Waste management

abfallhai®

Waste management

The waste management industry has evolved rapidly in recent years, with IoT technology in particular helping to reduce costs and improve battery life. The integration of IoT-based fill-level sensors is now set to revolutionise conventional waste management. These sensors provide a continuous stream of fill-level data, which is used by intelligent algorithms to create optimised and flexible bin emptying schedules. Our waste management system is based on an intelligent metering system and wireless communication technology. By triggering an alert when the bins are almost full, it avoids unnecessary emptying runs.

How exactly does the waste management system work?

Technology
Our system uses smart sensors to continuously monitor how full the litter bins are. The Shark Eye regularly measures the current fill level using a time-of-flight (ToF) sensor. The data is then transmitted via 4G NB-IoT or Cat. M1. The device has a battery life of 2 to 3 years.

Available networks
With the Shark Eye from Littershark, you are not limited to a specific network – it can be connected to several different networks. The choice of network depends on the available connectivity in each location. Our measurement system offers you the flexibility to connect to a variety of IoT networks, including LoRaWAN, NB-IoT and the Cat-M wireless network.

LoRaWAN, which stands for 'Long Range Wide Area Network', is an energy-efficient wireless technology developed specifically for the Internet of Things (IoT). It is important to note that LoRaWAN operates **without** a SIM card and requires its own network infrastructure..

Narrowband IoT (NB-IoT) is a power-saving mobile network that has also been developed specifically for the Internet of Things. It uses narrower bandwidths than traditional networks, but thanks to wide-area technology, it can cover more devices and a larger area per cell. NB-IoT operates in conjunction **with** a SIM card.

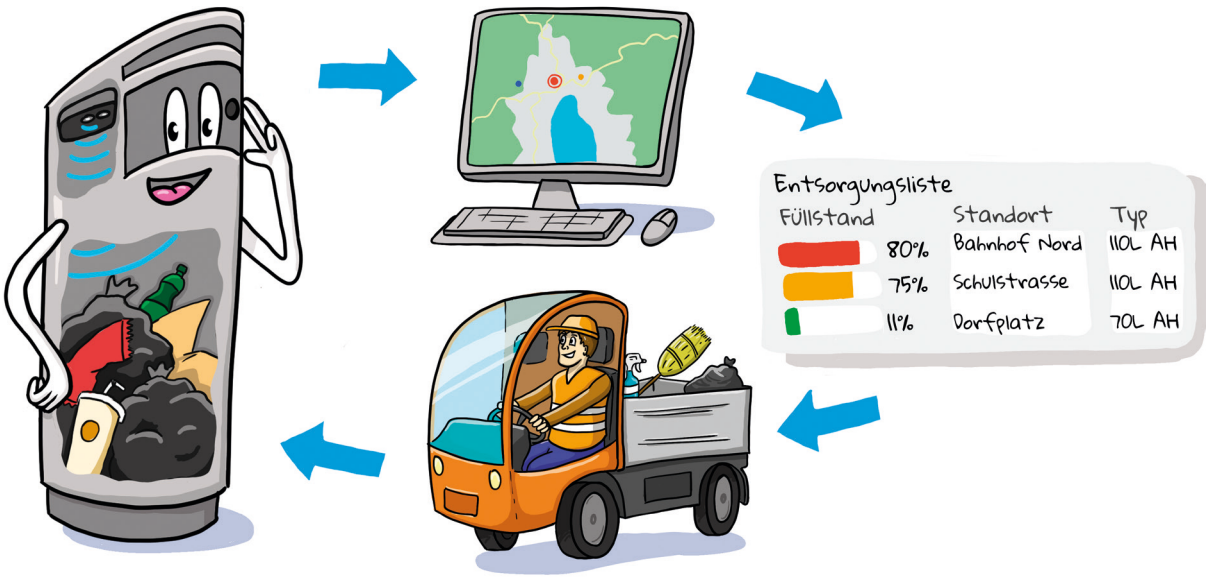
Potential uses

- Litter bins with a volume of at least 60 litres
- Solar-powered containers
- Above-ground and underground containers
- Separation systems

What types of waste can be measured?
The Shark Eye can monitor all types of waste (mixed waste, paper, plastics, glass, clothing, organic waste, liquids, electronics, metal, etc.) in bins and containers of various types and sizes.

Installation in three steps:

1. The Shark Eye is attached to the pre-mounted bolts using the mounting kit. Besides our standard mounting kit, we can also design solutions for any type of container.
2. Open the Shark App and scan the bin using the NFC tag.
3. Add the desired object (with type, photo, additional information).



The advantages

- Bins emptied on time and no overflowing containers means happy residents
- Better understanding of waste streams leads to more efficient processes
- Ideal positioning and accurate location tracking of litter bins
- Automated route planning and easier deployment of staff (absences, deputisation)
- Potentially lower transport costs
- Less noise in urban and rural areas, as well as fewer CO_2 emissions
- Valuable resources freed up for other tasks

As an added benefit,
it can also measure temperature and moisture on the bins, making it easier to plan winter maintenance and emptying runs.

Shark Eye

Want to know exactly how full your bins are at all times? Then look no further than the Shark Eye. Using a precision sensor, it accurately measures the current fill level at 16 different points. The collected data is sent wirelessly to the Shark Island. You are alerted before your Littershark starts to overflow, so you can plan your emptying runs accordingly. With the Shark Eye, you're always in control and can maximise the efficiency of your waste management processes.

Shark Eye
The Shark Eye uses a sensor to measure how full the bins are. When they reach a certain level, the Shark Eye alerts the Shark Island wirelessly.

Mounting kit
Easy installation thanks to bolts in the top of the Littershark.

NFC tag
Thanks to the NFC tag attached to the Littershark or other urban infrastructure, tasks such as emptying, cleaning and repairs can be easily recorded on the spot: simply open the Shark app and hold the smartphone up to the NFC tag. The corresponding data is then displayed clearly and transparently on the Shark Island.

Comments from customers

A diverse array of users benefit from our waste management solutions, including public authorities, municipalities, cities and communities, as well as transport companies, recycling businesses, and land and property developers.

«The Shark Eye is especially helpful in the more remote areas of the 16 districts, as we always know how full the bins are.»

Michael Neumeyer
Manager, Aichach town maintenance depot

«We can now identify hot-spots and unused litter bins even more easily. This saves us time and cuts our transport costs.»

Stefan Augsburger
Manager, Münchenbuchsee maintenance depot

«Because the app shows me if a Littershark is full or empty, I can simply drive past it if there's no rubbish on the ground around it.»

Valentin Schwaar
Werkhof Lyss

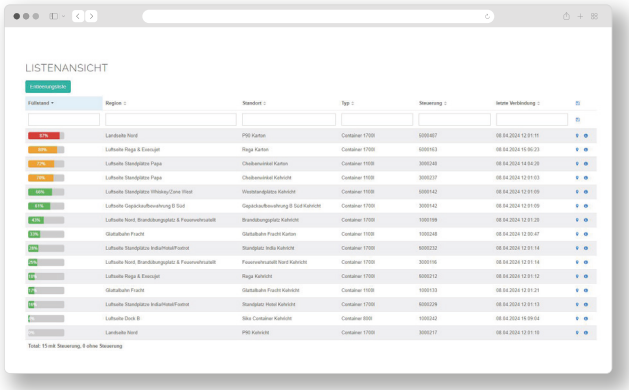
«The platform gives us an overview of our 500 or so Littersharks, including their locations and details.»

Yves Binkert
Head of Disposal
Water and Waste Management
Zurich Airport

Shark Island

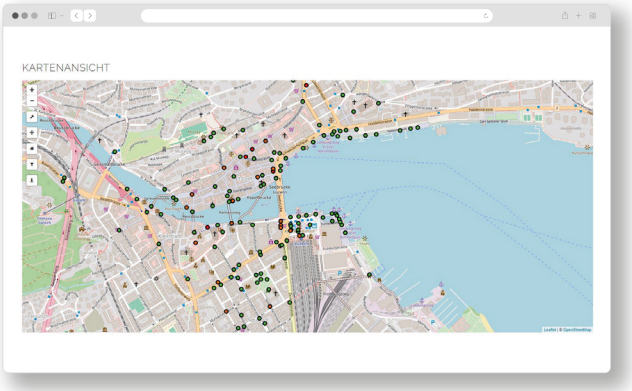
In the Shark Island, the locations and fill levels of your litter bins can be seen at any time from anywhere online. The data collected is analysed by the Shark Island, allowing for perfect planning of emptying routes, optimum deployment of staff and service vehicles, and the placement and distribution of bins in the most appropriate locations. Various other features, such as logs of monthly emptying runs for each bin, provide valuable data for billing and cost allocation. The cloud-based infrastructure keeps the Shark Island constantly up-to-date for all users, with no additional charges for updates.

List view
All relevant bin data is summarised and shown in the list view.



Map view
The map view provides a quick overview of the status of the individual bin regions. The fill level is shown in different colours:

Red = bin full
Green = no emptying needed

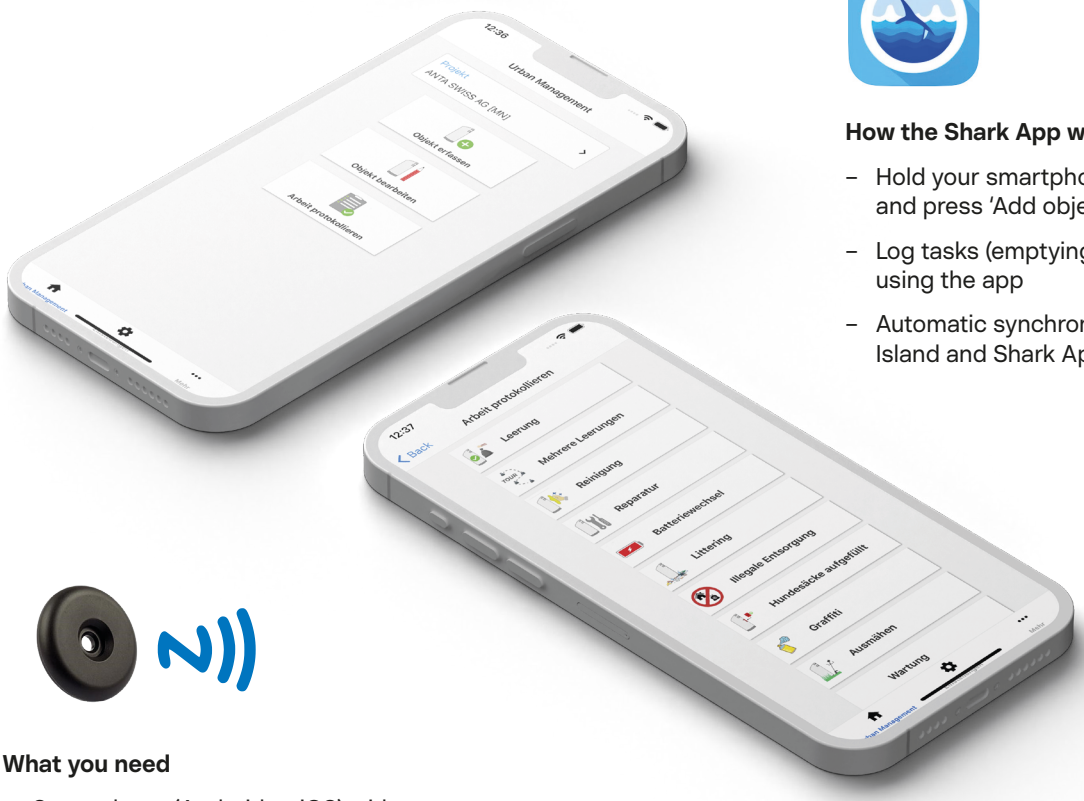


The advantages

- Optimal distribution of litter bins thanks to meaningful analysis of collected data
- Project-specific configuration by the user (e.g. create, edit and delete users, regions, locations, bins)
- Free updates, always the latest version, one licence for all users
- Fill levels can be checked on a mobile device (phone, tablet) for any collection route, which avoids emptying bins that are not completely full
- Multiple levels can be created, e.g. for multi-storey car parks, shopping centres, etc., and the solution can be enhanced and tailored to the customer's specific needs or suggestions

Shark App

The Shark Island and the Shark App are a dream team for keeping your city or town clean and tidy. Maintaining an overview of urban infrastructure has never been easier. With the free Shark App, bins and benches can be managed quickly and easily via smartphone. Whether emptying, cleaning or repairing: everything can be logged and documented in real time, including with photos. With the Shark App, you can assign tasks to people in the field and make your workflow more efficient.



How the Shark App works

- Hold your smartphone against the NFC tag and press 'Add object' in the Shark App
- Log tasks (emptying, cleaning, etc.) directly using the app
- Automatic synchronisation with the Shark Island and Shark App

What you need

- Smartphone (Android or iOS) with NFC reader
- Shark App
- Shark Island with ticket 'Inventory' or higher
- NFC tags on the objects

Laden im App Store

JETZT BEI Google Play

The advantages

- Quick and simple order entry and management
- Real-time overview
- Detailed information and history for each object
- Easy analysis of regions or locations in the Shark Island
- Always up-to-date digital inventory

AH_EN_03.05.2024

Tel. +41 44 818 84 84
Email: info@abfallhai.com

Tel. +49 40 703 83 9 83
Email: info@abfallhai.com

Tel. +43 720 273 884
Email: info@abfallhai.com

www.abfallhai.com