Improving fire department operations

Abstract

In order for a fire department to effectively fight fires and respond to other incidents, the timely presence of firefighter services can make the difference between survival and death. This starts with the optimal placement of base stations, so that these are distributed across the service area in a manner that ensures a short response time. However, this favorable spatial distribution may be disrupted in case of a major incident that requires many nearby fire trucks, essentially creating large gaps in the coverage. While relocating base stations obviously is not a viable option, idle fire trucks can fairly easy be relocated to, for instance, empty fire stations to mitigate risks created by this decrease in coverage.

During this talk I will present parts of research done in collaboration with other (CWI) students on the topics described above, which culminated in the creation of fireSCore: in its most basic form it acts as a visualization of the system in which the fire department, operates. On an operational level it thus acts as a near real time visualization of incidents, vehicle location and status, and (expected) coverage. Manipulating vehicle status leads to an immediate recalculation and visualization of the environment. It feeds information to a relocation engine and henceforth visualizes the proposal(s) coming from different relocation algorithms. Other components under development include a simulator, which add tactical and strategic decision making opportunities.