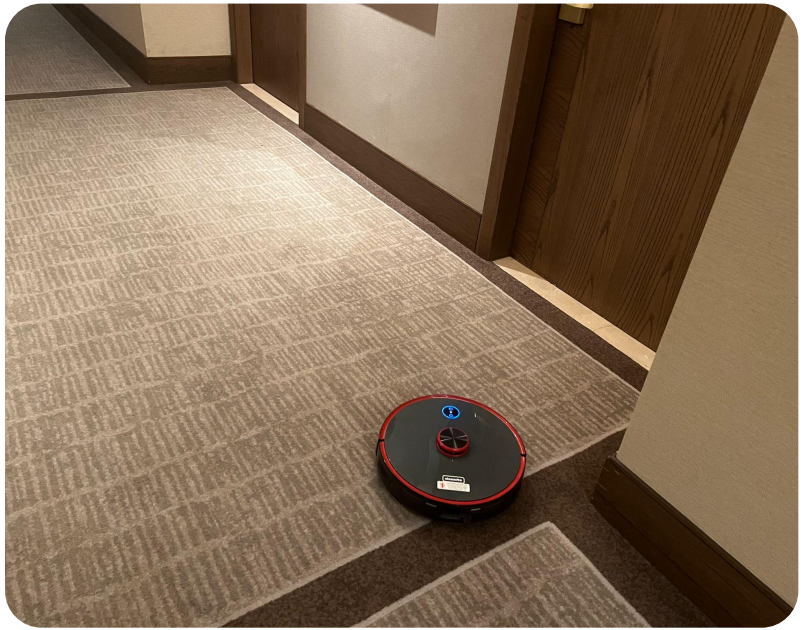
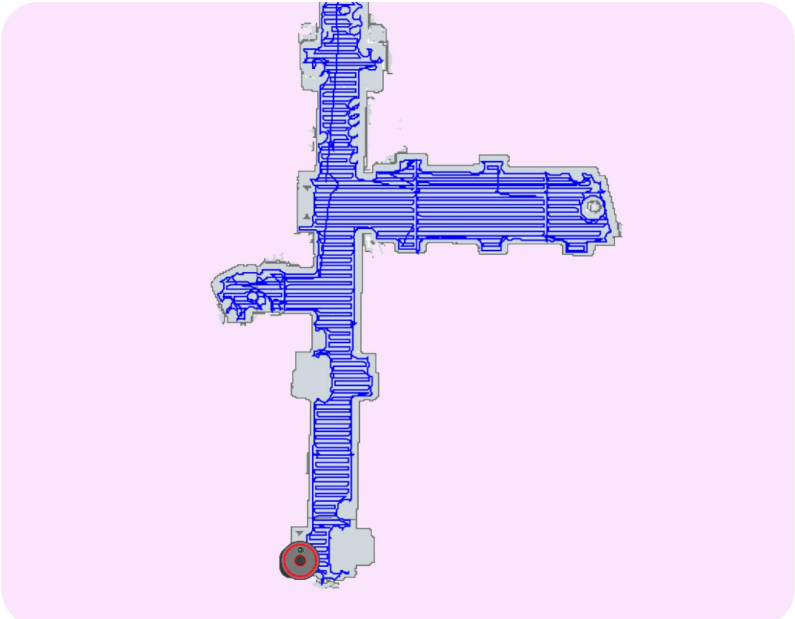

FieldBots™

Based on an installation in a Singaporean 5-star hotel

# Case Study: Microbots for Hospitality



**Hardware** Robot Cleanfix Navi S170



**Fleet Management** FieldBots OS

The challenge

# 5-Star Hotel in Singapore

The housekeeping team identified that ever since COVID-19 affected the workforce count in the hotel, the job of vacuuming the hotel's walkways had been greatly neglected. Based on this, the aim was to use robotics to relieve the cleaning team in their daily work.


## Facts

- Installation: 2023
- Country: Singapore
- Dealer Partner: JeffSupplies
- Robots: 26x Cleanfix Navi S170

Starting point

# Special challenges

- For visual reasons and due to the high standards of a five-star hotel, the robots and their base should not be left standing around freely
- Staff switches off robots and keeps them in their janitor closet
- This procedure is also intended to prevent theft
- Hotel room doors could be open at any time, so robots' maps must be exact to prevent robots from entering guests' rooms

Starting point

# Setup

- No other robots from other manufacturers are used at this site
- The installation of one robot per floor with 26 floors of rooms with an average cleaning area of 180 square meters per floor
- Floor mainly carpet and hard floor
- The robots are docked at one end of the walkway and activated to clean the walkway between check-out and check-in times by the housekeeping team
- The hotel's 2.4GHz captive portal guest WIFI network was not feasible for connecting the robot

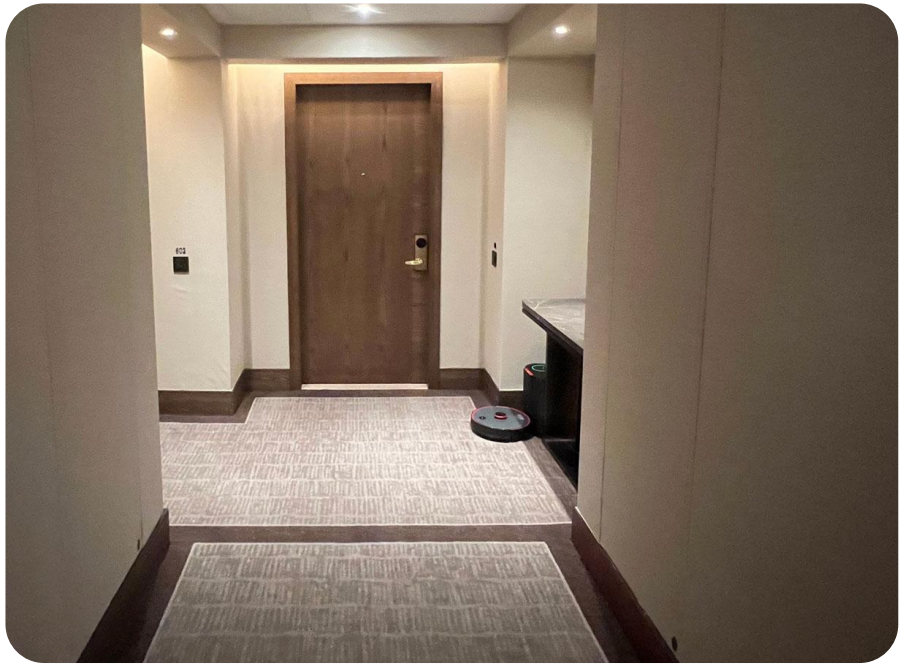
**Long corridors, 26 floors**
Due to their specific use, hotels have very special requirements for automated cleaning

Starting point

# Setup

## Takeaways:

- A **Pocket Wifi** could be used for the initial installation **to avoid delays**.
- Subsequently, the Singapore dealers were able to provide the MAC address to the hotel IT department, which **whitelisted the robots** to connect to their **internal wifi**
- The biggest challenge is **pre-empting where the robot might get stuck** and which potential obstacles require a no-go area. This circumstance underlines the **importance of a setup phase**



**Long corridors, 26 floors**
Due to their specific use, hotels have very special requirements for automated cleaning

Starting point

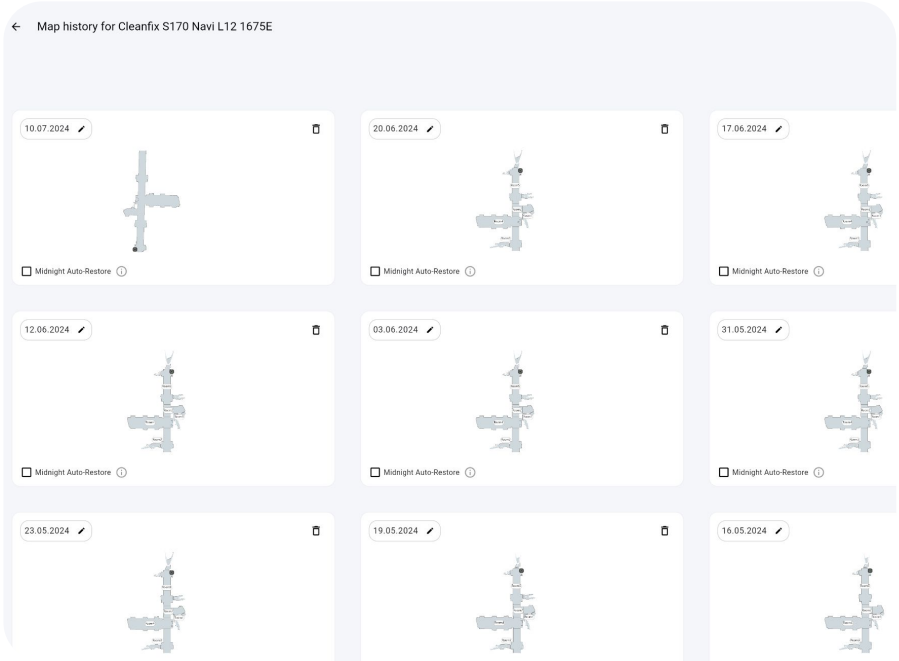
# Setup

## Takeaways:

- **Clever double use of maps** that have already been created:

  If floors have the same floor plan, mappings created once can be transferred to other robots and thus floors.

  In our case, levels 6-25 and 26-29 shared the same floor plan




**Map transfer feature of FieldBots OS**
Transferring mapping between devices can save a lot of time

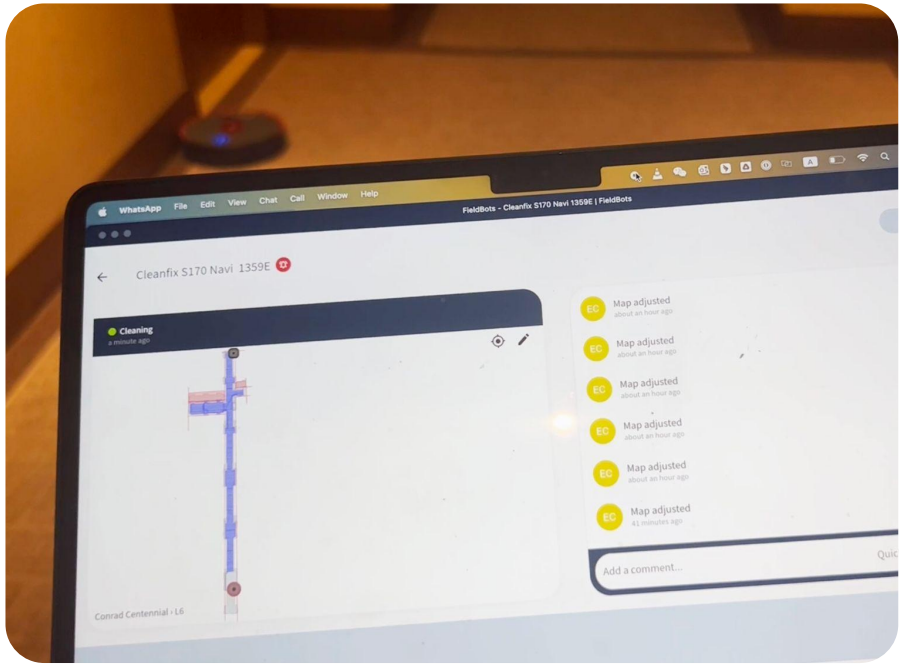
Starting point

# Setup Phase

It is crucial that the roll-out be accompanied by a subsequent setup phase after the initial setup. This can be done remotely, as in this case, so that public traffic and the daily processes of a five-star hotel are not disrupted.

**Takeaway:**

- **Reasonable fleet management** that allows remote installations is essential
- Not all obstacles can be anticipated during an initial on-site inspection. In the case of hotels, the doors of guest rooms or elevators are always open - so it must be prevented that **changing room situations hurt the work** of the robots



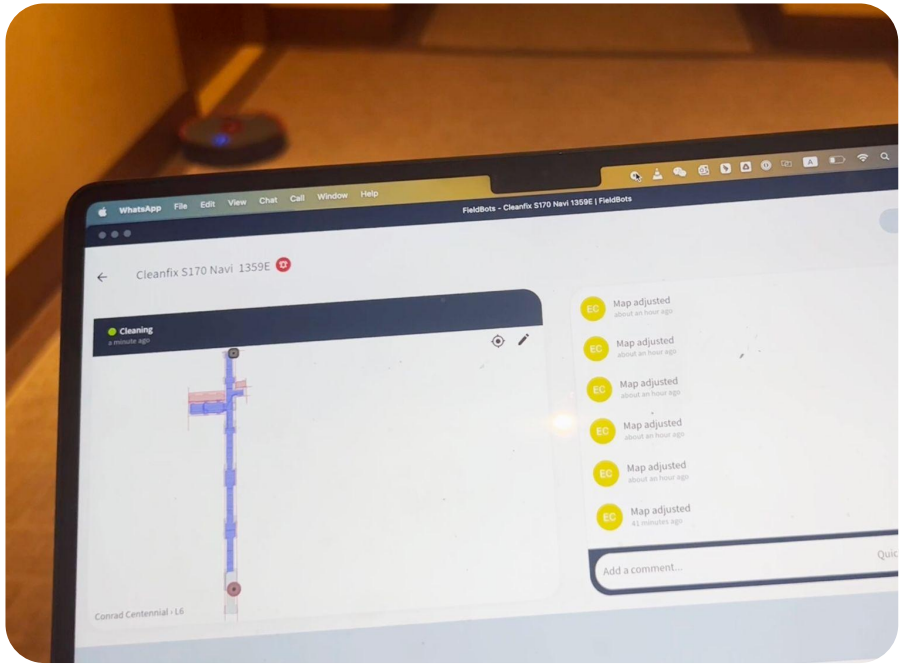

**One for each floor**
26 Cleanfix Navi S170 were installed in a Singaporean 5-Star hotel

Starting point

# Setup Phase

## Takeaway:

- The **setup phase lasted two weeks.**
  The robots' work was observed remotely to ensure smooth operations




**One for each floor**
26 Cleanfix Navi S170 were installed in a Singaporean 5-Star hotel

What we have learned from the project

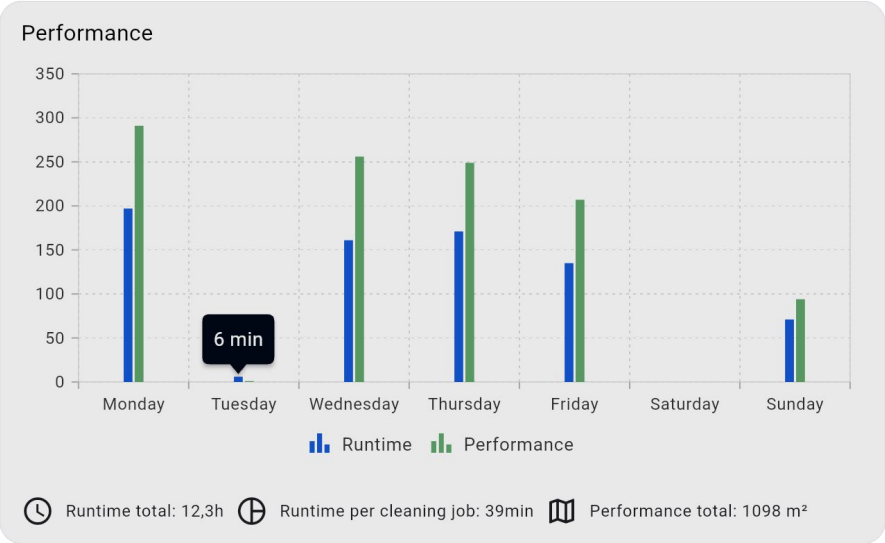
# Learning 1: Effects of the type of use

- **Daily lifting and switching** the appliances on and off can lead to increased wear
- In the case of the Cleanfix S170 Navi, this could be seen in the **suspension of the wheels**.
- Customers can benefit from your **knowledge of typical wear and tear** during certain types of use.
- If there is a high degree of physical interactivity between man and machine, the use of **robust but also cost-effective** robots is recommended. One reason why the Microbot from Cleanfix was chosen.
- Staff **training** and **instructions** stuck on robots can help to **minimize damage and wear** (see Learning 4)

What we have learned from the project

# Learning 2: Flexibility is key in hospitality

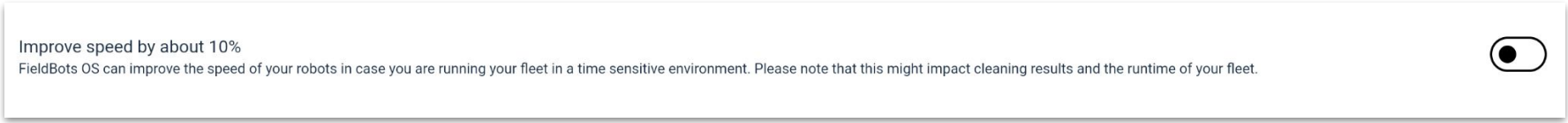
Especially in the luxury hotel segment, it is crucial that **cleaning staff can react quickly to situations**. For example, to avoid disturbing guests with the working noises of cleaning robots. The screenshot shows how the staff stopped a running robot after 6 minutes during its regular cleaning run.



What we have learned from the project

# Learning 2: Flexibility is key in hospitality

Sometimes, things have to move quickly in the hotel industry: That's why FieldBots OS has the so-called hotel mode. This feature allows users to **speed up their Cleanfix Navi S170 by 10%** directly from the software.




**Possibility to improve speed (hotel mode)**
Within FieldBots OS users have the possibility to increase speed of the Cleanfix Navi S170

What we have learned from the project

# Learning 3: Separate hardware and software schooling

The **user groups of hardware and software do not always have to overlap**. In this case, the cleaning staff use the hardware, and the software is used by the janitor and the retailer.

The hardware is straightforward to operate due to the small number of buttons and lack of display, which could confuse. Nevertheless, a further hint was quickly needed to prevent robots from being **unintentionally de-paired**.

The dealer took over the hardware training. The hotel itself trains new cleaning staff. These **short briefings** cover how to maintain the robots, switch on and off the devices, and put them at the dock.

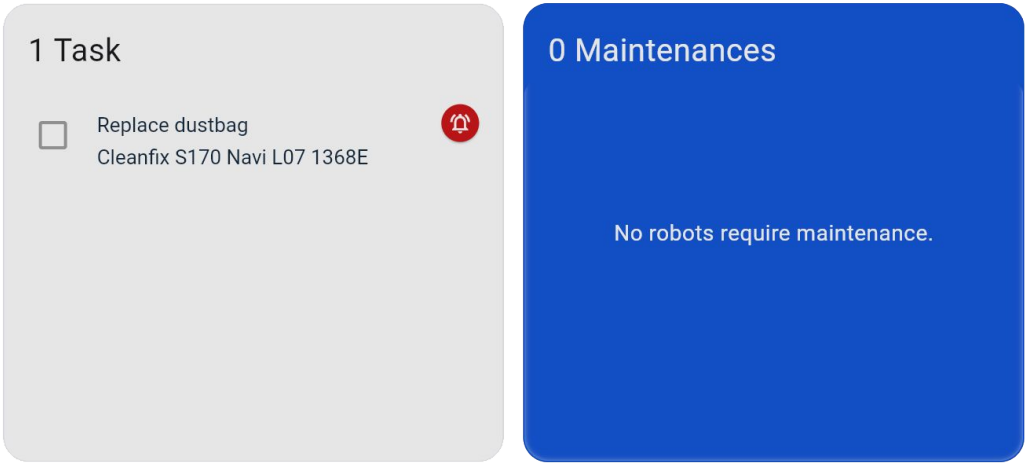

**Infographic**
This infographic is aimed at the daily users of the hardware

What we have learned from the project

# Learning 3: Separate hardware and software schooling 2

**Many users are already familiar with the handy devices** from the private sector, which prevents any fear of contact and makes the roll-out much easier.

Intelligent fleet management makes the software more straightforward to use by providing data logging services **and specific recommendations for action**. The picture shows a request to replace a dust bag on one of the 26 base stations. The janitor can pass this information on to the cleaning staff.



What we have learned from the project

# Learning 4: Theft is a theoretical problem

End customers repeatedly fear that robots could be stolen. So far, this fear has never materialized. No devices have been stolen, even in semi-public institutions with heavy traffic.

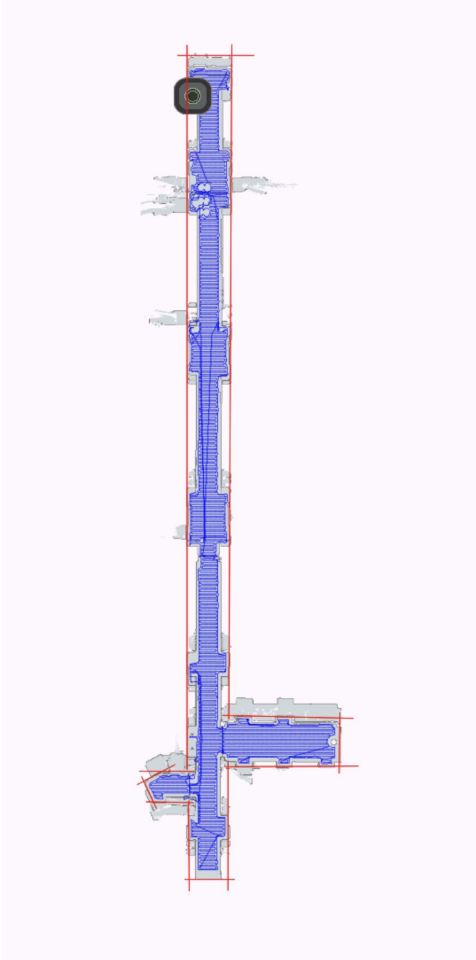
The employees always have an eye on the robots, which prevents theft on the one hand and ensures that no hotel guests are disturbed during their stay on the other (see Learning 2)

Example of Maps

# Map 1

The blue lines of map 1 show the systematic cleaning paths of the Cleanfix Navi S170

The shape of the corridor has been virtually straightened by virtual walls so that the device does not get stuck on bulges or, e.g., radiator niches. It also prevented robots from moving into guest rooms.

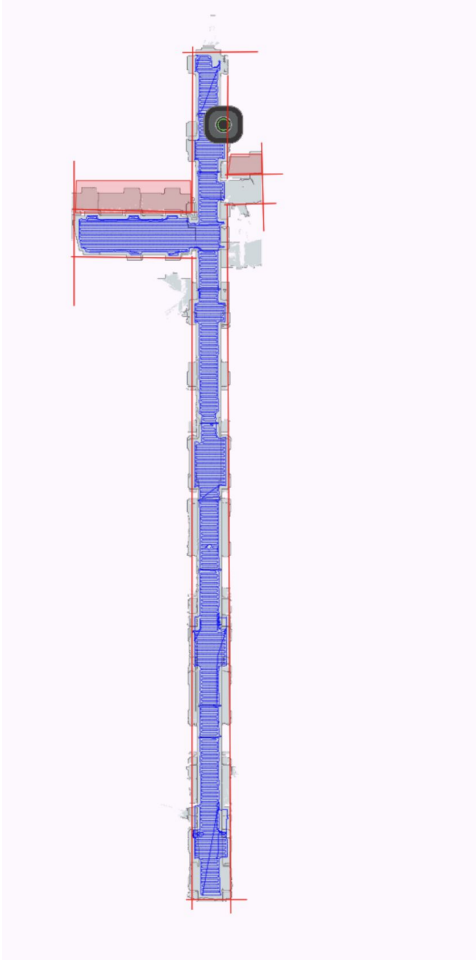


Example of Maps

# Map 2

In map 2 you can see how no-go-areas prevent robots from entering the elevators through open elevator doors.

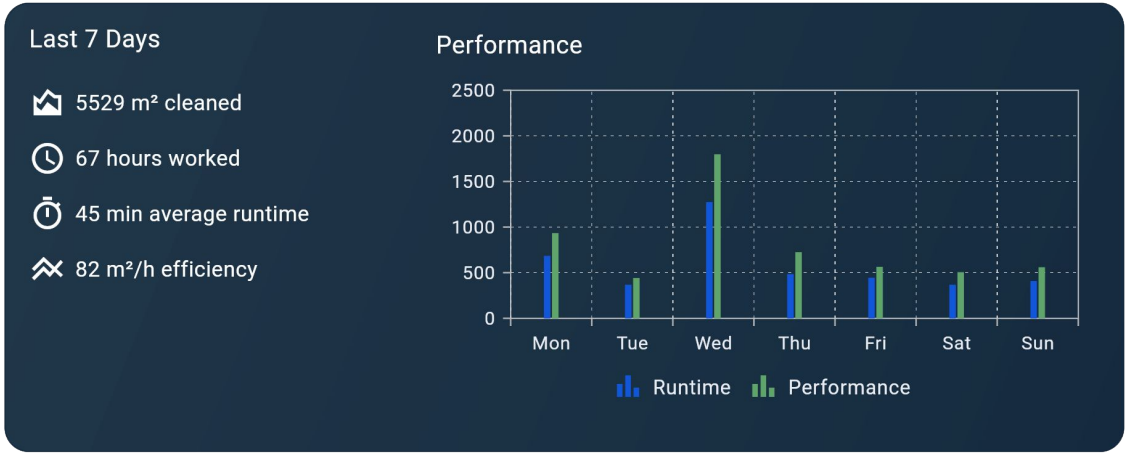
**Caution:** These lift doors are often forgotten during setup.
Taking them into account from the outset can avoid trouble later on.



What about efficiency?

# Performance

Thanks to FieldBots OS, not only the performance of one robot but also that of the entire fleet can be measured. The dashboard provides the user with all the key indicators for the performance and efficiency of their fleet. The following also applies here: KPIs can be greatly increased by continuously optimising maps, schedules and installation locations.




**Performance of the last 7 days (as if July 11th 2024)**
FieldBots OS enables continuous monitoring and a complete cleaning history

Our learnings broken down

# Results

The implementation has allowed the team to have one less task of cleaning the walkway daily, giving them more time to complete cleaning rooms that require a turnover or cleaning.

Each team member also serves as the housekeeping manager's eyes and ears on the ground, overseeing their fleet via FieldBots OS. As each member activates the robot via the app, the housekeeping manager can keep track of the robot's cleaning history and data to provide proof of cleaning.

The Cleanfix Navi S170 was the perfect inexpensive solution to fill the gap in the hallways that had not been cleaned for a long time. The housekeeping team could not move a larger unit per floor as they were already busy with the rooms. In addition, the S170 Navi is a carpet vacuuming robot that is quiet in a hotel setting, less visible to the guests, and the only professional cleaning robot that can reach the 90-degree corners of the carpet and the wall.

Meet the Squad

# Your Contact

We look forward to your contact.

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# Let’s automate cleaning together.