Coordinated Safety Management Across Smart Communities

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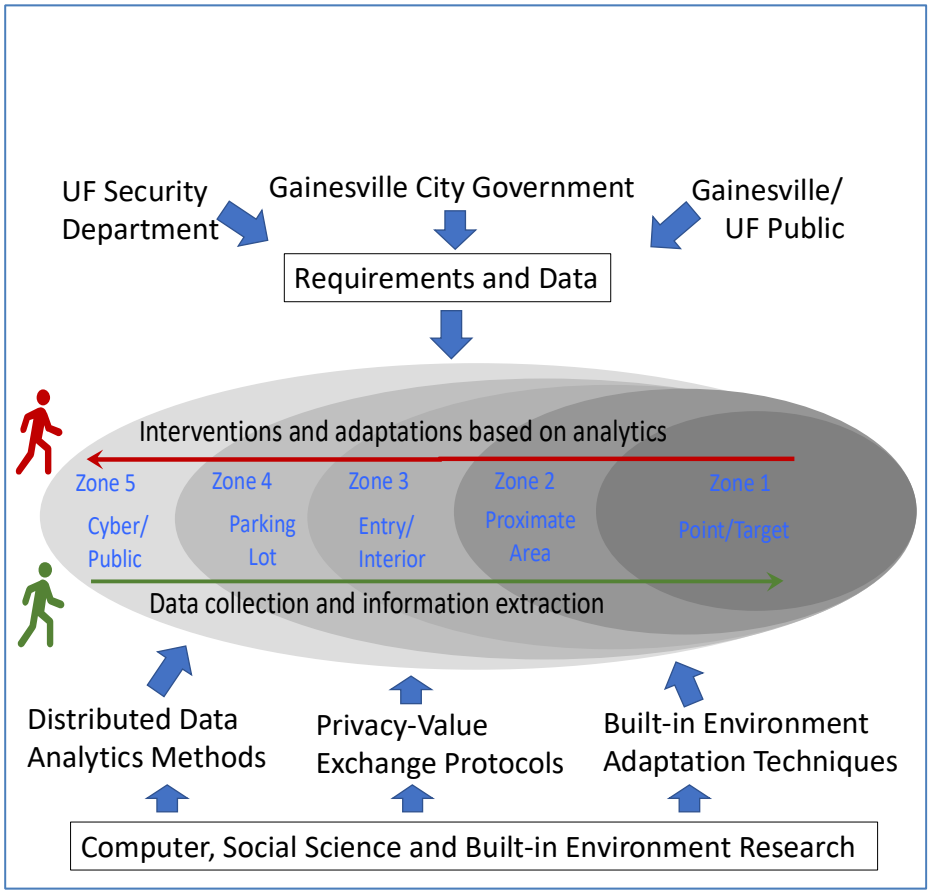
Project Overview



Vision

- UF-managed living lab to investigate safety scenarios of interest to both the City and UF.
- Advances on information extraction at the edge and centralized analytics with dashboard visualization.
- Studies on privacy-value exchange and data bias.
- Community input/feedback regarding scenarios to be investigated and research on privacy-safety tradeoffs and bias management.

Project Overview

Use-inspired Research

- Public safety across campus-city boundaries requires close coordination amongst campus safety departments, city government agencies and public information sources. In this context, the research considers the problems of sharing and extracting information from data from different sources with accepted privacy trade-offs and bias avoidance, and adapting the built environment in response to safety issues.

- Focus is on Gainesville, Florida, where the University of Florida is located. Community partners include the City government, the University of Florida and representatives of Gainesville residents.

Planning Grant Activities

- Many meetings amongst the PIs and staff and/or representatives of UF Security department, UF Facilities, UF Office of the Chief Operating Officer, UF Facilities, Gainesville Technology Department, Gainesville Smart City Coordinator and Gainesville Economic Development Department.
- Initial development and deployment of a living lab for instantiation and study of safety-related city and campus scenarios.
- Exploration of research ideas and approaches
- Involvement of representatives of UF students and other Gainesville residents.

Project Update

- Engaged the UF Security Department and Gainesville City government in project discussions of goals, issues and approaches to coordinated safety management.
- Identified, partially developed and deployed a living lab to instantiate safety scenarios and validate solutions to research questions.
- Initial discussions of research areas and questions relevant to the project in the domains of edge-computing, distributed mixed-data analytics, privacy-value exchange and built environment adaptation.
- Ongoing discussions of safety scenarios of interest to the City and UF, to be the focus of the IRG project.
- Ongoing discussions of how to involve the community beyond the City Government and UF Security Department, including UF students and other Gainesville residents.

Location of living lab consisting of main building where command center, dashboard and visualization capabilities are available, and surrounding areas where sensors and built environment adaptations can be deployed.

Project Evolution

We learned that it is not workable to use existing IT systems deployed by either the City or UF to either conduct research or to use as a basis upon which experimental capabilities could be built. This is due to the critical operational nature of these systems and the proprietary software and services on which they rely.

We also learned that no single city location can be considered as representative of many possible safety scenarios. To deploy data sensors and other necessary experimental capabilities in multiple locations is unrealistic and overly constrains research questions and approaches.

We learned of City concerns regarding the desirability of equitably covering safety issues faced in Gainesville and a clear connection between City investments in personnel time and benefits to the City.

We concluded that building a living lab facility whose environment can be modified to capture the safety-relevant issues of multiple locations across campus and Gainesville and a shared framework to capture the issues and research approaches with input from community representatives circumvent the above-mentioned problems. The living lab can also be used as a venue and context for project interactions with the community at large.