

Cypriot SignalGeneriX and Israeli RIO Systems are joining forces for the development of an innovative full-duplex wireless communication device which can reach the market in three years.

The two high-tech SMEs from Cyprus and Israel, which successfully collaborated in research and development the last ten years, have recently teamed up with the leading Cyprus-based KIOS research centre and raised a total of 250k euro funding for the development of a commercial prototype device enabling full-duplex communications. The ‘FUPLEX’ consortium, formed by SignalGeneriX and UCY of Cyprus and RIO Systems of Israel, was ranked first in the Joint Research Programme of Cooperation between Cyprus and Israel which is co-funded by the Research Promotion Foundation in Cyprus and by the Chief Scientist of the Ministry of Industry, Trade and Labour in Israel. This first bilateral research program aims to strengthen the collaboration of the two countries in R&D by bring together Cypriot



and Israeli companies for the development of new products and services.

The kick-off meeting of the project took place on the 19th of June, 2015 at SignalGeneriX premises in Limassol, where scientists and engineers from the three organisations participated. On behalf of the host organisation Dr. Kounoudes said “We are happy that we strengthening our long established collaboration with RIO

Systems targeting the development of a novel product. There is a growing demand of high speed wireless communications, an area where the FUPLEX technologies can make an impact”. Dr Solon Spiegel, on behalf of RIO Systems commented “There is a strong potential for successful commercialisation of Full-duplex communication technologies. We are working closely with our Cypriot partners to develop the FUPLEX device and put it in the market within three years”. On behalf of KIOS research center, the coordinator of the project professor Ioannis Krikides emphasised the scientific importance of the project and explained that Full-duplex communication is a way to potentially double the speed of wireless communication and can become a fundamental technology for 5th generation (5G) systems.

The rapid technological advancements that enable vast amount of data sharing in a connected world are today limited by the capacity of RF-based wireless communications. It is globally acknowledged that we’re fast approaching the limits of what is possible with radio waves, due to various technical constraints. One of the fundamental constraints is that wireless communication devices cannot transmit and receive at the same time on the same frequency (communication channel) because of a huge amount of interference created at the receiver. Therefore today’s wireless communications are utilising a half-duplex approach where various techniques are used to split a single channel in two.

Even though full-duplex communication is possible, current commercially available technologies do not support wireless communications to receive and transmit on the same frequency band at the same time mainly because of the interference that results. Achieving full-duplex communication involves solving many challenges at the level of the antennas, the analogue circuits and digital baseband. The FUPLEX project aims to overcome these challenges and deliver a prototype system that can achieve reliable and robust full-duplex communication.