Sentient PSS for Smart Cities

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Abstract:

Being "smart" has become the Holy Grail for cities and city developers around the world. The idea of a smart city however, has been mostly limited to real-time data acquisition from ever expanding sensor networks. Utilizing these data in thinking about the future, planning, or decision-making has been largely overlooked. Developing a useful planning support system (PSS) for a smart city requires that the PSS possesses a degree of sentience—an awareness of application context and user needs—that few if any current PSSs currently possess.

In this chapter we seek to make a case for sentient PSS by first briefly examining the notion of sentience from a computing perspective and by presenting case studies of emerging sensor-driven sentient computing applications. These case studies help us identify essential characteristics of a sentient PSS. We then consider how these characteristics might be manifested based on our experiences in PSS development. We argue, as we have elsewhere, that use-driven development—testing and refining the system in real-world applications—must be the signature of future work on a sentient PSS. We conclude with a discussion on potential challenges and paths forward.

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