CleanWalker Robotics

University of Texas at Austin

Autonomous Litter Collection — Campus-Ready Robots, Research-Grade Data

01 — THE CHALLENGE

UT Austin manages 431 acres, 20+ million square feet of built space, and 51,000+ students — with a 700-person Facilities Services team keeping it all running. The university has already proven that autonomous robots can operate safely on campus through the $3.6 million NSF "Living and Working with Robots" grant, deploying robots across campus with regulatory and insurance barriers pre-cleared. Meanwhile, outdoor litter collection across the Forty Acres — walkways, green spaces, plazas, and event areas — remains entirely manual. With the UT Works modernisation underway and Austin's position as a robotics and AI hub, the infrastructure and institutional appetite for campus robotics are already in place.

02 — OUR SOLUTION

CleanWalker is the world's first commercial quadrupedal litter-collecting robot — purpose-built for the type of campus environment UT Austin has already proven robot-ready:

- **AI-powered detection** across 20+ litter categories (25,000+ real-world images)
- **Four-legged locomotion** navigates grass, gravel, brick paths, stairs, and curb transitions
- **Texas heat operation** with multi-shift capability (20+ hours/day)
- **Quiet operation** (<55 dB) suitable near classrooms, libraries, and residential halls
- **Research-grade data** — litter heatmaps and waste analytics available for co-publication

Collected waste is bagged for existing Facilities Services collection routes — no new infrastructure required.

03 — PILOT PROPOSAL — 4 UNITS, 6 MONTHS

Deployment zones: South Mall / Main Mall corridor, Speedway pedestrian zone, and East Campus green spaces

KPI	TARGET
Litter items collected per unit/day	Tracked & reported weekly
Coverage per shift	2,000–4,000 m²/hr per unit
System uptime in Texas heat	>90%
Terrain types navigated	Grass, gravel, brick, paved, stairs, curbs
APPA cleanliness level impact	Pre/post measurement in pilot zones

04 — VALUE PROPOSITION

1.5–2.5
FTE OFFSET PER UNIT

40–60%
COST REDUCTION AT SCALE

RaaS
ROBOT-AS-A-SERVICE MODEL

Zero
HARDWARE OWNERSHIP REQUIRED

UT Austin is uniquely positioned for this pilot. The NSF grant has already cleared the regulatory and insurance path for autonomous robots on campus. Research groups provide a natural co-publication opportunity — the first peer-reviewed study of commercial quadrupedal litter collection in a university environment. The UT–City of Austin innovation partnership means a successful campus pilot directly informs city-wide deployment discussions.

cleanwalkerrobotics.com | walker@cleanwalkerrobotics.com | MB Software Studio LLC

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