Analysis of Consumer Behavior in a Supermarket

AT A GLANCE
• real-time localization of shopping carts
• anonymized analysis of movement profiles
• correlation of walking route & purchase
PROBLEM DEFINITION
In a supermarket, the customers' movements are analyzed in order to gain insight into their habits and their buying behavior. This can be used to optimize the design of the store and the placement of the products. The indoor tracking system should also allow for a more needs-oriented personnel planning.

SOLUTION
With the help of indoor localization via Bluetooth, the position of the shopping cart is determined within the sales area. In the backend, the consumer's walking routes are visualized and, e.g., heatmaps with high-traffic and low-traffic areas can be generated. By analyzing the utilization at important areas such as the cash desk or the deli counter, the personnel requirements can be determined efficiently. In addition, a passive RFID system can be used to create a link between the customer's movements and his purchases (by means of a comparison with the receipt's time stamp). From the results, anonymized shopping profiles can be derived.

TECHNICAL IMPLEMENTATION
In order to track customers' movements, Bluetooth Low Energy (BLE) beacons are installed on the shopping cart and shopping baskets. infsoft Locator Nodes, which are installed inside the premises, capture the beacons and forward their position to the infsoft LocAware platform® where the walking routes are displayed.

The shopping carts can not only be equipped with a BLE beacon, but also with an RFID tag, which is scanned at the cash register by a Locator Node. By matching the data with the receipt's time stamp, the correlation between the customer's movements and his purchases can be established.