Cyber Physical Systems for Storm Water Management

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1670 Beyster Building (North Campus), University of Michigan

Abstract: Combined Sewer Overflows (CSO) are a major environmental challenge for more than 700 cities in the United States. CSOs are responsible for the release of more than 850 billion gallons of untreated sewage into rivers, lakes, and oceans. During rain events, sewers carrying storm water and wastewater are overwhelmed. To prevent flooding the sewer system was designed to shed the excess flow by releasing untreated wastewater directly into neighboring water bodies.

Recent technological advances in Cyber Physical Systems (CPS), wireless sensor network technology and cloud computing has allowed utilities to optimize the operation of their sewer systems. This presentation will talk about how the City of South Bend, Indiana utilizes low cost level and flow sensors powered by Internet of Things, machine learning and optimization techniques to manage its sewer and storm water systems and improve the water quality of the Saint Joseph River.