

# PERMIT-TO-WORK AND SMART PROTECTIVE EQUIPMENT: HOW TO PROTECT YOUR WORKERS' SAFETY IN REAL-TIME

A WHITEPAPER BY

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## CAN ASSISTIVE TECHNOLOGY IMPROVE WORKING CONDITIONS, PREVENT INJURIES OR EVEN SAVE LIVES?

For the past years technology secured an important role in upgrading the standard use of Personal Protective Equipment (PPE) and providing valuable solutions for managing risk and worker safety in high-risk industries.

In this whitepaper we will look at how software and smart PPE integrate to bring Permits-to-Work (PtW) closer to providing the real-time input EHS managers need to make sure work gets done safely and on-time.

*Evert Bulcke*  
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## THE CHALLENGE

### No real-time view on worker safety and dangerous work

Managing Permits to Work (PtW) in your production site is time-intensive and error-prone. It relies heavily on asynchronous preparation with little to no input about your workers' status in real-time.

Production managers struggle to have full visibility on ongoing non-routine activities, while HSEQ managers aim to eliminate all safety risks during PtW, Lone Worker, Machine Operations and Lock Out/Tag Out/Try Out procedures.

Process, quality and safety systems rely on manual data inputs, with no real-time insights. There is little or no visibility into Access Control to certain work or no-go zones.

- » **Permits:** Ensure that only permitted operators and contractors execute assigned work orders.
- » **Worker Safety:** Ensure workers in distress can send emergency alerts and are found on time.

## THE SOLUTION

### Simple notifications help avoid serious accidents

By extending the Permit-to-Work management platforms with IoT data from a wearable safety device, we offer a closed-loop system for managing your permits and worker safety in real-time.

The majority of EHS teams are now using a software system –such as TenForce- to automate the initiation, preparation and control of the Permit-to-Work and LoTo processes. By integrating with these systems, Rombit ensures that only the permitted staff executes the work order and always guarantees their safety.

Every permit issued by a PtW platform activates a predefined geofence around the area of the work order. The Rombit wearable tracks all entries into the GPS-geofenced or UWB-marked zone, confirms the start and end of the work order when the team enters or exits the zone, or activates an alarm in case of a non-permitted entry.

Extending the wearable with Rombit's Lone Worker functionality allows HSEQ managers to receive real-time alerts when a worker is in distress through fall, shock and no motion detection, or the activation of the personal SOS button.

Extending the wearable with Rombit's Collision Avoidance functionality prevents certain Caught-by/Struck-by risks. The wearable alerts personnel when they are too close to dangerous moving equipment, overhanging weights or hazardous environments.

## THIS SOLUTION INCLUDES

### 01 ROMBIT ONE

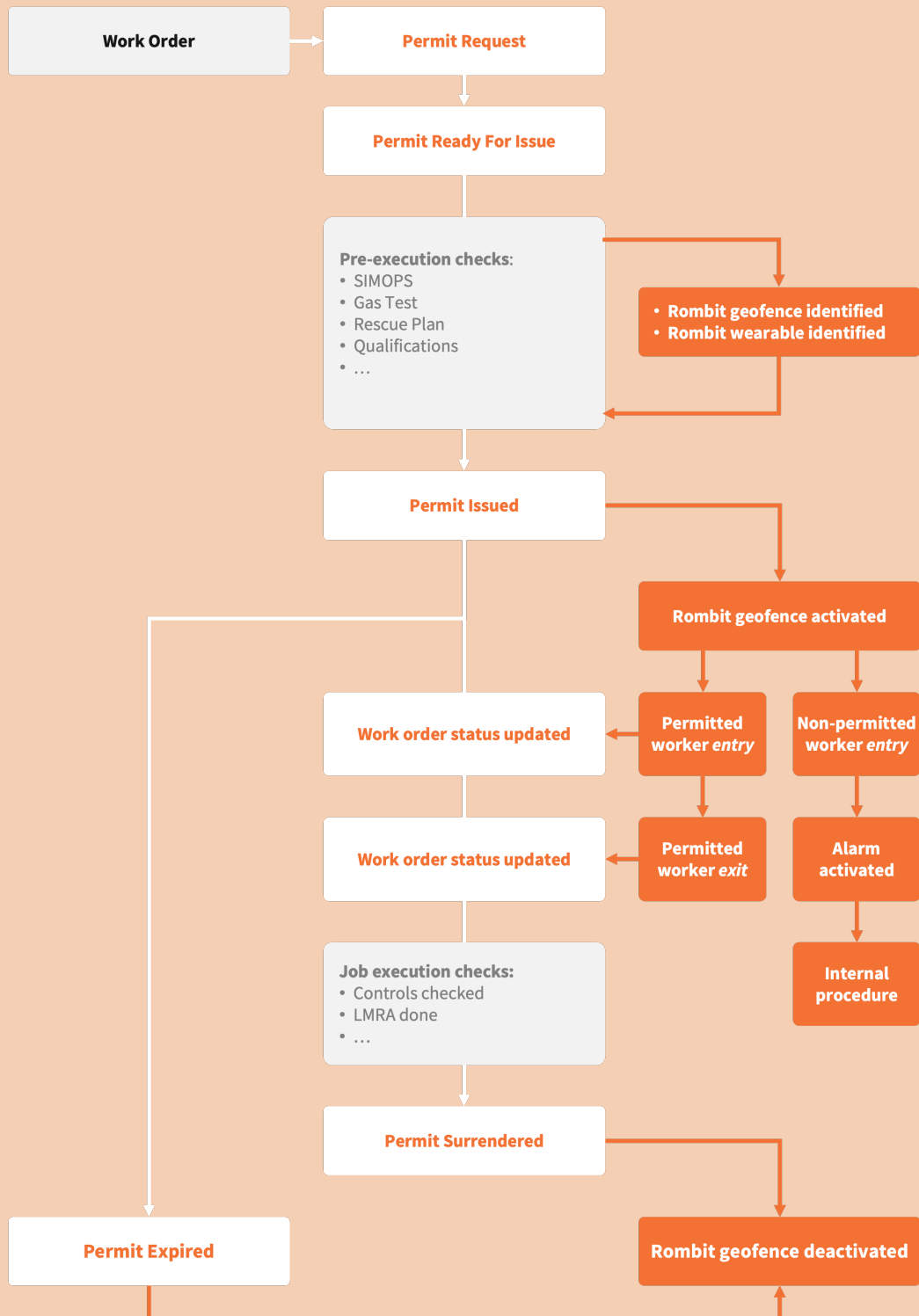
The ONE™ is Rombit's premium, all-in-one safety wearable for worker safety, security and operational efficiency. At the size of a matchbox, Rombit's ONE is the most future-proof choice for any worker safety or efficiency solution.

### 02 ROMBIT PLATFORM

This real-time monitoring and analytics platform supports pre-defined safety functions and notifications. Its Firmware (FDK) and Software Development Kit (SDK) provides readymade API's to interface with HSEQ and operational systems.

### 03 TENFORCE PLATFORM

TenForce's EHS and Operational Risk Management platform is the tool for industrial plants to mitigate risk through one integrated view of your operational reality. The Permit to Work application automates PtW and LoTo processes.



# SOLUTION FEATURES



## AUTOMATED GEOFENCING

*Safeguard the area of a Permit to Work.* Rombit allows you to create and activate geofences around a specific area or section of your site that is subject to a permit to work. This geofence is automatically activated upon the issuance of the permit and deactivated when that permit is surrendered or expired.



## DYNAMIC ACCESS CONTROL

*Limit access to permitted workers.* During the activation of a geofence, access to the protected zone is limited to the workers assigned to the permit. Upon the entry of a non-permitted worker, Rombit sends an instant alert to both the appropriate HSEQ responsible and the non-permitted worker.



## AUTOMATED WORK ORDER UPDATES

*Receive notifications when a permitted work order starts/completes.* The entry of a permitted worker into an active geofence triggers a notification that the execution of the work order has been started. Exiting the geofence can trigger a completion notification.



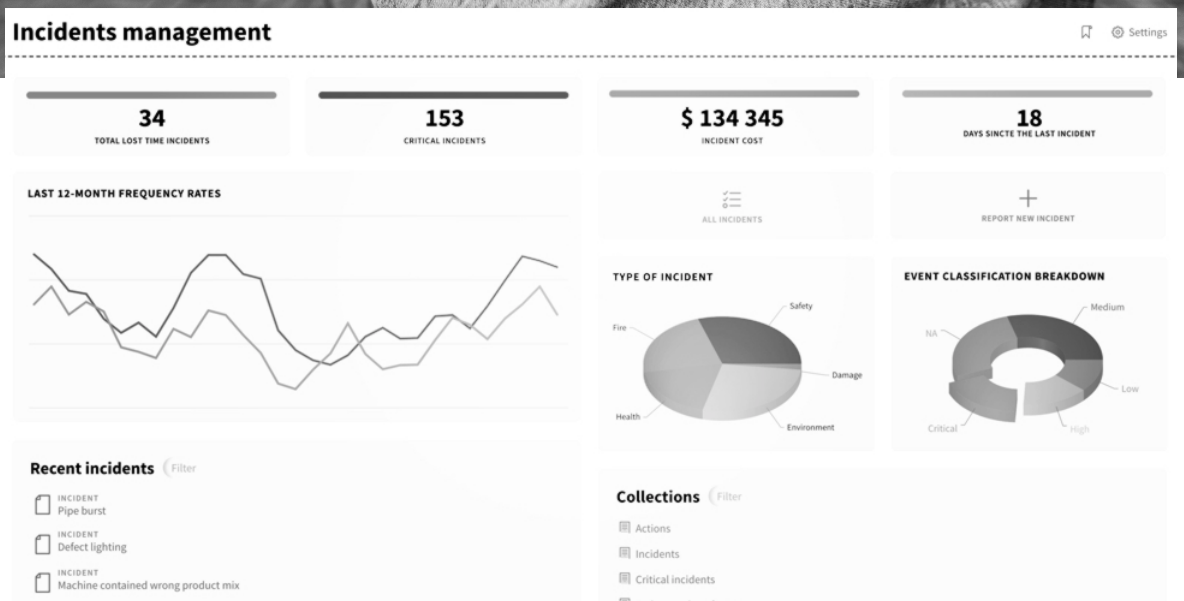
## LONE WORKER SUPPORT

*Receive notifications when a worker is in distress.* An SOS button and automatic fall/shock detection trigger LTE emergency communication. Supervisors are notified through text and voice messaging and can consult these alerts in the platform for more data and later analysis.



## EVACUATION MANAGEMENT

*Trigger alarms, set up muster zones and monitor worker locations.* Rombit's evacuation management instructs all personnel to go to the nearest muster point. These are 'smart' geofences that detect worker presence based on their GPS position. Workers left behind are also tracked. Other real-time geofences can be configured to ensure workers do not go into dangerous or incident affected areas.





## LIMITATIONS

### **Privacy concerns and transparency**

With regulations becoming stricter and all-around reports about technology tracking all our moves, concerns about privacy are understandable.

While adapting to new technologies that help enable a safer workplace, companies should counter concerns with transparency:

- » Be clear with staff about what data the wearables track.
- » Explain the reasons behind their introduction to the workplace.
- » Provide guidance and support to ensure employees' privacy and confidentiality are respected.

Rombit and TenForce have developed a unique privacy compliance protocol, in addition to an approach to meet European privacy regulation (GDPR). The vendors support joint Data Protection Impact Assessments (DPIA) with industry best practices and senior expertise from our Data Protection Officers.

## CONCLUSION

### **A closed loop system for managing worker safety, in real-time**

Assistive technology and smart Personal Protective Equipment are now widely available in the workplace. Integrating them into established processes like Permit-to-Work to make EHS programs more efficient in keeping workers safe is a valid use case. Although the adoption of this kind of technology raises some concerns – such as privacy - this is an area that can no longer be ignored by any safety leader that wants to stay aligned with the continuous-improvement mindset and the digital agenda of a future-proof company.



INDUSTRIAL AND CONSTRUCTION ACTIVITIES  
STRUGGLE WITH WORK PERMIT MANAGEMENT DUE TO  
THE LACK OF REAL-TIME INSIGHTS.

OUR IOT SYSTEMS ENABLE EVENT-BASED  
GEOFENCING, ACTIVATING VIRTUAL ZONES DURING  
SERVICE ROUNDS AND CHECKING THE ACTIVITY OF  
AUTHORIZED PERSONNEL.

## MORE INFORMATION

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