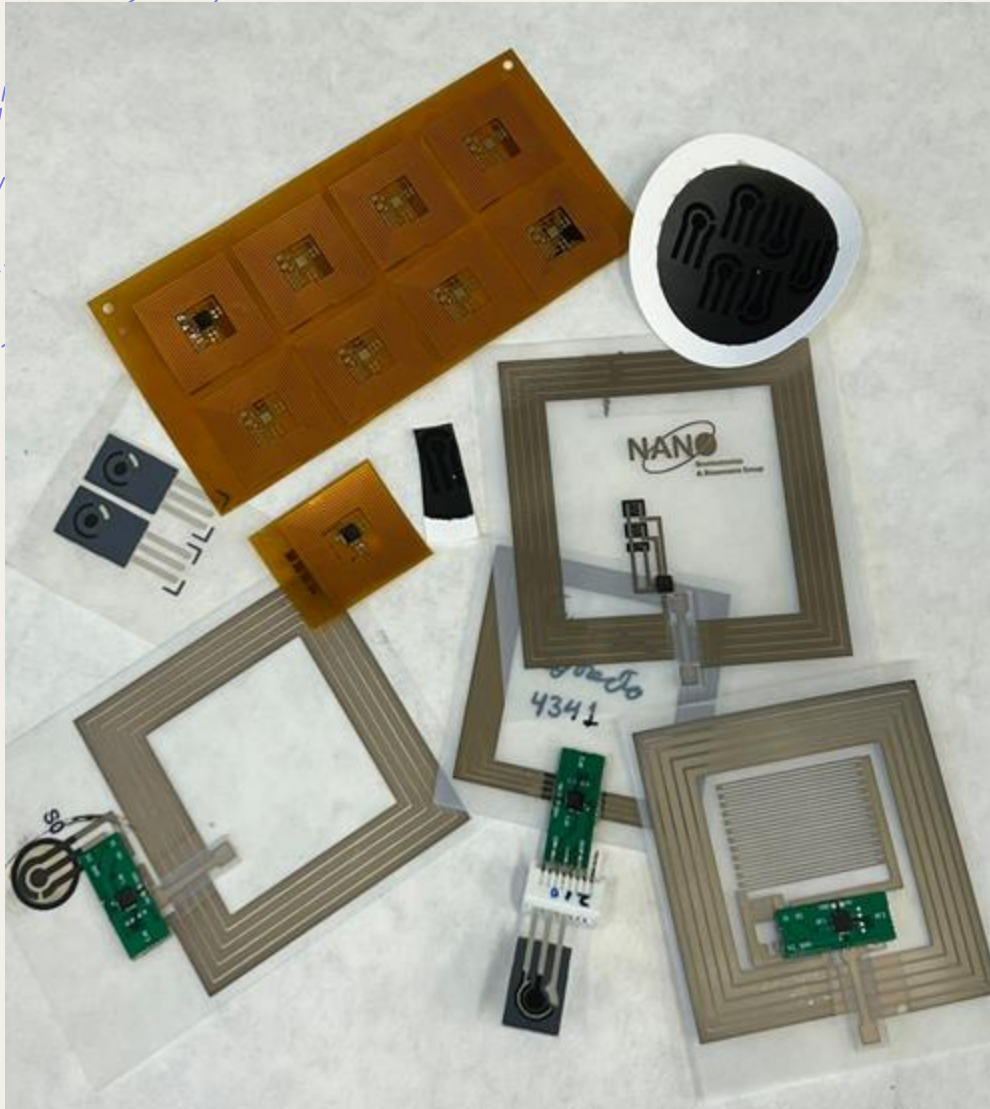




# What's this all about?



- + **PocketABLE** devices
- + **Portable** and **compact** diagnostic tools designed for point-of-care (POC) detection.
- + **Small, Lightweight, Easy to carry**
- + Suitable for use in **isolated or remote areas** where access to sophisticated laboratory equipment is limited.

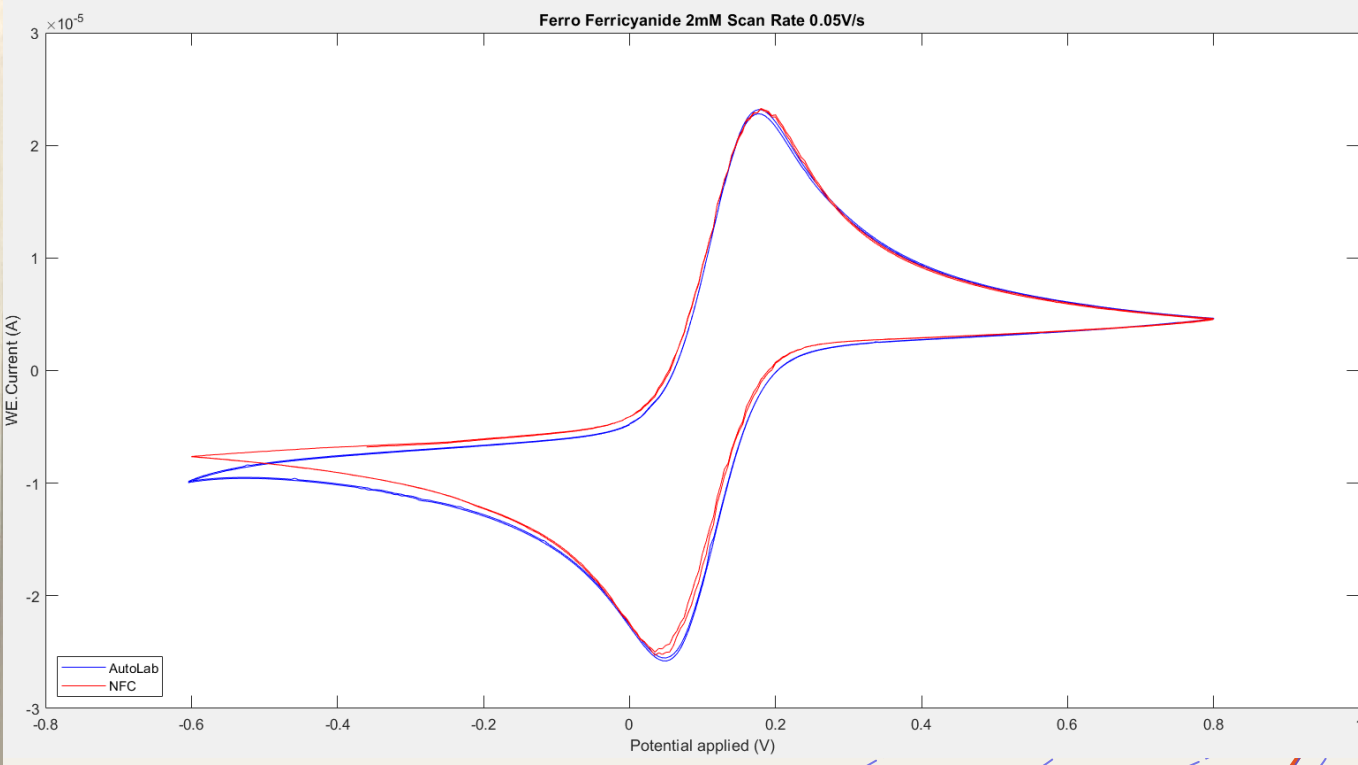
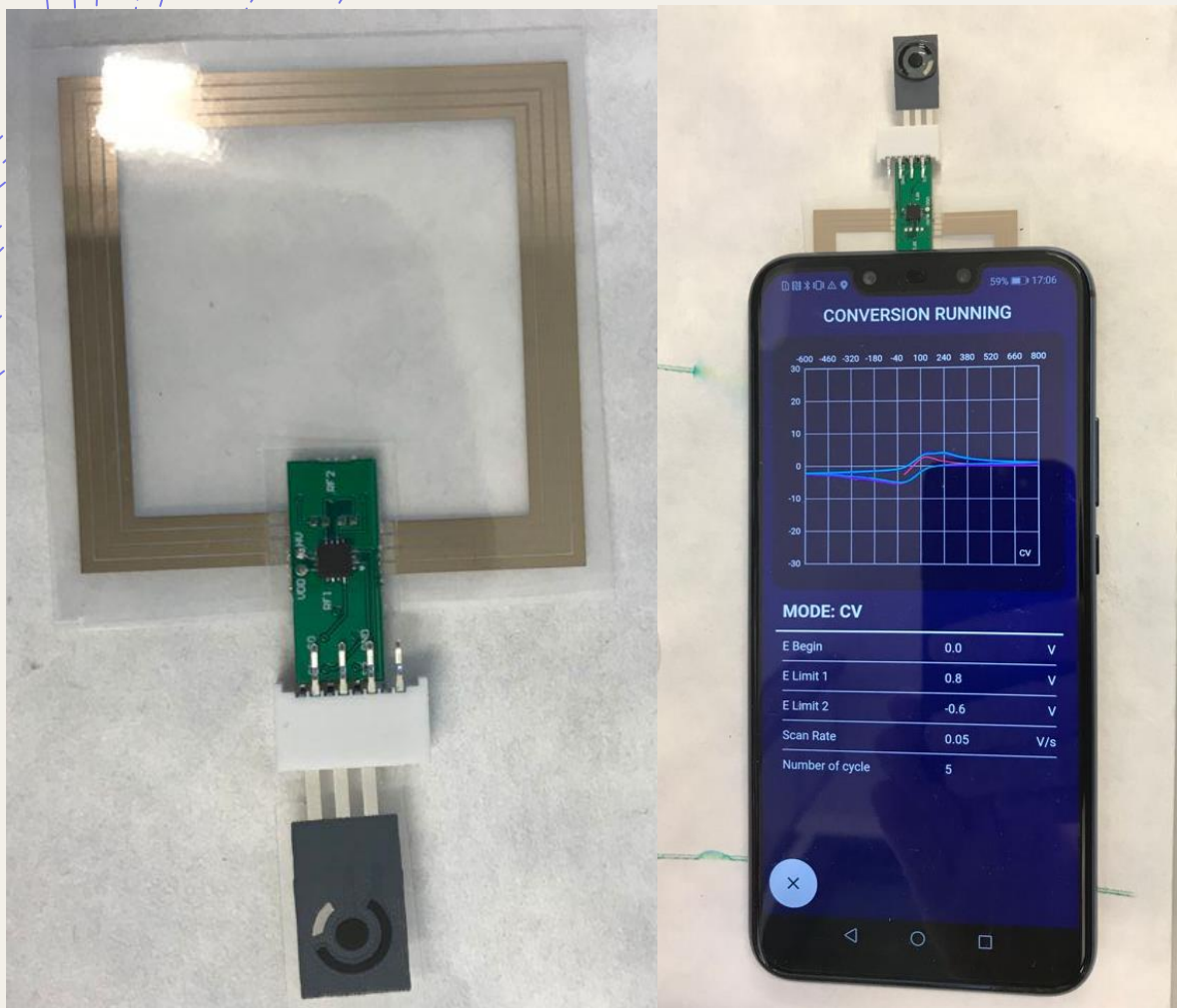
# The key points

- + **Miniaturization:** PocketABLE devices are miniaturized biosensors that can fit in a pocket or small bag. They are designed to be handheld and convenient for field use.
- + **Pathogen Detection:** These devices primarily focus on detecting pathogens (such as bacteria, viruses, or other microorganisms) in clinical, environmental, or food safety applications.
- + **Rapid Testing:** Unlike traditional methods that were time-consuming and labor-intensive, PocketABLE devices offer rapid results without the need for extensive sample preparation or specialized instruments.

# Technological Components

- + **Nanomaterials:** Nanoparticles and nanocomposites are often incorporated into these devices to enhance sensitivity and selectivity.
- + **Microfluidics:** Microfluidic channels allow precise sample handling and efficient reactions.
- + **Lateral Flow Tests:** Similar to pregnancy test strips, lateral flow assays are commonly used in these devices for quick and visual detection.
- + **Smartphone Integration:** Some PocketABLE devices can connect to smartphones for data analysis and communication.

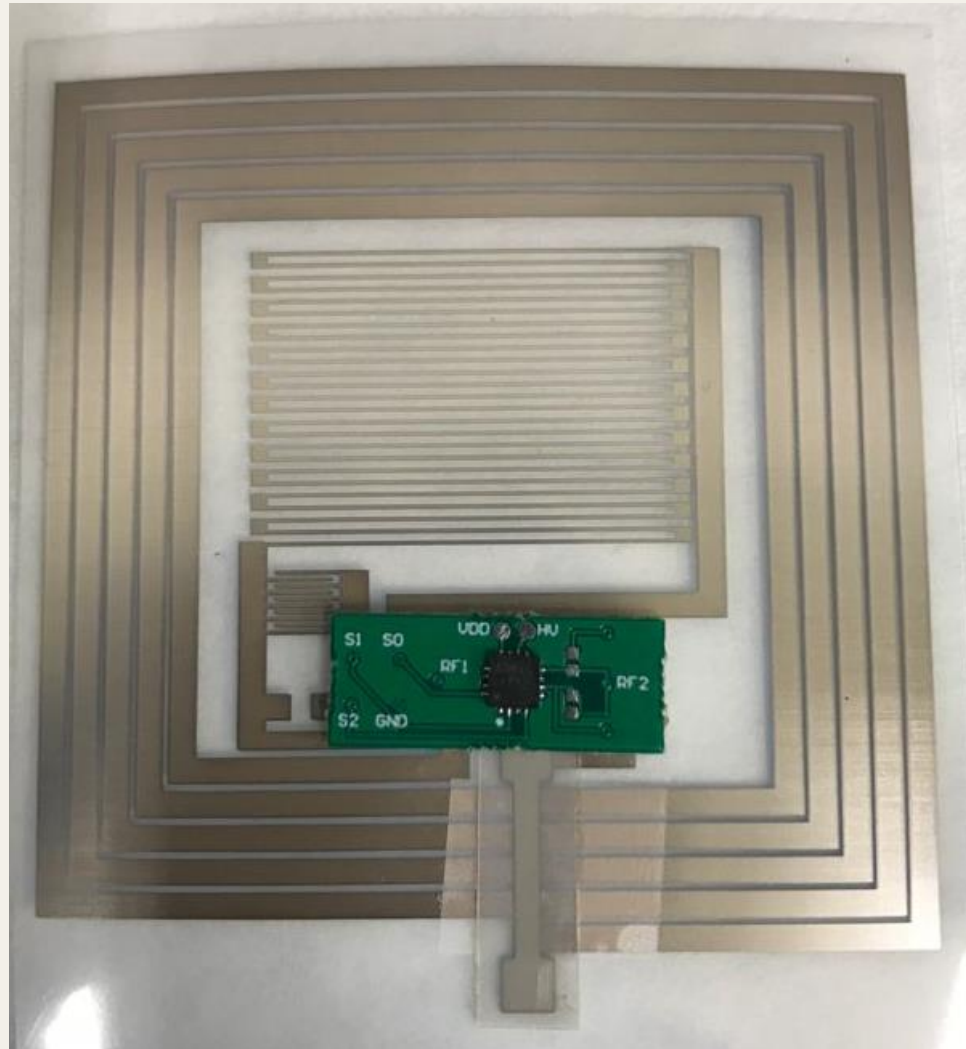
# Our Pocketable Evolution



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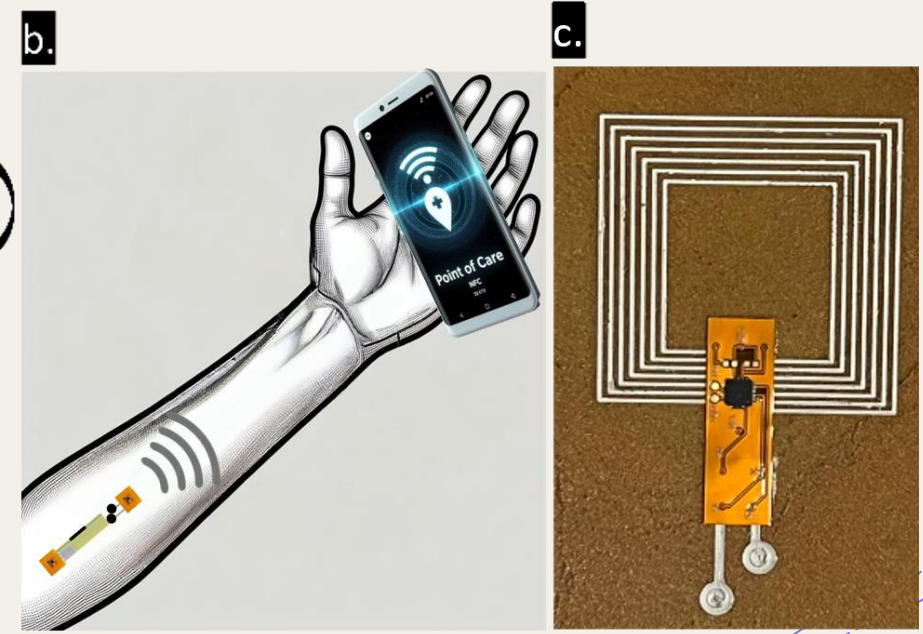
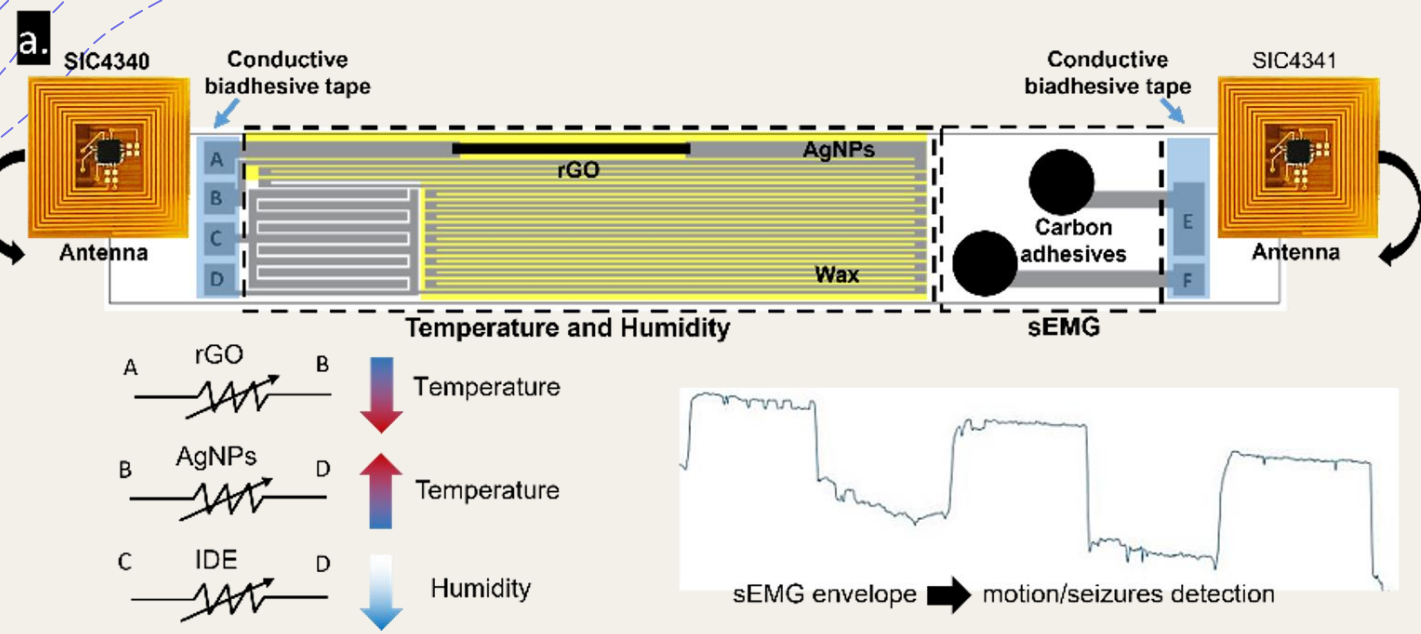
# Our Pocketable Evolution



**Temperature and  
Humidity sensor**

# Our Pocketable Evolution

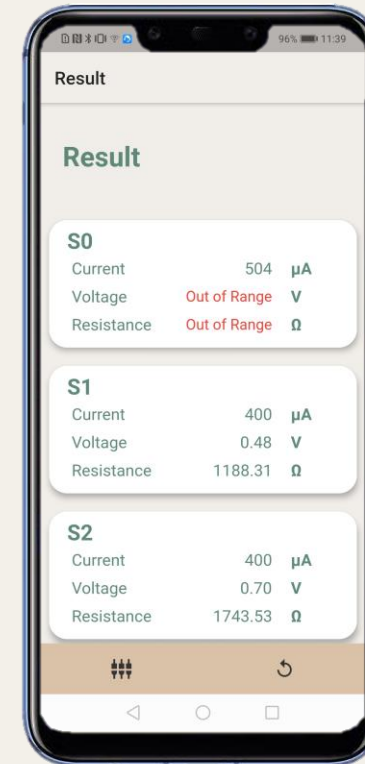
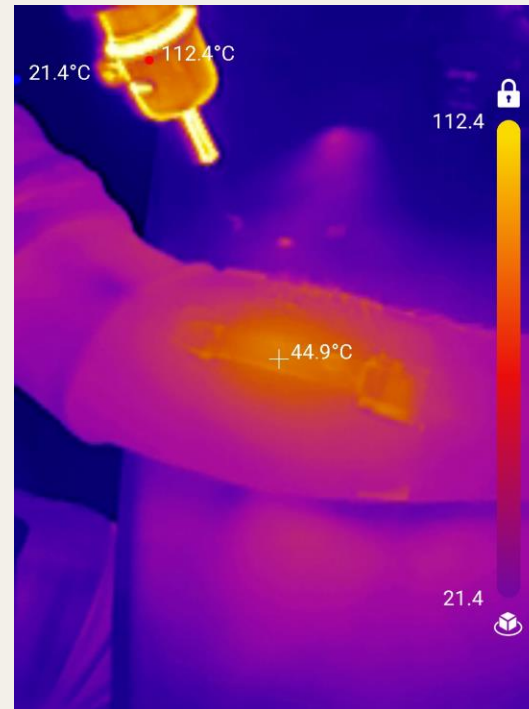
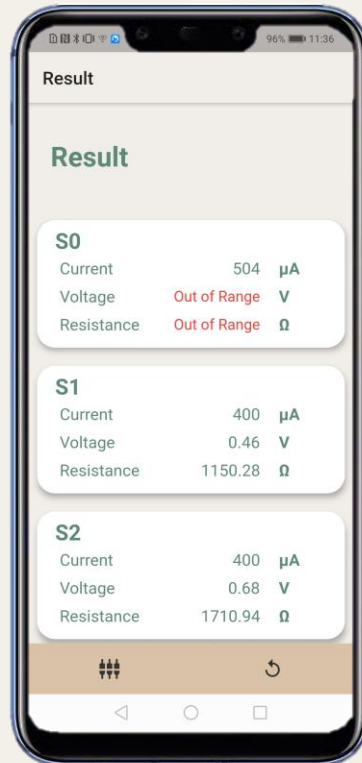
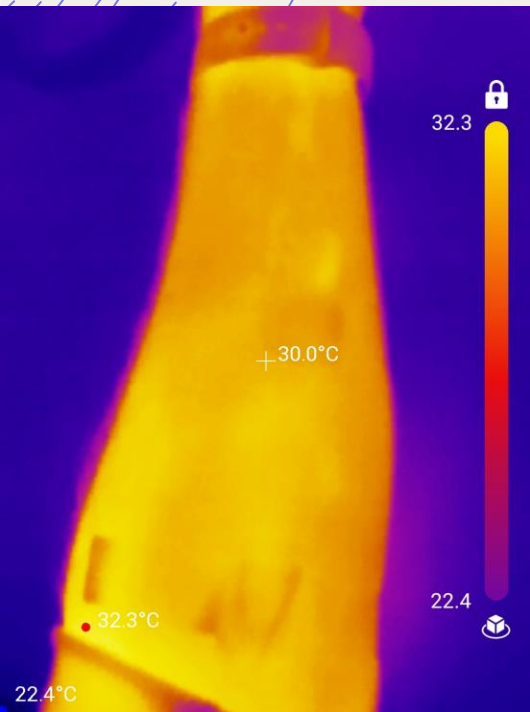
## Temperature and Humidity sensor 2.0



Maroli et. al. 2024 **Biosens & Bioelectron**, under revision

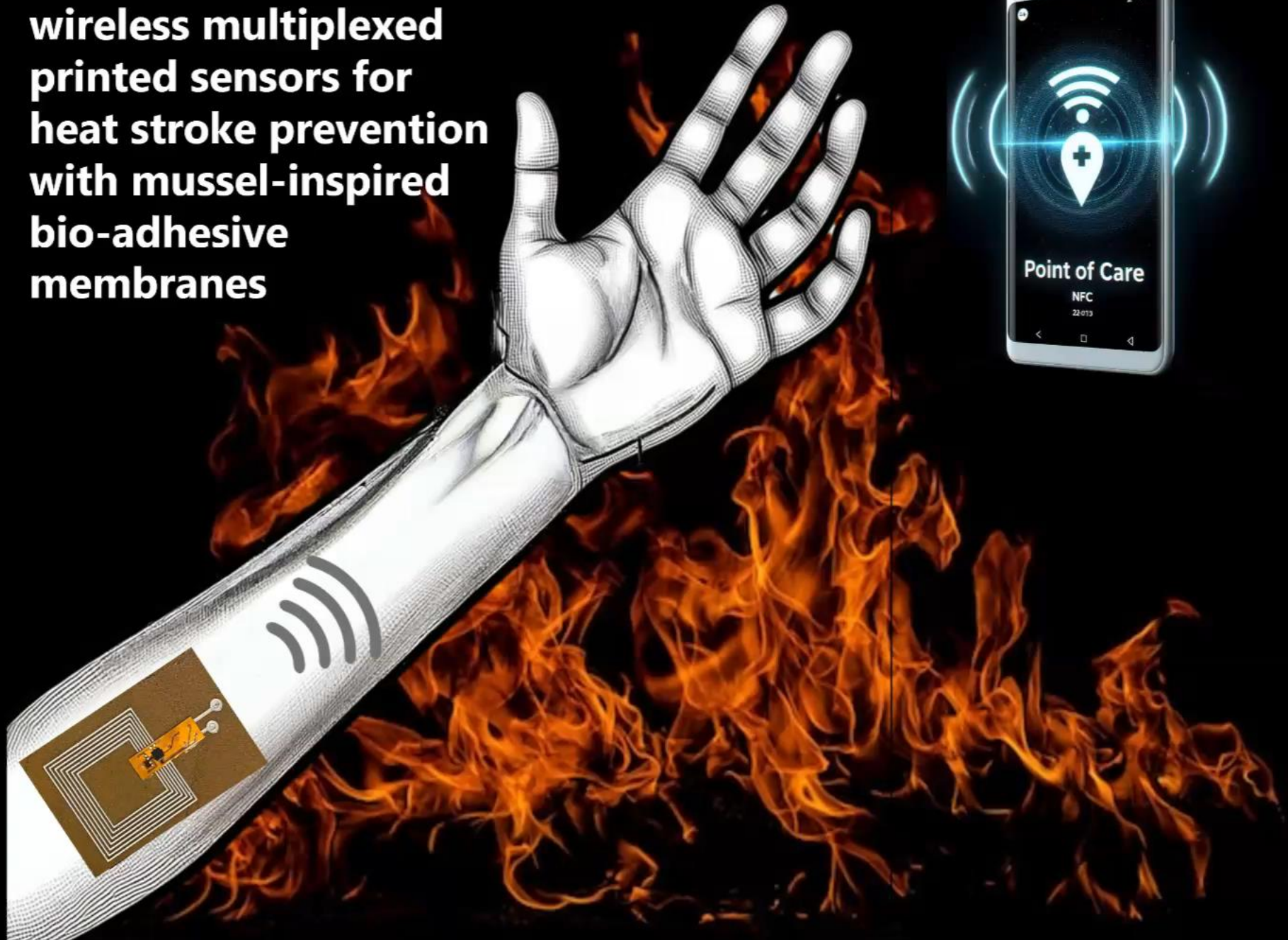
# Our Pocketable Evolution

## Temperature and Humidity sensor 2.0

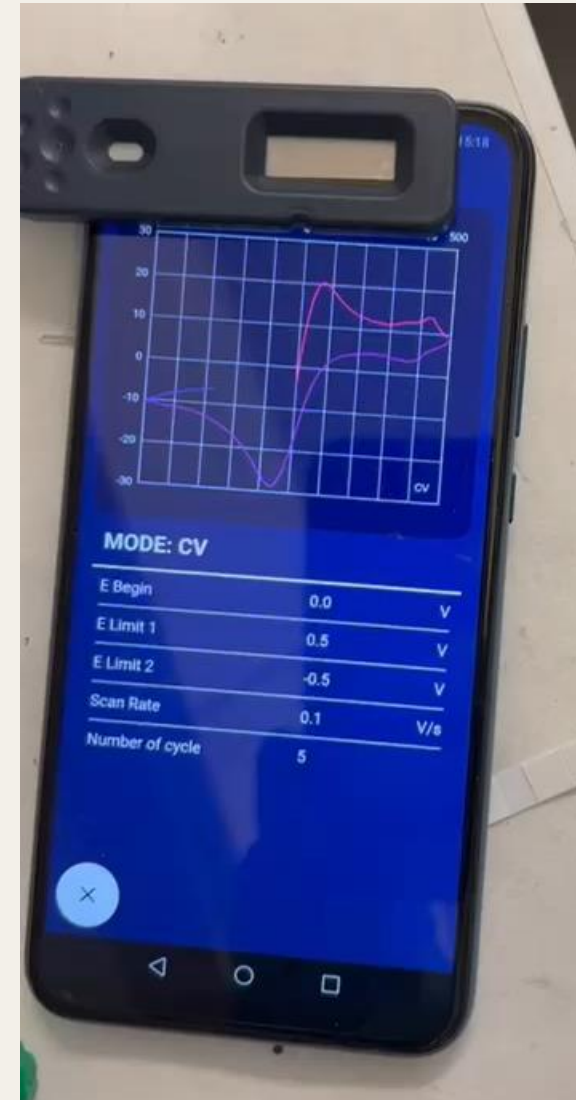




**Wearable, battery-free,  
wireless multiplexed  
printed sensors for  
heat stroke prevention  
with mussel-inspired  
bio-adhesive  
membranes**



# Our Pocketable Evolution

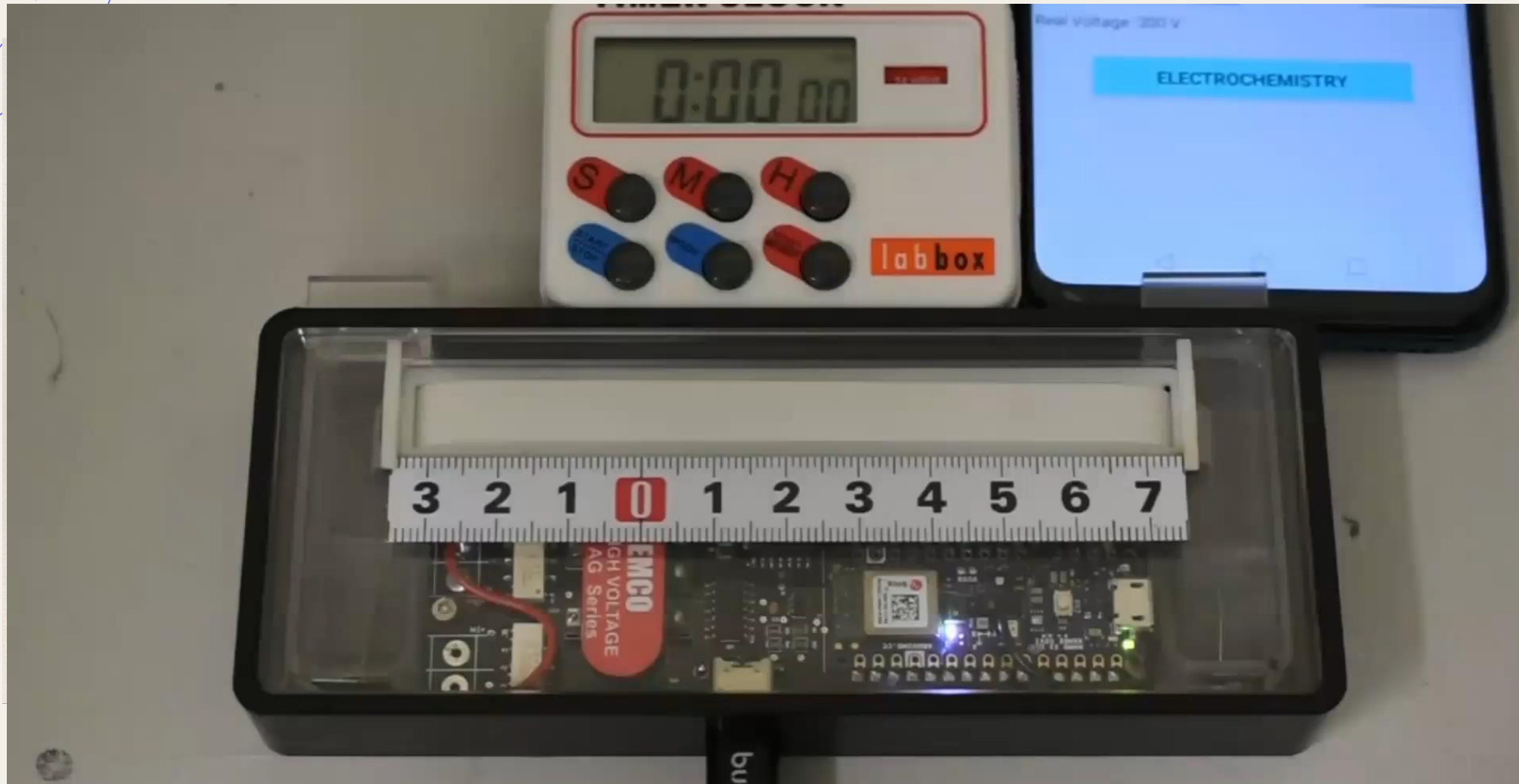


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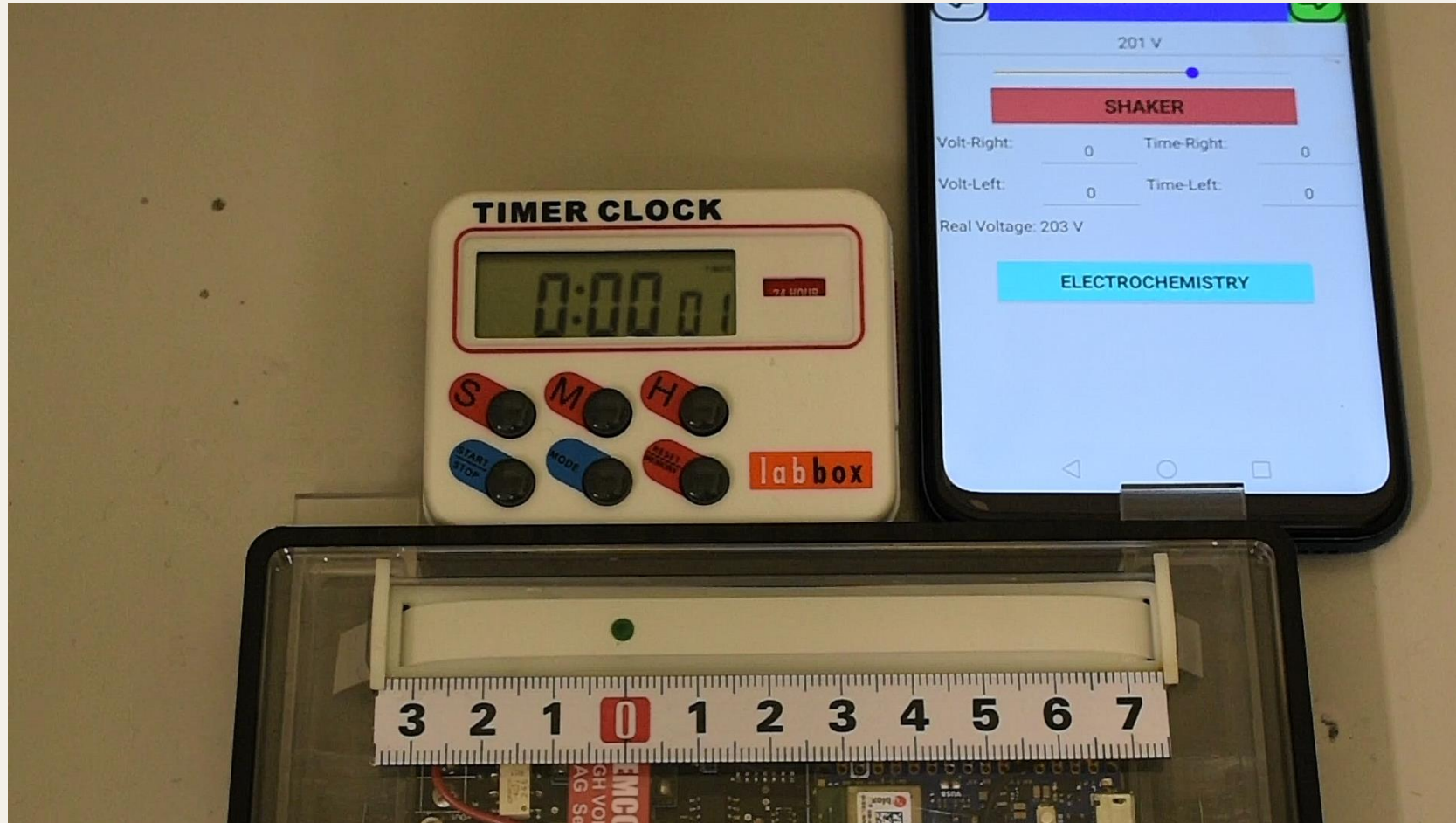
# Our Pocketable Evolution

## Integrating complex systems



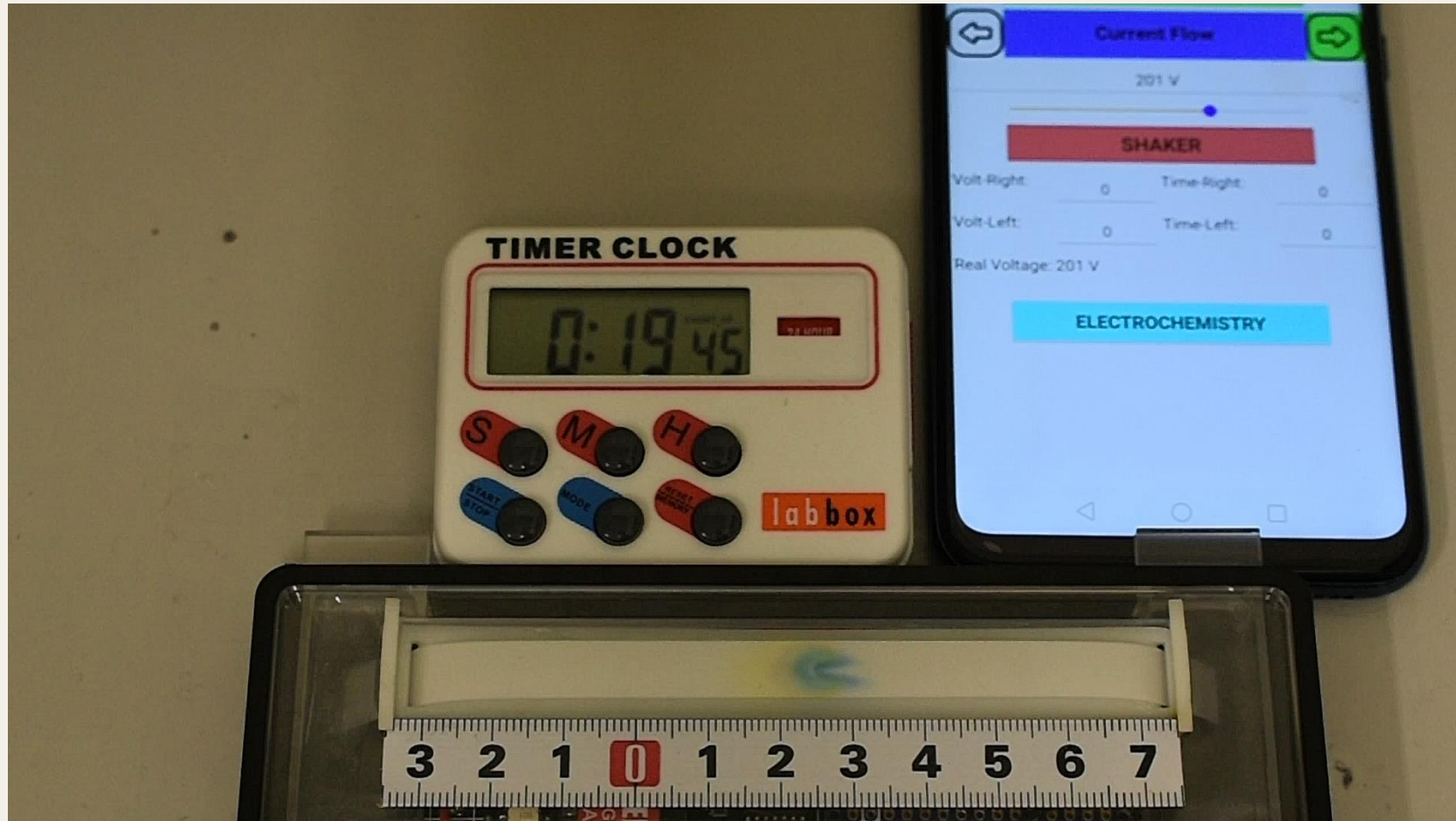
# Our Pocketable Evolution

## Integrating complex systems



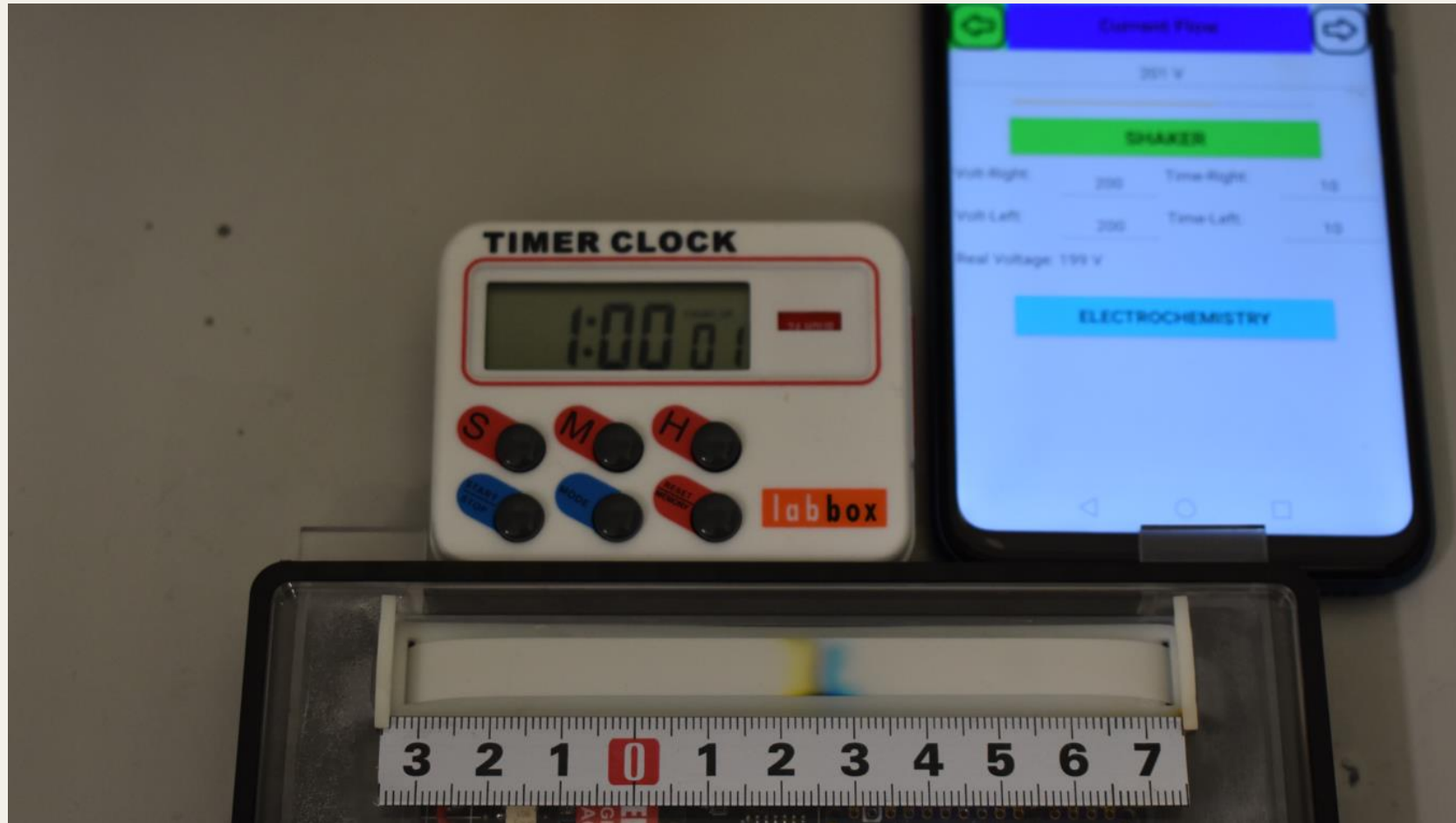
# Our Pocketable Evolution

## Integrating complex systems

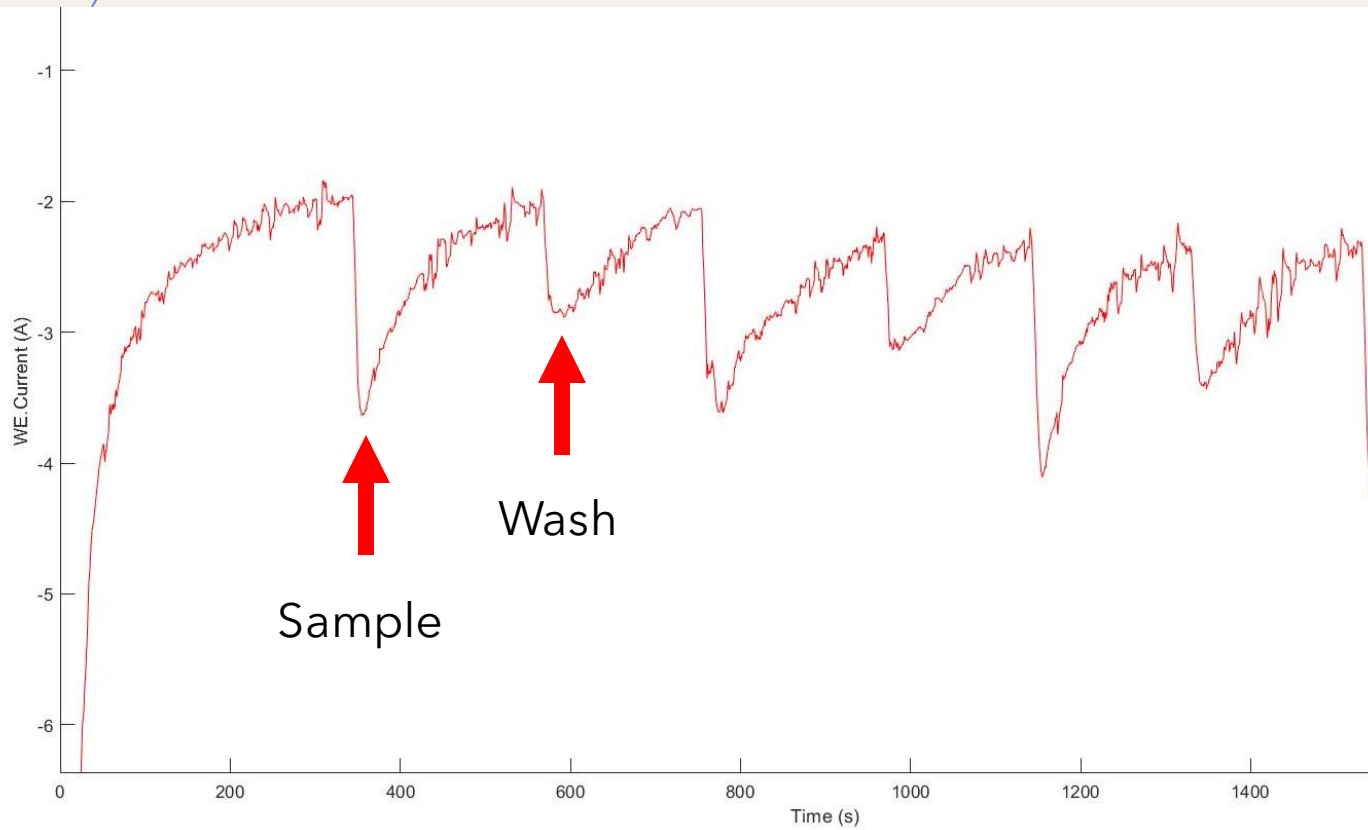


# Our Pocketable Evolution

## Integrating complex systems



# PocketABLE For Environment



# Conclusion

- + **We have seen how different sensors and biosensors can be made that are battery-free and wireless.**
- + **We have seen how this readout system can be integrated into three fluidic models**
  - + **Lateral Flow**
  - + **Paper-based Electrophoresis**
  - + **Microfluidic Cell**
- + **Any of the three systems would be useful for environmental measurements.**



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