Project Title: Resource allocation and routing for green networks

Principal Investigator: Assoc. Prof. Didem Gözüpek

Project summary: Energy consumption of information and communication technologies is continuously increasing. This increase has not only economical but also environmental impacts. Therefore, decreasing the unnecessary energy consumption of communication networks has recently become an important research issue. In this respect, the concept of a network that uses energy more efficiently is suggested and in order to emphasize its environmental friendliness, the term “green networks” is coined.

In this project, an algorithmic perspective on resource allocation and routing for green networks is provided. Through graph theoretic analysis, integer programming formulations, approximation algorithms, and heuristic algorithms, a formal combinatorial analysis to the proposed optimization problems is introduced. The project also entails simulation-based performance comparison and numerical evaluation.