

Review on Different Techniques to Automate Conventional Drainage System

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Abstract: *The field of urban water management has witnessed significant advancements in automated monitoring and control of drainage systems. This review explores cutting-edge technologies to boost efficiency, enhance safety, and promote environmental sustainability in urban drainage infrastructure. The incorporation of intelligent technologies, novel control techniques, and artificial intelligence methods is emphasized to tackle issues confronting urban drainage. The use of Internet of Things (IoT) sensors and intelligent systems is suggested to enhance drainage monitoring, potentially decreasing the need for manual labour and associated expenses while improving safety protocols. Model Predictive Control (MPC) is recognized as a promising approach for more effective management of integrated urban drainage networks, though research methodologies remain diverse. Artificial intelligence technologies have demonstrated potential in addressing various aspects of urban drainage systems, including real-time operational control, flood forecasting, and pipe defect identification. Despite the considerable potential these innovations offer, additional research and practical applications are essential to fully realize their advantages in real-world contexts. This review highlights the current state of research in automated urban drainage monitoring and control, discussing the potential benefits and challenges of implementing these technologies in practice.*

Keywords: Smart Sensors, Real Time Monitoring, Internet of Things (IoT), Model Predictive Control (MPC), Artificial Intelligence, Flood Forecasting, Environmental Sustainability, Energy Efficient