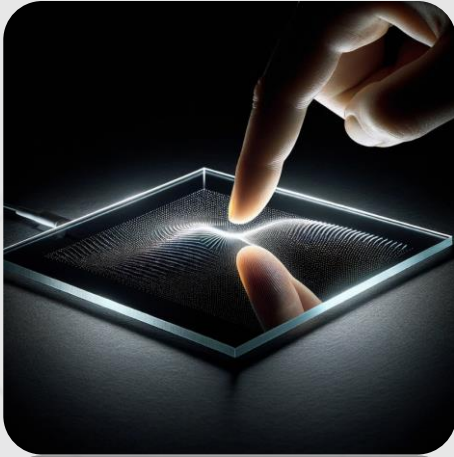


# Optoskin: Large-Area Electrode-Free Optical Tactile Sensor



In a groundbreaking collaboration, Sestosenso partners from **ISSP**, **ISL**, **UZ** and **UL** have developed a novel type of optical tactile sensor based on the time-of-flight (ToF) principle called **Optoskin**.

It emits a pulse of light and precisely measures the time it takes for this light to travel to the point of contact and return.

Advantages over traditional touch sensors:

- Electrode-free surface: simplifies sensor design and integration.
- Adaptability: conform to irregular surfaces.
- Co-located light source and detector, few ToF sensorize large areas: streamlines electronics and reduces energy consumption.

⇒ Prototypes demonstrate that

- Two ToF ensure a sensorized area of 400 cm<sup>2</sup>,
  - Resolutions: 10 mm, 3.5°.
- Low fabrication costs respect to current SoA touch localization sensors.

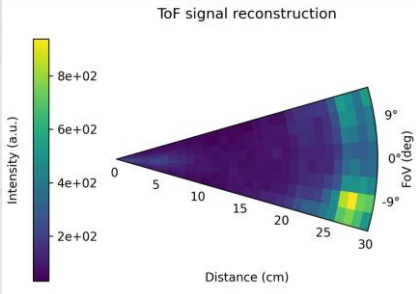


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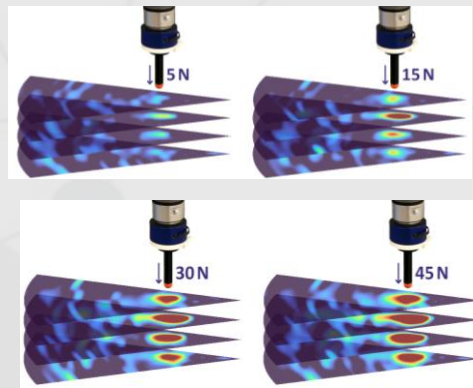
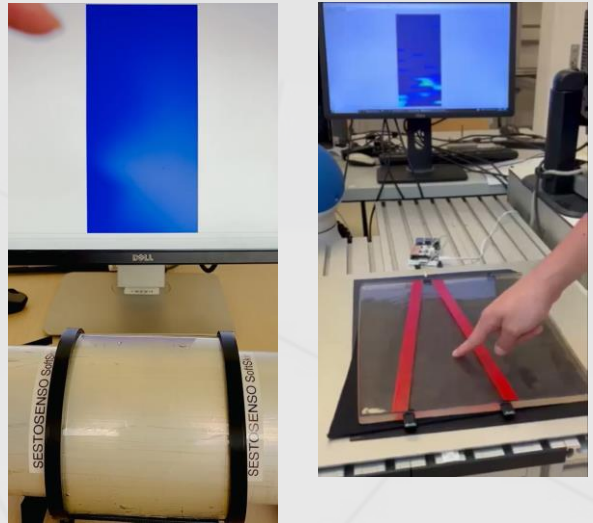


# Our Prototypes

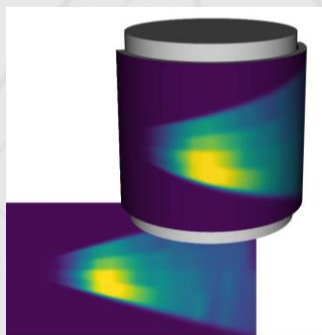
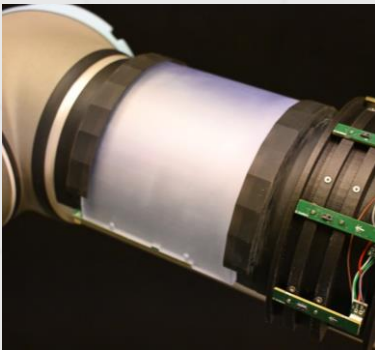
## Quasi-ideal hard Optoskin (ISSP)



## Softskin demonstrator (UL)



## HardSkin mounted on UR10 (ISL)



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# Applications



## Consumer Electronics

- Touchscreens
- Gaming Consoles and Controllers

## Medical and Healthcare Devices

- Touch-enabled Medical Instruments
- Assistive Technologies

## Smart Home Devices

- Touch-sensitive Home Controls
- Appliances

## Interactive Education Tools

- Smartboards and Interactive Whiteboard

## Public Spaces and Transportation

- Interactive Information Kiosks
- Ticketing Systems

## Robotics and Automation

- Tactile Sensing for Robots
- Human-Robot Collaboration (HRC)

## Human-Machine Interfaces (HMI)

- Automotive Touchscreens and Controls
- Industrial Control Panels
- Robotic Control

## Virtual Reality (VR) and Augmented Reality (AR)

- Interactive Surfaces

## Retail and Point-of-Sale (POS) Systems

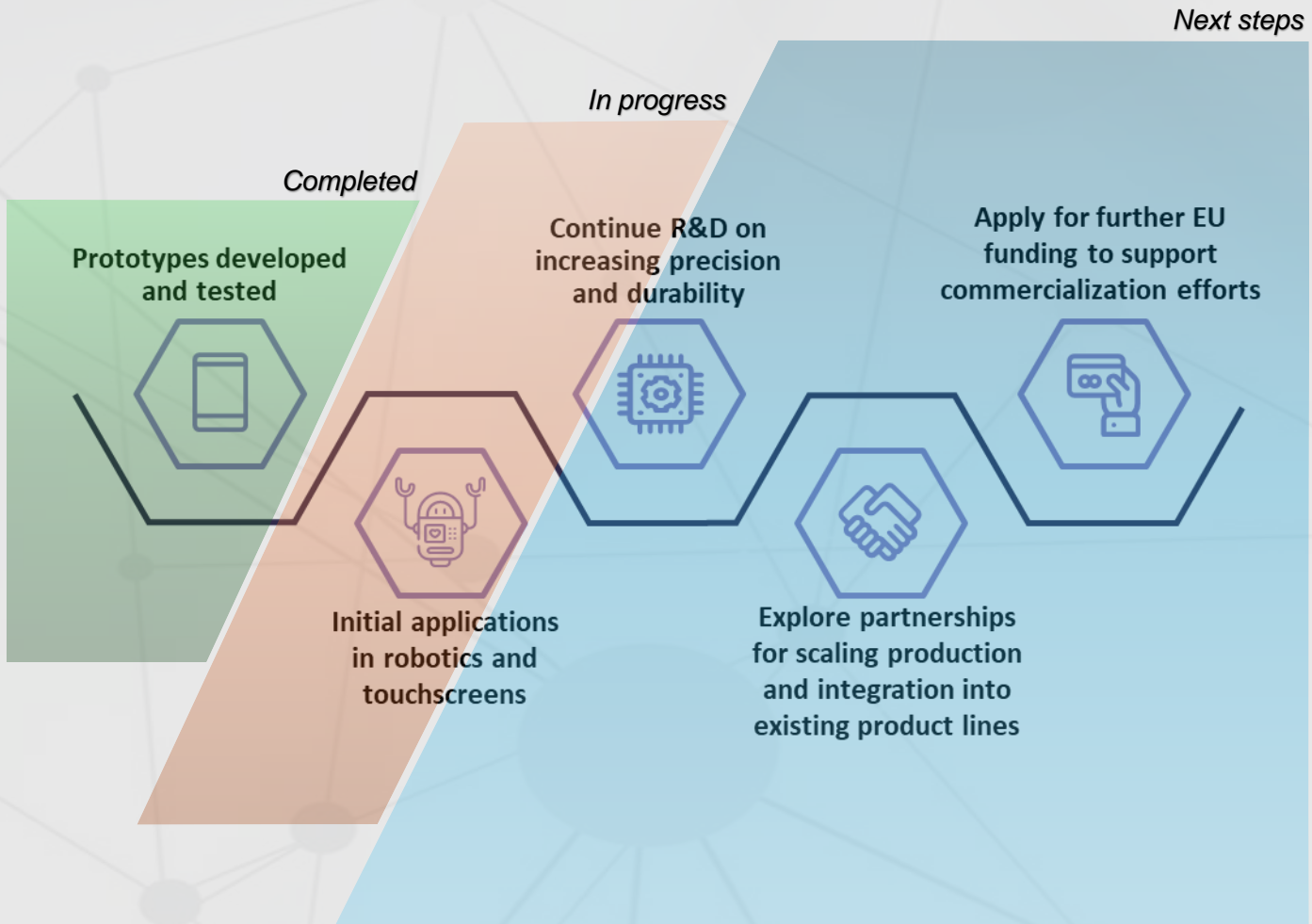
- Interactive Kiosks and Displays
- Self-checkout Machines



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# Development Roadmap



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# What We Need

## **Investment**

Seeking funding to scale production and commercialization



## **Strategic Partnerships**

Collaborations with manufacturers, distributors, and end-users

## **Research Collaborations**

Opportunities to refine the technology and explore new applications



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# Optoskin developers

- Institute of Solid State Physics, University of Latvia (ISSP UL)



- University of Zaragoza (UZ)



- Saint Louis French-German Institute (ISL)



- University of Ljubljana (UL)



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