ΠΑΝΕΠΙΣΤΗΜΙΟ
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ΤΜΗΜΑ ΜΗΧΑΝΙΚΩΝ
ΠΛΗΡΟΦΟΡΙΚΗΣ & ΤΗΛΕΠΙΚΟΙΝΩΝΙΩΝ

Θέμα Διπλωματικής Εργασίας

Προσομοίωση αλγορίθμων συνεργασίας ανάμεσα σε ασύρματους σταθμούς πρόσβασης WLAN σε πυκνοκατοικημένα περιβάλλοντα

Cooperation among Densely Deployed WLAN Access Points

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Σε συνεργασία με το UCLAN of CYPRUS και την Dr. Josephine Antoniou

The high popularity of Wi-Fi technology for wireless access has led to a common problem of densely deployed access points (APs) in residential or commercial buildings, competing to use the same or overlapping frequency channels and causing a degradation to the user experience due to excessive interference. This degradation is partly caused by the restriction where each client device is allowed to be served only by one of a very limited set of APs (e.g. belonging to the same residential unit), even if it is within range of (or even has a better signal quality to) many other APs. The project should implement specific cooperative strategies (for specific topologies identified) to mitigate the interference and enhance the quality of service in dense wireless deployments, by having neighboring APs agree to take turns (e.g. in round-robin fashion) to serve each and other clients. We present and analyze a cooperative game-theoretic model of the incentives involved in such cooperation and identify the conditions under which cooperation would be beneficial for the participating APs.

In this thesis, the student will implement the algorithms presented by Dr. Antonioy, to 9 beaglebone embedded linux stations, each one having a wifi as an Access Point simulating the densely populated environment.

Prerequisites: Linux, C Programming, TCP/IP, Shell Scripting, Embedded Systems