GENROBOTICS®

CASE STUDY :

BANDICOOT ROBOT DEPLOYMENT IN RAJASTHAN

Replacing Manual Manhole Cleaning with Robotic Operations Across 23 Cities

CLIENT :
Multiple Urban Local Bodies (ULBs), Government of Rajasthan

SECTOR:
Urban Sanitation / Public Works

LOCATION :
23 Cities across Rajasthan, India

ROBOTIC SOLUTION DEPLOYED:
*Bandicoot Robot –
Electrically powered robotic system for non-entry manhole cleaning.

*Designed for confined space cleaning of pits and manholes in hazardous environments, Supported by Genrobotics' high-pressure jetting system.

PROJECT BACKGROUND

In Rajasthan, frequent blockages in sewer systems and manholes required workers to perform manual entry cleaning under hazardous conditions and extreme heat. To modernize this practice and enhance safety, the state launched a large-scale deployment of 32 Bandicoot robots across 23 cities, replacing traditional methods with automated, remote-controlled cleaning.

DEPLOYMENT HIGHLIGHTS

- Robots Deployed: 32
- Cities Covered: 23 (Jaipur, Udaipur, Ajmer, Jodhpur, etc.)
- Total Manholes Cleaned Since 2022: 50,494
- System Integration: Used alongside municipal jetting and suction vehicles.
- Operators Trained: Local workers upskilled for robotic operations.

CHALLENGES ADDRESSED

- Manhole cleaning in temperatures exceeding 45°C.
- Exposure to gases and sludge during manual pit access.
- Lack of preventive maintenance leading to frequent blockages.
- Safety and compliance gaps with traditional manhole cleaning methods.

TECHNOLOGY IMPACT

- Remote Operation: Robots cleaned manholes without requiring human entry.
- High Efficiency: 20–25 manholes cleaned per day per unit.
- Urban Adaptability: Deployed in narrow lanes and high-footfall areas.
- Performance Monitoring: Digital dashboard used to log and audit operations.

OUTCOMES & BENEFITS

- Over 50,000 manholes cleaned with zero human entry into pits.
- Enhanced worker safety and operational efficiency.
- Scalable model adopted across multiple municipalities.
- Positive shift toward technology-led sanitation infrastructure.