Faculty of Science and Technology
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Studies on Personal Area Wireless Networks and Virtual Reality Assisted Network Simulations

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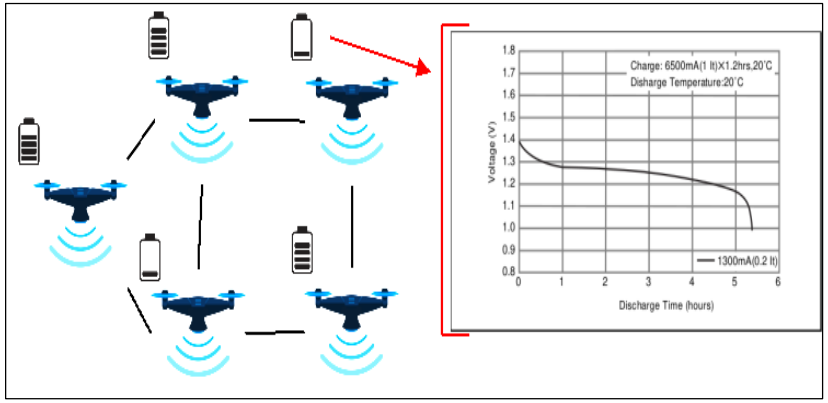

Fig 1. Multi-hop wireless network set on drones. Drones autonomous navigation and communication considers de battery discharge status of each individual drone.

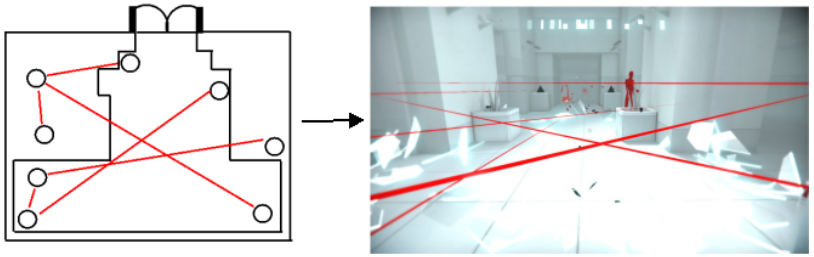

Fig 2. Simulation of a realistic personal area wireless network using the help of a Virtual Reality environment.

During the past few years, the interconnectivity between small devices have rapidly increased. These devices communicate with one another through networks used in appliances in our homes, medical equipment, security and monitoring devices. The networks used by these small devices are often limited and impose many challenges. Furthermore, these networks may or may not be connected to the Internet. While these type of networks are often overlooked, they are one of the pillars that supports IoT (Internet of Things) and the development of future networks. In these research, the following topics are studied:

- Development of new communication protocols for personal area and body area networks (IEEE 802.15.4 & IEEE 802.15.6).
- Measurement of energy consumption and development of energy efficient algorithms used in radio transceivers and vehicles (e.g. drones)
- Development of simulation tools that support the development of these networks: (A) Simulated networks using virtual reality environments. (B) Simulated energy models for batteries and radio transceivers.

Keywords: Personal Area and Body Area Wireless Networks, Network Protocols, Energy efficient Networks, Network Simulation tools, Networks on Virtual Reality Environments.

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