

Cambridge trash trucks are outfitted with special sensors from MIT



By [Steve Annear](#)

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Some of Cambridge's garbage trucks are no longer just collecting and compacting rubbish discarded by residents on the curbs in front of their homes.

Now, the vehicles have taken on several other tasks aimed at making sure the city is in working order, including scanning the streets for nascent potholes and keeping tabs on the quality of the air.

Earlier this year, the city Department of Public Works joined forces with the Massachusetts Institute of Technology's Senseable City Lab and attached a series of special sensors to five of the large, orange vehicles that snake through Cambridge's many neighborhoods each week.

The program, called City Scanner, is still in the testing phase. But researchers from the lab say they're already collecting "urban data" from thermal sensors, vibration sensors, and air quality sensors affixed to the vehicles that could one day change how the city responds to certain issues.

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"We want to provide better data to citizens, so that they can better understand the environment they live in," said Carlo Ratti, the lab's director and a professor at MIT. "Fresh data means a faster response time in case of an emergency. Gathering urban data on a regular basis, one can detect anomalies quickly, and trigger the needed response."



Cambridge deploys its trash trucks Monday through Friday, on regular routes that are repeated each week.

Ratti said that's an advantage. Rather than rely on expensive and infrequent data collection from stationary objects, the roaming sensors tacked on to the trucks gives their research greater range.

“For instance, with the thermal sensors, we can detect whether certain buildings are hotter than they were in previous weeks, which can indicate some heat leak,” he said. “Addressing it quickly can save money for the resident and make the city more sustainable.”

So far, during the test deployment phase, the lab has mostly tracked air quality and pothole problems, Ratti said. But researchers plan to expand the project, and one day use similar technology to collect information about neighborhood noise, light levels, and even methane leaks.

Owen O’Riordan, Cambridge’s public works commissioner, said the city is happy to be a test subject. For now, the group is still collecting data, which he said has not been shared with officials.

But O’Riordan said he’s excited to see if the project benefits the city.

“Certainly, something could come out of this,” he said. “To the extent that information can be made available to us, it may improve our response time to infrastructure problems in the long term.”