone detection. “There is a need to not only identify sentiments in Arabic text, but also the target of this sentiment. Also, there is a need to recognize emotions conveyed in some piece of text,” says Prof. Samhaa R. El-Beltagy, Professor at Nile University. Emotional tone detection is a task that is very close to sentiment analysis, except that the output is finer grained. “Emotions that this work has targeted include: happiness, anger, sympathy, sadness, fear, surprise and love,” El-Beltagy says. By detecting emotions conveyed by tweets, and linking sentiments to targets, more value can be derived from the task of sentiment analysis.

[More info](#)

