

International Bachelor Thesis 2020

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Research field/project	A LoRa-Based RF Detector for Cellular Distributed Antenna Systems (DAS)
Compulsory Qualification of students	Communication Networks/Internet Arduino/ESP Programming Mobile Communication is a Plus
Description (URL for research information)	<p>Distributed Antenna Systems (DAS) is one of the main important solution for cellular coverage within large-scale indoor environments, such corporate office buildings, hotels, malls, hospitals, .etc. In indoor DAS systems coverage is achieved from a single base station that is connected through a wired feeding network to a set of small antennas that are distributed across the span of the indoor environment in need of coverage.</p> <p>In recent years, IoT has exhibited supreme potential in offering monitoring solutions for a diverse set of applications. In DAS, daily monitoring of RF power radiated by each antenna is an feature in order to track</p> <ol style="list-style-type: none"> 1. Operational activity of each antenna 2. Each antenna does not radiated excessive power in accordance with regulations <p>In this thesis, it is required to collect RF power readings from dispersed RF detectors within a DAS environment using LoRa technology and relay them towards a single LoRa gateway to the cloud for the RF monitoring application. The main advantage of the LoRa technology is that it is able to achiever hundreds of indoor coverage (even up to 1 Km) on battery operated devices with only one gateway.</p> <p>This project is an industrial project sponsored by ConsultIX. ConsultIX is an Egyptian company founded in 2005 and specialized in producing handheld RF testers for general purposes. The company also leads the market with the most comprehensive portfolio of testing and planning tools for the fast-growing IBS / DAS industry.</p> <p>Selected candidate will benefit from the working experience in a real practical engineering project with the opportunity of having an internship upon conclusion of the thesis.</p>