



Thema SEHS: MONA

Miniaturized mOtion-triggered eNergy hArvester for
wireless communication and **battery recharging**

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Context

Battery recharging

Walking 5 km



Cell phone battery +10%



Context

RF communication

SHORT RANGE
(BLE: 100 m)



10 transmissions / actuation

INTRUSION DETECTION
(LPWAN: 10 km)

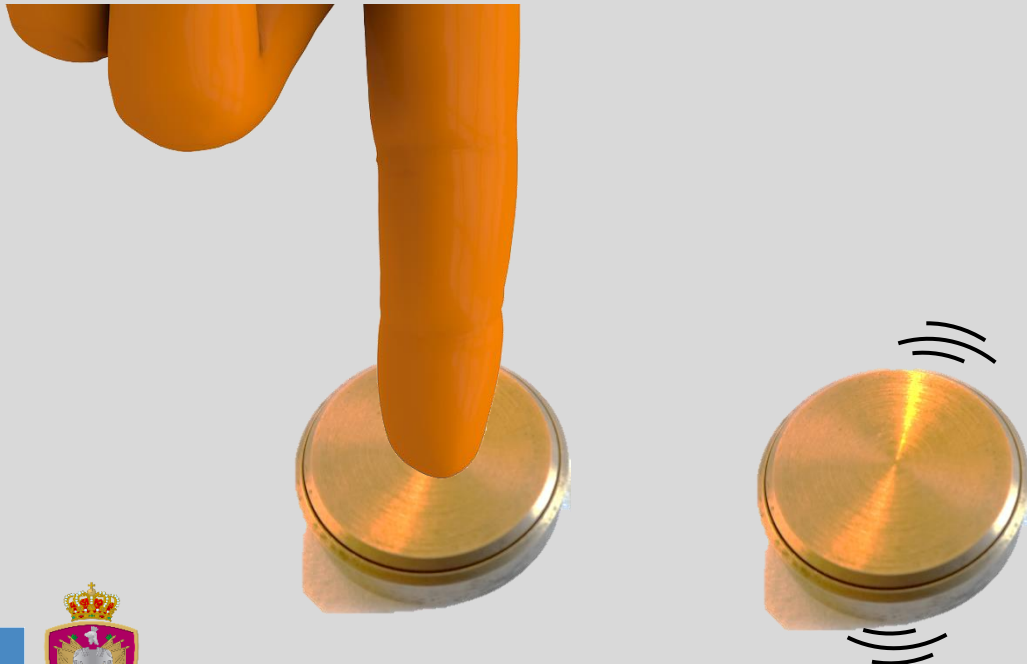


5 transmissions / actuation

Objectives and Expected Results

MONA operates by:

- depressing a push-button (preferred).
- vibrations.



Energy supply: 0.01 J – 0.36 J per actuation.

Miniaturization: < 10 cm³, < 100 g.

Robustness: harsh working conditions (temperature, humidity, shocks, ...).

Integration of electronics: dedicated power management unit and RF communication.

Innovative Aspect and Impact for Defense

- Superior energy harvesting efficiency capability.
- Small form factor ($< 10 \text{ cm}^3$) and lightweight ($< 100 \text{ g}$).
- Easily retrofitted in existing equipment.
- Hard-wearing, dust and dirt-proof.
- « Deposit and forget ».
- Capable of generating electrical energy in a variety of circumstances.
- Ease of deployment.
- Versatility (*energy harvesting swiss army knife*).