Public Wi-Fi data can reveal why you really bought that sandwich

Why do people choose one lunch spot over another? The answer is in your Wi-Fi connection. At least, it is according to researchers at the Federal Institute of Technology (http://actu.epfl.ch/news/wifi-breadcrumbs-reveal-pedestrian-patterns/) in Lausanne, Switzerland, who used millions of points of anonymised Wi-Fi location data to work out why certain on-campus eateries were more popular than others.

The anonymised data, collected over ten days in mid-2012, comprised two million location points collected from 789 Wi-Fi (wi-fi) antennas. This was then combined with map data and information on room use, class schedules and data on what was purchased and when from various eateries.

"We have statistics and numbers on people who drive and take the train, but pedestrian behaviour is often a mystery," said Antonin Danalet, from the university’s transport and mobility laboratory, who led
the research. But, he argued, better use of data could reveal new patterns of movement at music festivals, museums or even hospitals.

Daniel worked with the university's IT department to link the data points he collected with 2,000 of the university's (university) 13,000 students. This, he said, let him know if the otherwise anonymous dots were staff or students and, if the latter, how long they had been studying.

This data could then accurately show what kind of people were moving around and at what time. Crucially, it also gave detailed information about how they moved around. To this end, Danalet used his data to monitor restaurant (/restaurants) use during the two week trial. With 21 locations to buy food (/food) on campus, he wanted to find out why some were more popular than others. Each eatery was assigned a score based on price, size of the space, location, opening hours and the food served.

From his Wi-Fi data Danalet could see where architecture (/architecture) students preferred to eat, but he could also spot larger trends. Price was the most important factor, but the size of the eatery also played a part. Larger locations had faster lines and proved more popular.

Using public Wi-Fi networks to track people is nothing new, but the data collected is rarely made public. In 2014 the Kingsgate shopping centres in Huddersfield became one of the first in the UK to use the technology to accurately track shoppers and show more targeted advertising.
A year earlier, London's rubbish was at the centre of a privacy row when it emerged that a startup had fitted 12 bins with Wi-Fi tracking technology. The bins, located around Cheapside in the City of London, were part of an unpublicised trial to collect data from passersby.

This data could then be used to display targeted adverts (adverts) on TV screens embedded on the sides of the bins. Once news of the trial reached the press, it was promptly suspended.

The insights gleaned from the data, Danalet said, allowed him to predict changes in behaviour amongst the campus population. "What will happen if the price of the daily special goes up? Where will the cost-conscious go? And what sort of impact will a new eatery have?"

In stark contrast to Danalet's openness, most Wi-Fi tracking (http://www.wired.co.uk/magazine/archive/2014/03/features/eccommerce-is-history/page/2) goes on with little user knowledge.

London-based Presence Orb (http://www.wired.co.uk/news/archive/2014-04/22/presence-orb) has been selling tracking equipment since 2013, with the likes of Swirl, shop kick and inMarket all using similar beacon technology to collect vast quantities of data.