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Robust RF Antenna for Sewage Monitoring

Integrated manhole antennas provide a low-cost, ground-level method for wirelessly transmitting critical water quality information from remote sewer sites.

Sewer lines require constant monitoring in order to track sewage content. Currently, sewage monitoring is carried out by individuals who manually sample sewer lines with specialized equipment or by equipment permanently housed in water treatment facilities. These current solutions are neither cost effective nor mobile enough to accurately monitor the content of an entire city's sewer system. Introduction of a wireless sensor system to monitor sewage content would remove the cost of manual measurement and be expansive enough to accurately cover a citywide system; however, for a wireless system to work efficiently, the sensor antenna would have to be located above the sewer at ground level in order to minimize signal interference.

Researchers at Purdue University have developed a method of manufacturing an adaptive radio frequency antenna into an existing or manufactured manhole cover. This places the antenna at ground level, reducing transmission interference. The integrated antenna provides a low-cost method of wirelessly transmitting water quality information from a remote site to a base station for data collection and analysis.

Advantages:

-Low cost

-Utilizes existing manhole covers

-Does not require roadway construction

Potential Applications:

-Sensors

-Image Processing

TRL: 8

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Category
Buildings, Infrastructure, & Construction/Structural Health Monitoring
GreenTech/Water & Resource Management

Authors
William Chappell
John Mastarone

Further information
Will Buchanan
wdbuchanan@prf.org

View online

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