



Real-Time Environmental Intelligence on the Move



GEO REFERENCED MONITORING
FOR SMARTER URBAN PLANNING

Overview

The **Mobile Urban Environmental Monitoring System** is a compact, vehicle-mounted solution designed for high-resolution, geo-referenced environmental data collection during mobile surveys. It combines real-time environmental sensing, GPS positioning, and automated data logging to capture detailed spatial and temporal variations in urban environmental conditions.

Designed for rapid deployment in standard vehicles, the **Mobile Urban Environmental Monitoring System** transforms any vehicle into a mobile meteorological and environmental research platform, supporting Urban Heat Island (UHI) mapping, smart city environmental profiling, and targeted air quality assessment.

Features

- ✓ Compact Vehicle-Mounted Design
- ✓ 7-inch Industrial HMI Touchscreen
- ✓ Real-Time Data Visualization and Diagnostics
- ✓ Integrated GPS Positioning
- ✓ High-Resolution Geo-Referenced Data Collection
- ✓ USB Data Export
- ✓ Automatic Internal Data Storage
- ✓ CSV Data Format Compatible with GIS and Data Analysis Platforms
- ✓ Weatherproof Temperature and Relative Humidity Sensor with Naturally Aspirated Solar Radiation Shield
- ✓ Optional Air Quality Sensor Integration
- ✓ Direct 12V DC Vehicle Power Connection

Applications

- ✓ Urban Heat Island (UHI) mapping and climate resilience planning
- ✓ Street-Level Air Quality Profiling
- ✓ Urban Environmental Monitoring
- ✓ Smart City Environmental Surveys
- ✓ Infrastructure Environmental Impact Assessment
- ✓ Microclimate Research
- ✓ Meteorological and Academic Research

System Configuration

Component	Description
Enclosure	Compact Plastic Industrial Enclosure for Mobile Field Applications
User Interface	7-Inch Industrial HMI Touchscreen
Positioning	GPS Receiver with External Magnetic-Mount Antenna
Temperature & Humidity	Weatherproof Ambient Air Temperature and Relative Humidity Sensor
Radiation Shield	Naturally Aspirated Solar Radiation Shield
Data Logging	Configurable Intervals Down to 5 Seconds
Storage	Internal Non-Volatile Memory
Data Export	USB Flash Drive
Data Format	CSV
Power Supply	12V DC Vehicle Auxiliary Outlet

Sensor Configuration

Core Sensors

- ✓ Ambient Temperature
- ✓ Relative Humidity
- ✓ GPS

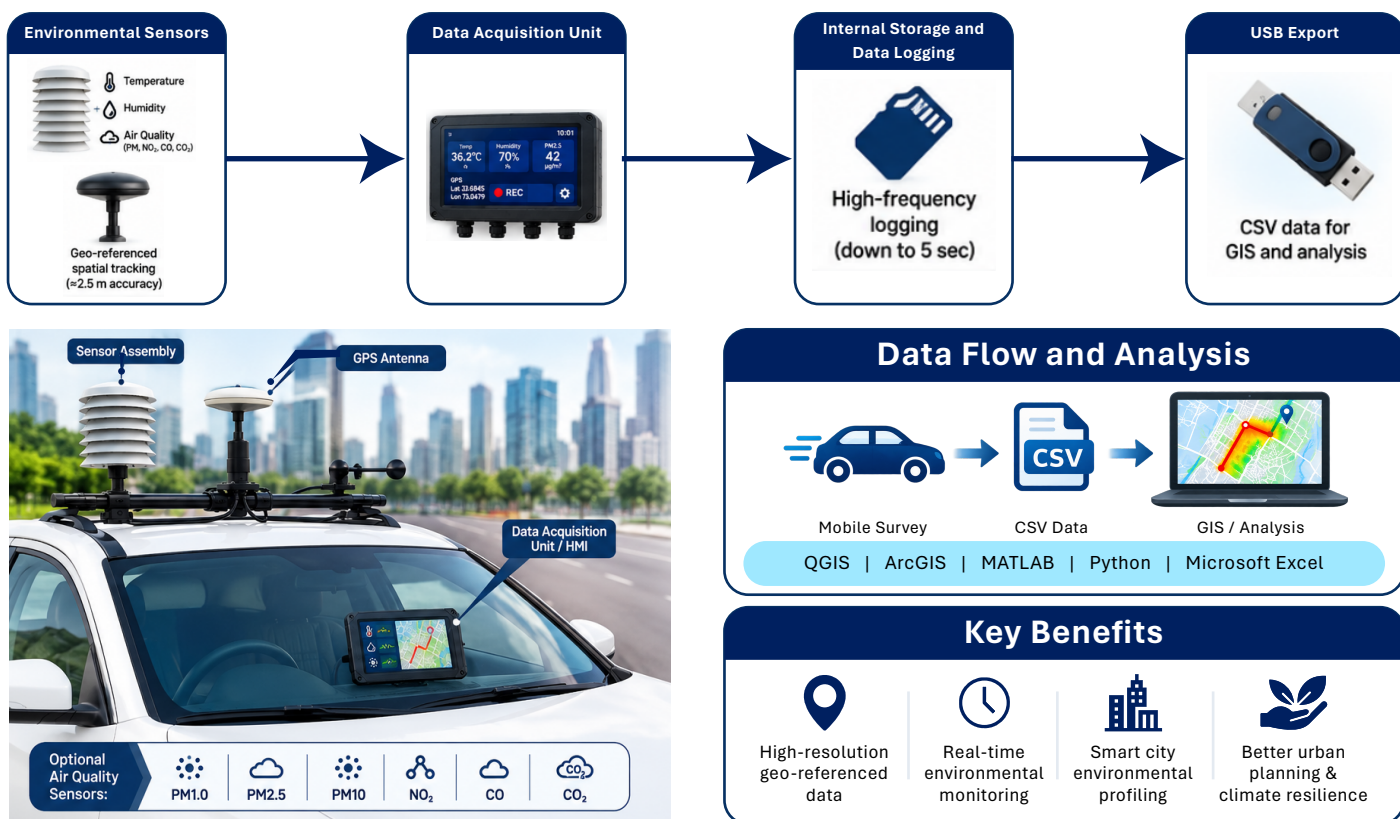
Optional Air Quality Sensors

- ✓ PM1.0
- ✓ NO₂
- ✓ PM2.5
- ✓ CO
- ✓ PM10
- ✓ CO₂

Data & Connectivity

The system continuously records environmental measurements along with GPS coordinates, enabling precise spatial analysis of mobile survey data. Logged data can be exported directly via USB in standard CSV format for use with QGIS, ArcGIS, MATLAB, Python, and Microsoft Excel.

System Architecture



For comprehensive details, visit: www.buraq.com/mobileurban-ems

Urban Heat

Mapping Heat. Understanding Cities.

The Mobile Urban Environmental Monitoring System enables high-resolution collection of ambient temperature data with GPS positioning, allowing detailed mapping of Urban Heat Island (UHI) patterns across city landscapes.

By capturing temperature variations street-by-street and neighborhood-by-neighborhood, the system delivers valuable insights for climate resilience planning, sustainable urban development, and smarter decision-making.

Key Benefits



High-Resolution
Heat Mapping



Geo-Referenced
Temperature
Data

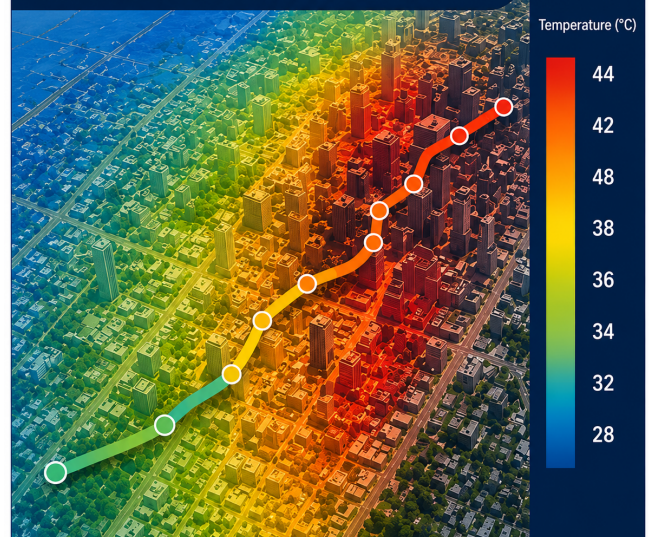


Identify Heat
Hotspots &
Vulnerable Areas



Support Climate
Resilience &
Smart Planning

URBAN HEAT ISLAND (UHI) MAPPING



COOLER AREAS

Parks, Water Bodies,
Low-Density Zones



TRANSITION ZONE

Mixed Land Use
Areas



HOTTER AREAS

Dense Buildings,
High Traffic, Low Vegetation

How it Works



Mobile Survey

System collects
temperature data
while in motion



Data Logging

High-frequency,
geo-referenced data
is automatically
stored.



Heat Mapping

Data is processed
to visualize
temperature
variations



Insights & Action

Identify hotspots
and support
data-driven
urban planning



Real-World Impact

Accurate UHI data helps cities reduce heat stress, optimize green infrastructure, improve energy efficiency, and create healthier, more livable urban environments.



Plan Green
Infrastructure



Reduce Heat
Stress



Improve Energy
Efficiency



Enhance Quality
of Life

For comprehensive details, visit: www.buraq.com/mobileurban-ems



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