ABSTRACT

Effective maintenance of manholes is paramount for urban infrastructure integrity and public safety. Presently, traditional maintenance methods are reactive, leading to potential risks from undetected issues. Existing manhole monitoring systems primarily focus on preventing copper theft but lack comprehensive maintenance and safety features. The proposed manhole monitoring project addresses these shortcomings by utilizing MEMS sensor for precise detection of manhole cover movement and early anomaly detection. Through the integration of MEMS sensors for detecting manhole cover movement and advanced alert mechanisms such as water overflow sensors and hazardous gas detectors for methane, our system ensures proactive maintenance and timely alerts for potential hazards. Further our proposed system integrates indicator lights to illuminate obscured manhole covers, reducing accident risks and enhancing pedestrian and motorist Unlike previous systems, which relied on GSM connectivity, our utilization of WiFi enables more reliable and seamless communication for enhanced monitoring capabilities. Overall the proposed system provides a holistic solution to prevent accidents, streamline maintenance, and improve urban infrastructure management, ultimately enhancing public safety and functionality.