# HELLOMAC

## MAKE YOUR ROCKFALL PROTECTION SMARTER
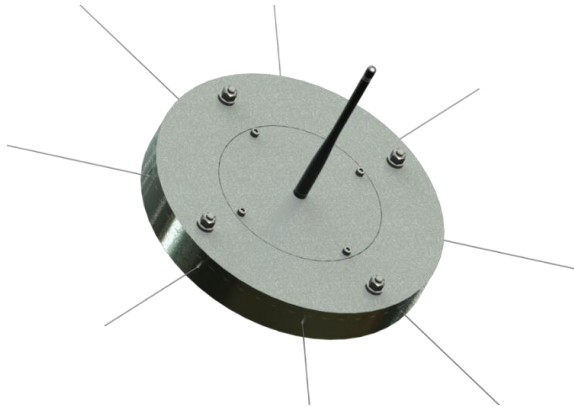
# What do you know about your rockfall protection systems?

MACCAFERRI

# HELLOMAC
## MAKE YOUR ROCKFALL PROTECTION SMARTER

Daily trasmission of critical data?

**WHERE** are the protection systems located?

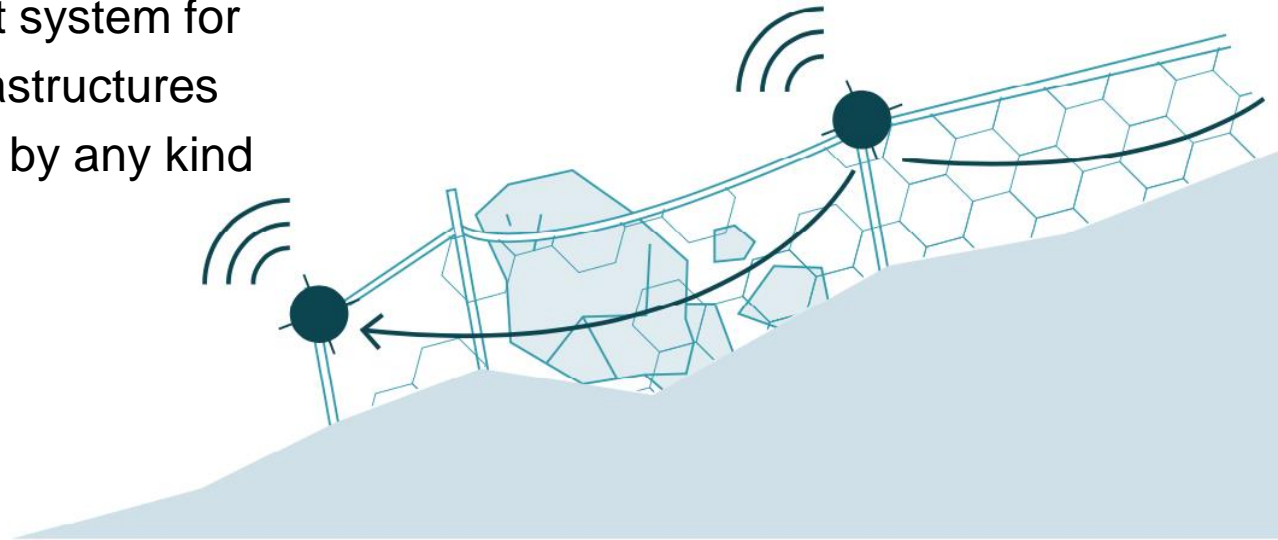Have the protection systems been **IMPACTED**?

Gruppo
Industriale
Maccaferri

# What it is

**HELLOMAC** is the alert system for safeguarding lives, infrastructures and buildings protected by any kind of barriers.
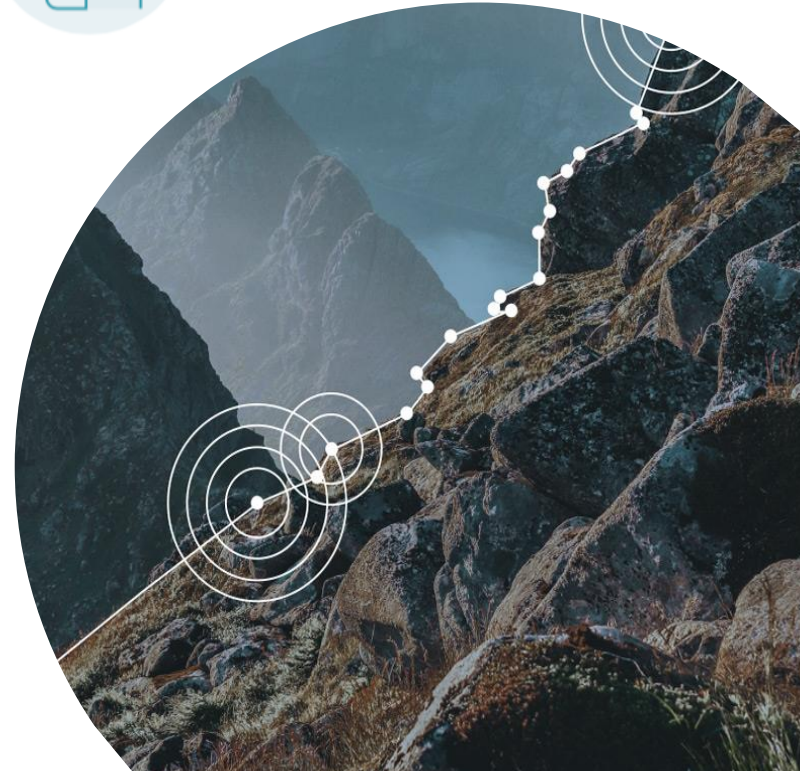
## What it does

**HELLOMAC** alerts people in time.
Whatever is the barrier to monitor.

The alarm is immediately send via app,
email or sms on computer and smartphone.

The device permits also to activate local
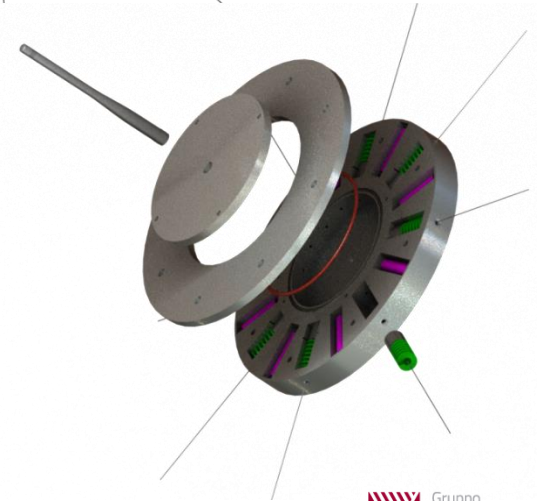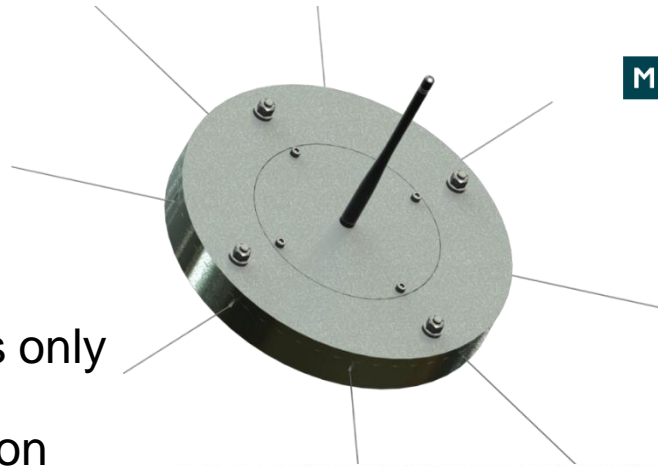sirens and lights

# How it's made

**HELLOMAC** Is a compact and robust device, made with a special metal alloy, chosen to withstand considerable forces.

It's able to detect events (boulders, stresses, sagging, etc.). In each single rockfall protection module, coming also from different directions (up to 8).

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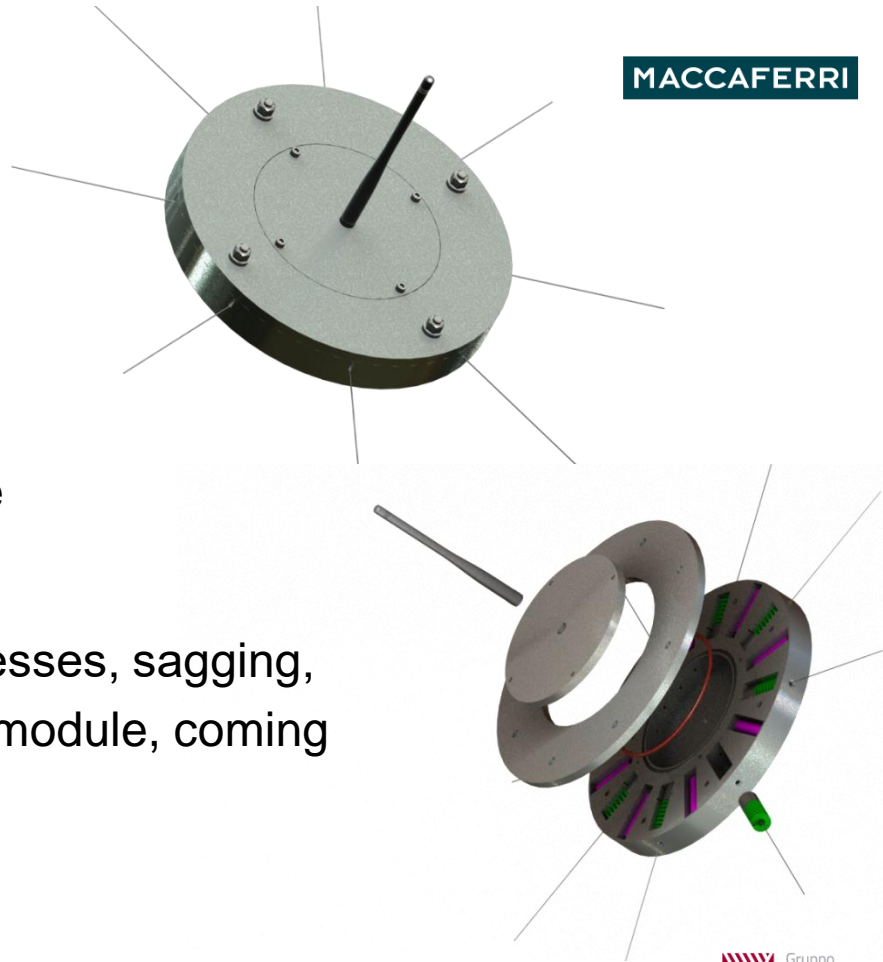
# How it's made

- No external power supply - batteries only

- No need for configuration or activation

- No special technician for installation

- No maintenance

# How it's installed



Figura 3 – geometria del problema e vincoli

**DEVICE**

**IMPRINT OF THE ROCK**
★ punti presi in esame

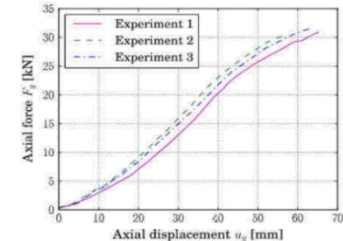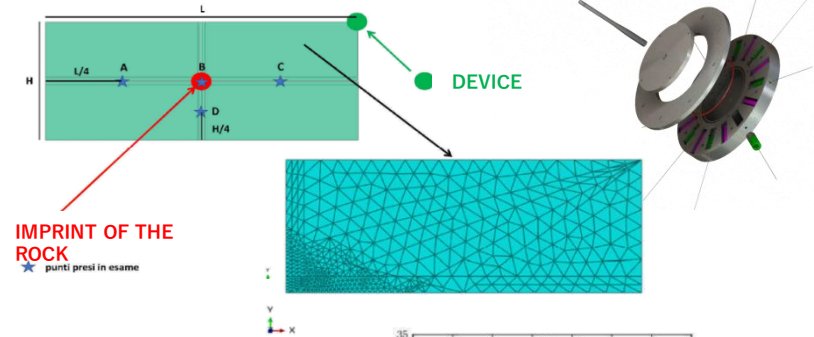M Tie rods or "arms", fixed in specific areas of the barrier to detect different points


Fig. 6. Plot of the experimental results after [8].

HELLOMAC has been tested at **Politecnico di Milano** and specifically calibrated on Maccaferri Product.
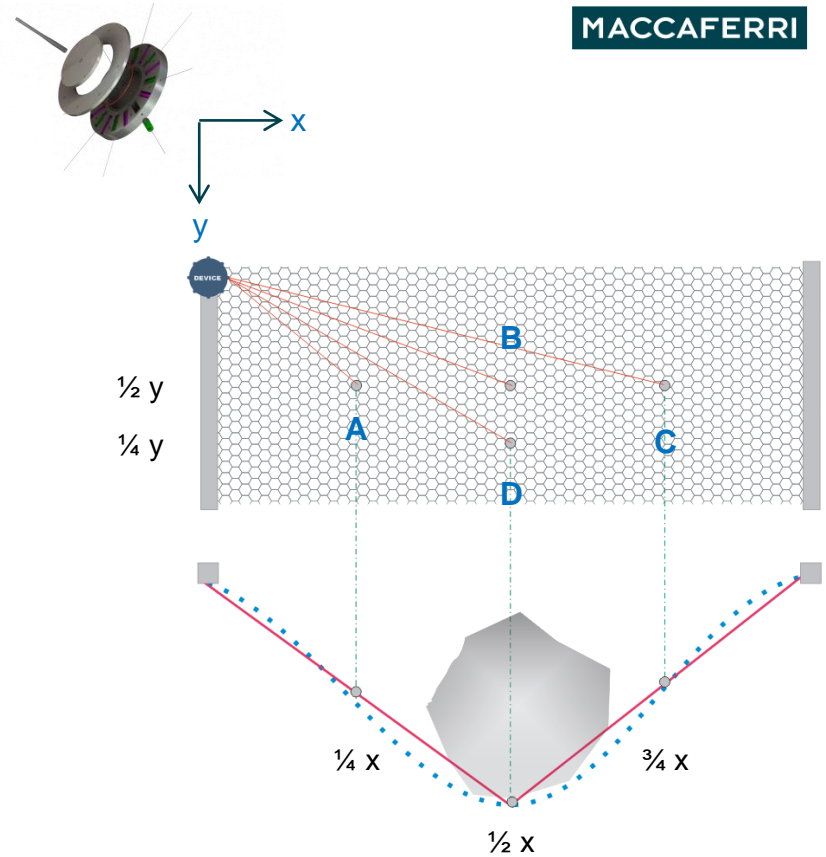
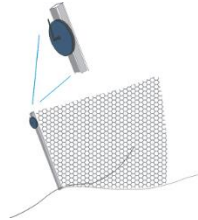Impat simultation as SEL level were conducted

# How it's installed

- **M** According to the model of barrier

- **M** Possibility of retrofitting on existing barriers

| Model: Kit RB 1500 (10m x 4m) | | | |
|---|---|---|---|
| Position | slack of the tie rod [m] | Length without slack [m] | Total length [m] |
| A | **1.26** | 3.20 | 4.46 |
| B | **1.93** | 5.38 | 7.31 |
| C | **0.39** | 7.76 | 8.15 |
| D | **0.78** | 5.83 | 6.61 |

# How it's installed

M According to the model of barrier

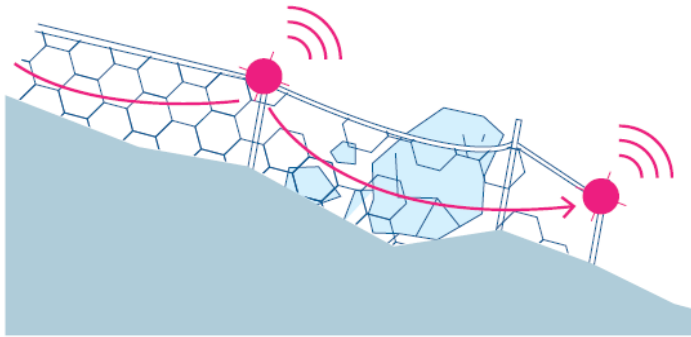| Model: Kit RB 1500 (10m x 4m) | | | |
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# The data

___

From the device to the App,
all over the world.

**MACCAFERRI**

Via Satellite (Iridium) for having a **global coverage at low costs**

repeater

Gruppo
Industriale
Maccaferri

**MACCAFERRI**

- Local alarms and commands
- via Satellite (Iridium)
- via GSM (option with datalogger)
- other sensors available

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Maccaferri
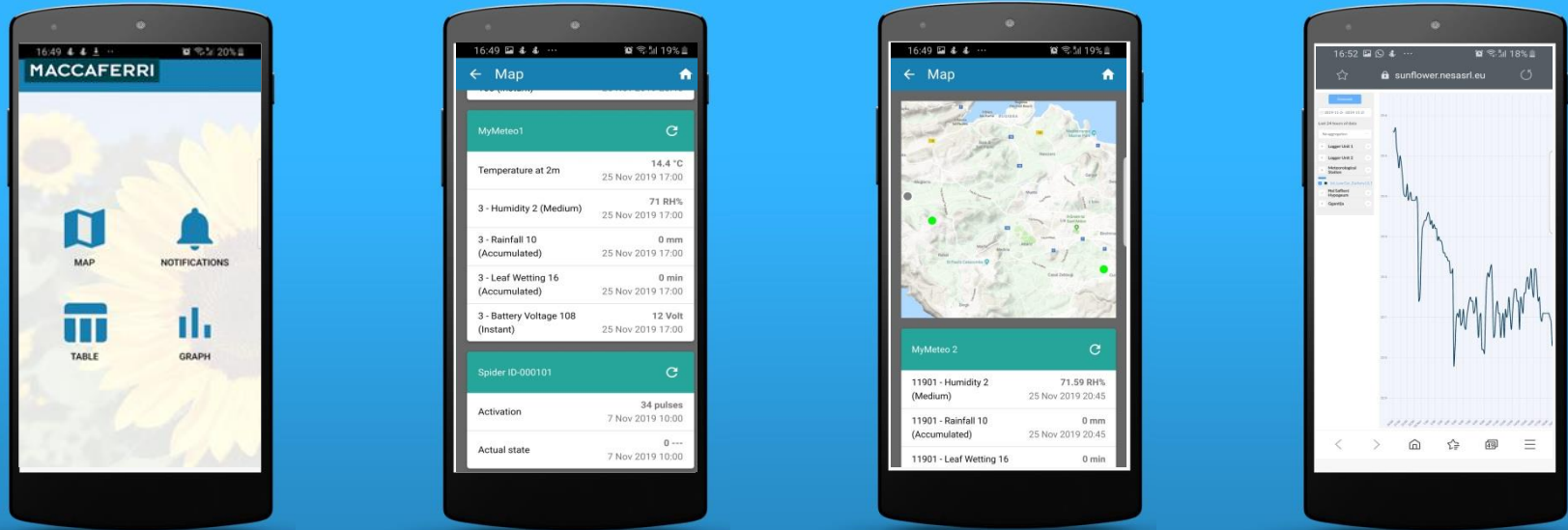
**HELLOMAC APP**

**Geolocalization**, **alerts**, **notifications**, **data**: all the information you need, are in your hands.

One alert system, many measuring devices.

# Let's go deep with some cases



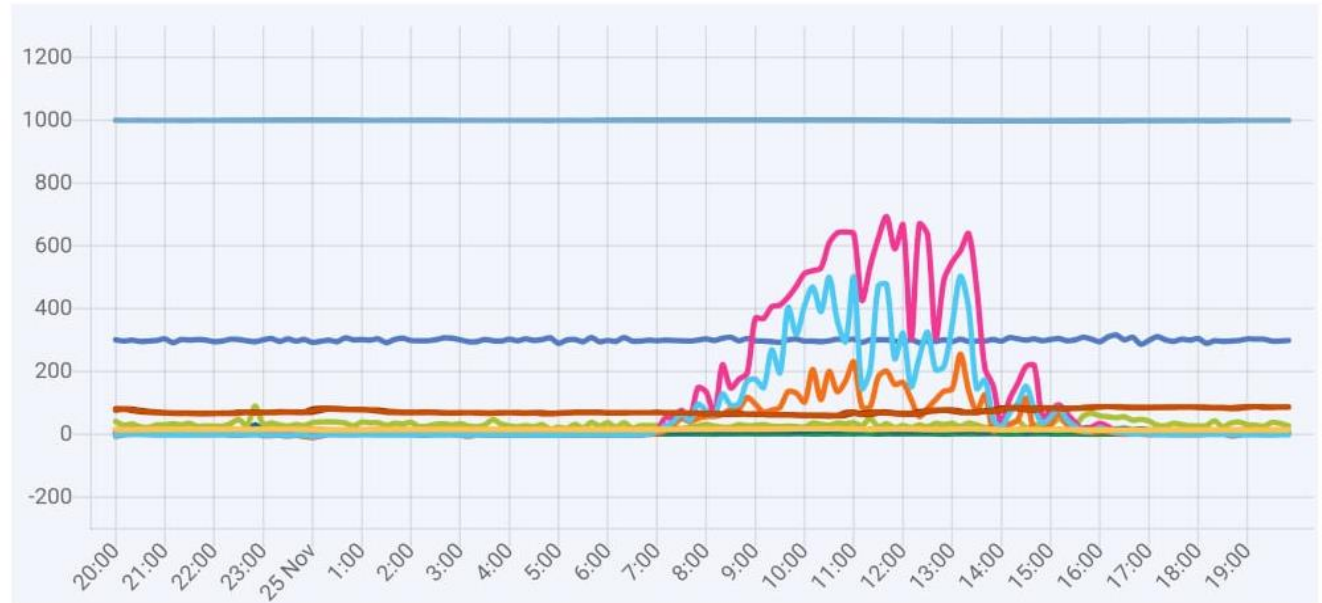| Date | Logger Unit 1 - Temperature 1 (Medium) | Logger Unit 1 - Temperature 1 (Minimum) | Logger Unit 1 - Temperature 1 (Maximum) | Logger Unit 1 - Humidity 2 (Medium) |
|---|---|---|---|---|
| 24 Nov 2019 20:00 | 15,30 | 15,20 | 15,30 | 83,00 |
| 24 Nov 2019 20:10 | 15,20 | 15,20 | 15,30 | 83,00 |
| 24 Nov 2019 20:20 | 15,20 | 15,20 | 15,30 | 81,00 |
| 24 Nov 2019 20:30 | 15,30 | 15,30 | 15,40 | 79,00 |
| 24 Nov 2019 20:40 | 15,40 | 15,40 | 15,40 | 78,00 |

Generate

2019-11-24 -2019-11-25

Last 24 hours of data

No aggregation

Logger Unit 1

Logger Unit 2

Meteorological Station

MUZA

Export

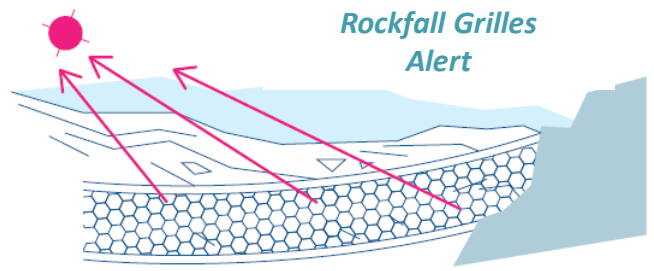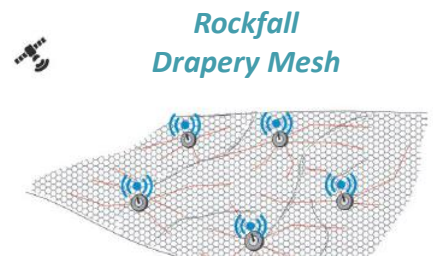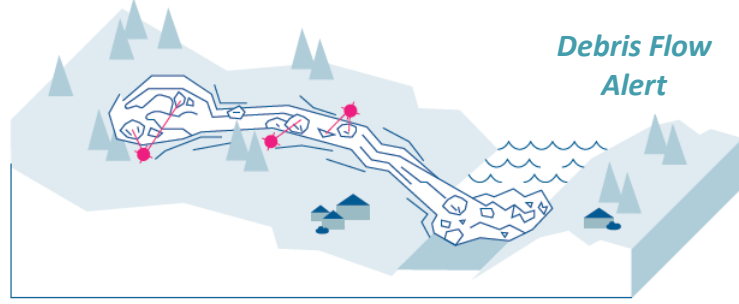**HELLOMAC APP**

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# Let's go deep…

**HELLOMAC APP**

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Maccaferri

# Applications

An overview of
fields of use

**MACCAFERRI**

*Rockfall Barrier Alert*

*Debris Flow Alert*

*Rockfall Drapery Mesh*

*Rockfall Grilles Alert*
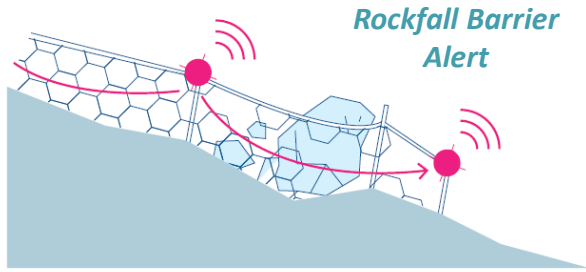
- The system is designed to operate in environments with high impact energy and aggressive climatic conditions.
- Rain, snow, wind and sun are not a problem.
- There are no electric connection wires and or weak points of breaking.

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Industriale
Maccaferri

# Fields of application



Anchorage
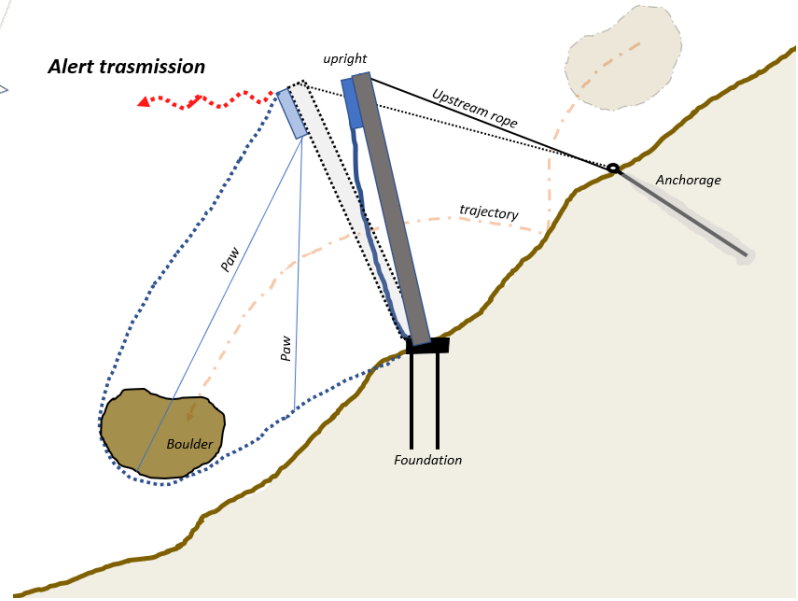
Upstream rope

Alert trasmission

Upright

SPIDER

Paw

Foundation

**Plan view**

L = 10 m

SPIDER

SPIDER

**Alert trasmission**

upright

Upstream rope

Anchorage

trajectory

Paw

Paw

Boulder

Foundation
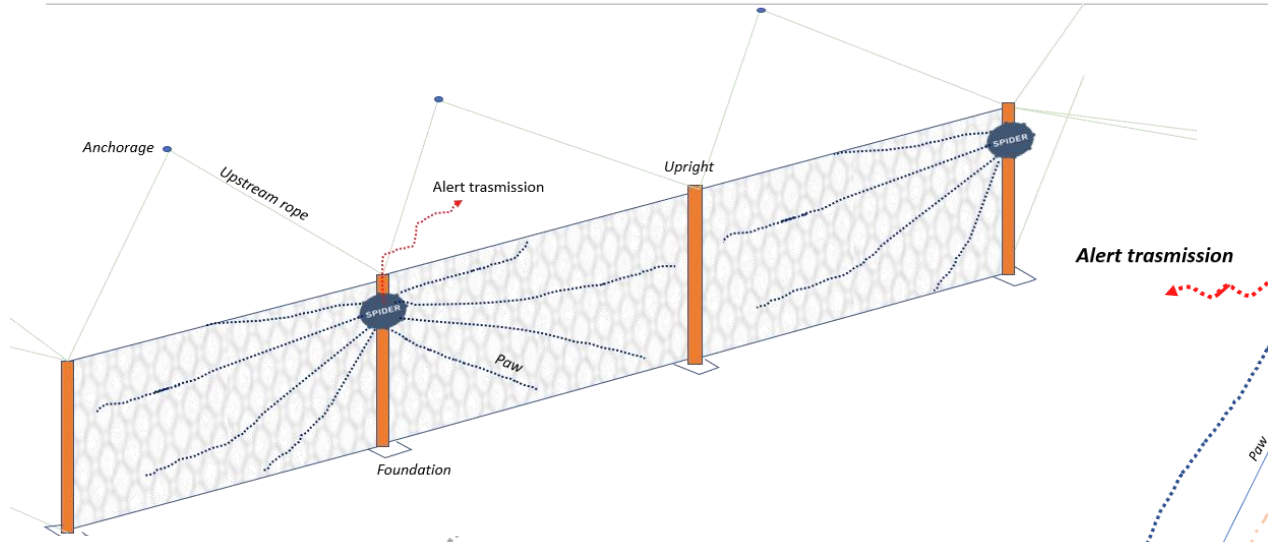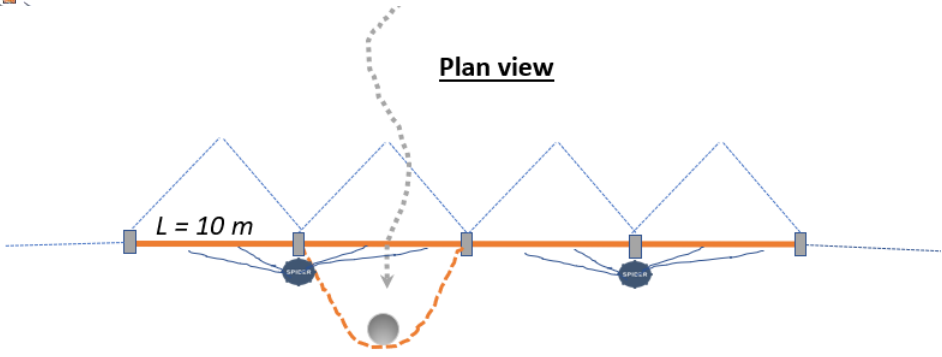
# It's smart!

Not a big amount of data, only when and where needed

# It's safe!

In line with the recommendation of **UNI 11211-5** (May 2019) and the **UNI 11211-2** (June 2007) norms

# HELLOMAC

**MAKE YOUR ROCKFALL PROTECTION SMARTER**

## EASY TO INSTALL

- HELLOMAC weight is approx. 8 kg

- It can be carried to remote places due to small dimensions and lightness

- It can be easily fixed to the barrier post by no skilled worker required

## MAINTENANCE FREE

- HELLOMAC has 8 batteries with an estimated span life of 5 years making unnecessary any annual maintenance (each device daily communicates his status and battery level).

## RELIABLE

- Daily transmission of location and rockfall protection status. Simplicity avoids data transmission issues.

- Tested against impacts (resists up to 16G acceleration)

- It works between -40°C and +60°C

- It was specifically tested on Maccaferri rockfall barriers by Politecnico di Milano

Gruppo Industriale Maccaferri

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