V. Trends Analysis

Health concerns

In the early 2000's, news reports and research warned parents to watch their children's backpack weight. Research concluded that backpacks weighing more than 15 percent of a child's body weight can cause back, neck and shoulder pain.[1] Wheeled backpacks became less of a solution than bag makers had hoped. The same research noted that children often carried their wheeled backpacks instead of rolling them, and that some schools forbade wheeled backpacks, which could clutter hallways and cause tripping accidents.

Security concerns

Weight measurement enables more precise, automated and less intrusive security control. Weight of an object is not easily changed or faked, and collecting weight data, as opposed to visual inspection, can gracefully balance heightened security concerns (at places such as airlines and retail stores) and concerns over privacy, time constraints and inconveniences imposed by those security concerns.

Real-time usage data analysis to improve construction and design

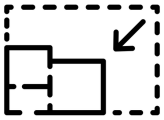
Sensors are being embedded in products to collect and transmit usage data about those products in real time (think about software makers that ask permission to collect anonymous usage data to improve their software). Manufacturers and designers of an increasing number of "connected" products, such as washing machines and cars, are inferring from sensor data the identities of objects and how they are being used in order to improve designs, predict component failures, and streamline manufacturing processes and services.

[1] Huggins, C. (2002, December 19). Most Parents Don't Know Weight of Child's Backpack. *Reuters*.

Sensor technology improving

Weight data is being tied to the identity of objects at an accelerating rate, and sensors are improving to capture this data with incredible granularity. At their introduction in the late 1990's and spread in the early 2000's, self-checkout machine weight sensors were widely known to ineffectively weigh items, plaguing customers with time-consuming, embarrassing false alerts. But as sensor technology improved and databases became "self learning," able to adjust values based on aggregated real-world use, user experience and perception of weight sensors and the systems built around them has improved.

The design and manufacturing processes of general purpose containers can also benefit from data collected about the use of those containers. Timely weight data is vital in these processes.



Objects getting lighter and smaller

Designers and manufacturers of general purpose containers will benefit from knowing more about the collective weight of the objects that people put in their bags, taking advantage of the demand for and expectation of designed objects to be lighter and smaller. Car manufacturers are producing smaller and lighter vehicles to meet demand, and realizing cost-savings by retooling manufacturing processes so that less heavy material is involved. An adverse economy has made airlines realize the aggregated costs of moving heavy things, and the potential cost savings and profit-potential of controlling weight by charging customers more for every pound they bring on flights.

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