

Intelligent Remote Sensing for Urban Warfare Operations

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Project Summary:

In Many situations, law enforcement officers or soldiers must have a means to be more aware of the situation they are about to enter. It is imperative that a system be developed that allows detection of the presence and location of adversaries behind obstructions. Through wall imaging approaches are highly desirable for a range of applications including police, fire and rescue, first responder, and military applications. The ultimate desire of such systems is to provide detailed information in areas that cannot be seen through conventional measures. Radio frequency (RF) technology has been successfully applied to penetrate wall materials and optimally estimate the content and structure of rooms and buildings. There are many propagation differences that provide unique challenges that must be addressed to make through wall penetration sensors operationally viable. The proposed research efforts consider these challenges with the objective to advance the solutions of detection, estimation, localization, tracking of targets of interest inside enclosed structures and to understand the phenomenology guiding the intricacy of urban sensing operations from both ground and air.