VI. Technical Infrastructure

Bagsens' technical infrastructure includes weight-measuring sensors, communication protocols used to transfer data, and mobile devices and databases to store and process data.

Communications protocols

Bluetooth
The widely-used short-wave communications technology Bluetooth is the most capable of handling the wireless transfer of weight data from Bagsens sensors to nearby mobile devices using low power consumption.

Bluetooth technology standards are developed by the Bluetooth Special Interest Group, comprising over 20,000 paying corporate members, who exert varying levels of influence over standards development and do not charge to use the protocol's published wireless specifications.[1] This organizational structure and the low barrier to entry ensure a high adoption rate among connected device designers, and high levels of interoperability and backwards compatibility among connected devices. Bluetooth access is already widespread.[2]
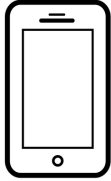
Internet (TCP/IP)
Data collected by the mobile app will be transferred to a database (described below) over the Internet (TCP/IP) using WiFi. Both technologies are open and ubiquitous, requiring no or few major infrastructure changes from:

- Retail outlets and other establishments that suffer from employee theft.

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[1] Introduction to Membership | Bluetooth Technology Special Interest Group. (n.d.). Retrieved May 10, 2015, from https://www.bluetooth.org/en-us/members/introduction-to-membership

[2] Martin, J. (2014). Bluetooth Smart's Rise From Obscurity to Mainstream. EE Times. Retrieved May 9, 2015, from: http://www.eetimes.com/author.asp?section_id=36&doc_id=1321690

● Households and schools.

Mobile App

A mobile app will store user-entered profile information (e.g. age, height, weight) and collect bag weight data from the Bagsens sensor via Bluetooth.

Database on remote central server

A database will collect data (user profile data and bag weight data) from users' mobile devices over the Internet. Data processing (e.g. algorithms estimating how heavy the bag should be by using user profile data, weight data, data from health organization's guidelines or from airline bag weight policies) will be done on a remote central server. Results will be transferred over the Internet to mobile apps and other software.

Power

The widely-used standard USB will be used to recharge the weight sensor's cell battery.

The USB specifications are developed by the USB Implementer's Forum, an organization that develops standard specifications for connecting devices to each other.[3]

Icon Credits:
Network icon by Alex Tai
Smartphone icon by Leonides Delgado
Database icon by Roman Kovbasyuk
Power icon by Simple Icons

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[3] USB.org - About USB-IF. (n.d.). Retrieved May 10, 2015, from http://www.usb.org/about