

# IoT Based Smart Dustbin with IoT Notification and Location

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**Abstract:** Managing waste in cities has become a serious issue because the traditional collection system isn't efficient. Bins often overflow, making streets dirty and creating health risks. Sometimes, garbage trucks come too early when the bin isn't full, or too late when it's already overflowing. To solve this, we propose a smart dustbin that uses IoT (Internet of Things) technology to monitor waste levels and notify collection teams when it's time for a pickup. This system helps reduce unnecessary trips, saves fuel, and keeps the surroundings clean. The smart dustbin is designed with sensors that can detect how full the bin is, track its location using GPS, and even monitor bad odors. All this data is sent to a cloud system, which helps authorities plan better waste collection routes. When a bin is full or emits a strong smell, an automatic alert is sent to the waste management team via SMS, mobile apps, or web dashboards. This ensures that bins are emptied on time, preventing overflow and maintaining hygiene in public places. In addition to better waste collection, the system also supports proper waste segregation using RFID technology, which helps separate different types of waste automatically. Looking ahead, AI (Artificial Intelligence) could be used to make the sorting process even smarter, and blockchain technology could help track waste disposal for better transparency. Overall, this smart dustbin system can make waste management more efficient, reduce pollution, and contribute to a cleaner and healthier environment.

**Keywords:** Smart Dustbin, IoT, Waste Management, Location Tracking, Real-Time Notifications, Waste Segregation

