Finnish Institute of Occupational Health

Well-being through work

Saf€ra Symposium, 13th April 2016, Athens

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Finnish Institute of Occupational Health

SmartPro – Smart Protective Solutions for Industrial Safety and Productivity in the Cold

4/2015 – 3/2018

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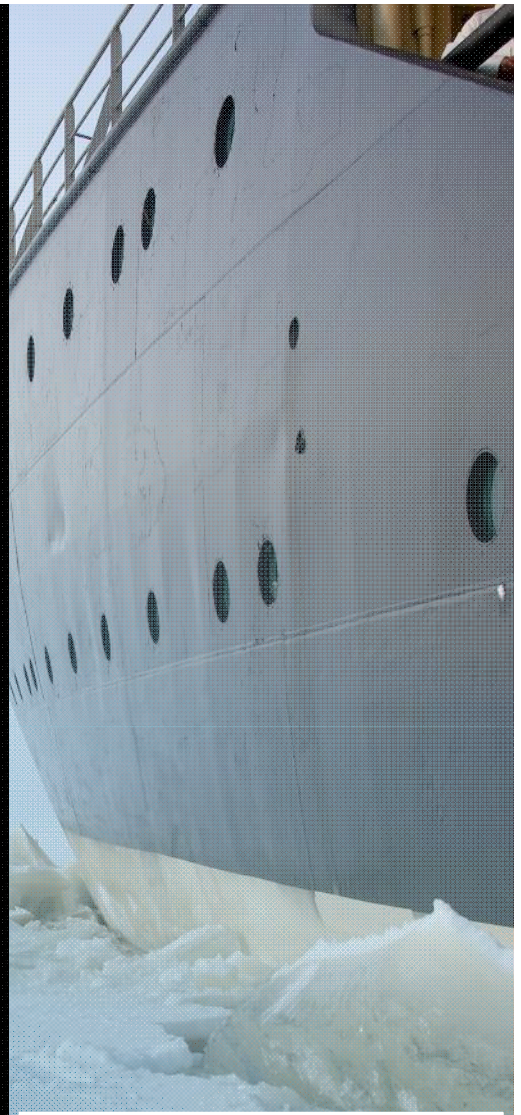
Work in the Arctic Climate



Objectives

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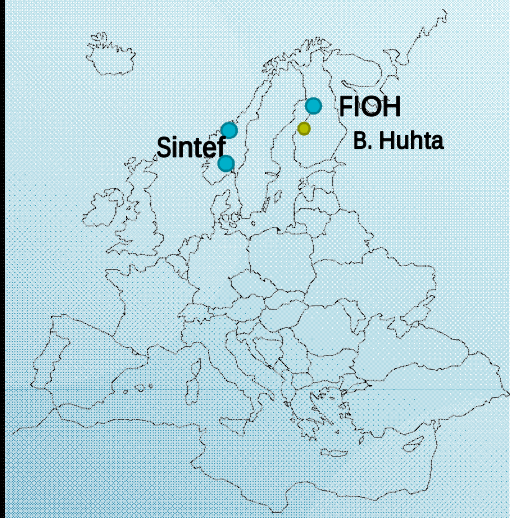
Project Consortium



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Work Packages (WP)

- WP 1 – Indication of critical level of cold (Sintef)
- WP 2 – Smart protection of hands in the cold (FIOH)
- WP 3 – Management and dissemination (FIOH)

	2015									2016												2017												2018		
WP / tasks	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
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WP2 /T2.5																																				
WP2 / Reporting																																				
WP3 / Consortium agreement																																				
WP3 / Workshops																																				
WP3 / Meetings in situ																																				
WP3 / Dissemination																																				
WP3 / Reporting																																				

WP 1 - Indication of Critical Level of Cold

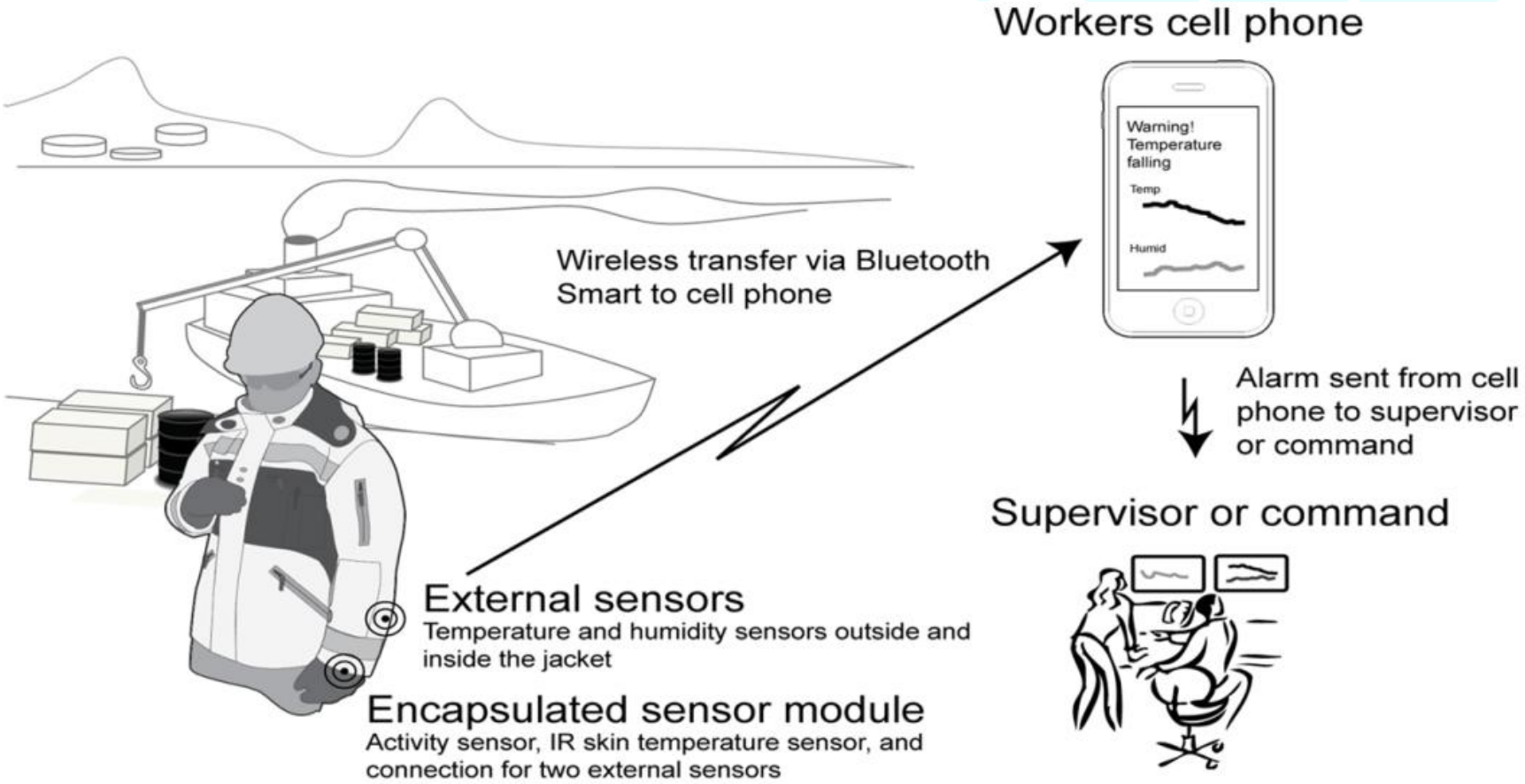
4/2015 – 3/2017

The basis for a future commercially available sensor-based monitoring system will be developed.

The system can provide objective decision-support to advice on safety and work capability for workers during operations in cold climate.

- Task 1.1 Literature study ✓
- Task 1.2 Determination of requirements ✓
- Task 1.3 Adaption of monitoring system ✓
- Task 1.4 Verification and physiological testing
- Task 1.5 Development of algorithms

WP 1 - Indication of Critical Level of Cold



SmartPro System

SmartPro Sensors

- 1 x IsenseU-HR+
  - Heartrate
  - ECG
  - Skin temperature (chest)
  - 3D Accelerometer
  - 3D Gyroscope

- 2 x IsenseU-Move+
  - Inertial Movement sensor
    - 3D Accelerometer
    - 3D Gyroscope
    - 3d Digital compas
  - IR temperature (hand and back)
  - 2 x temperture and humidity sensors (arm and back)

WP 2 - Smart Protection of Hands in the Cold

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WP 2 – Development of Smart Hand Protection

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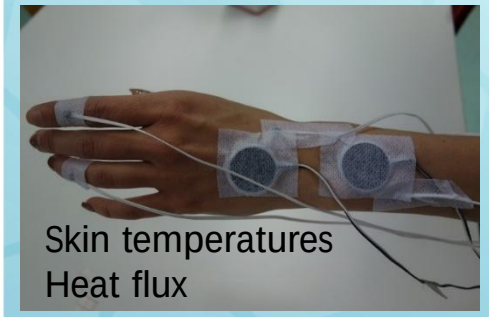
Skin temperatures
Heat flux


Far infrared heating element

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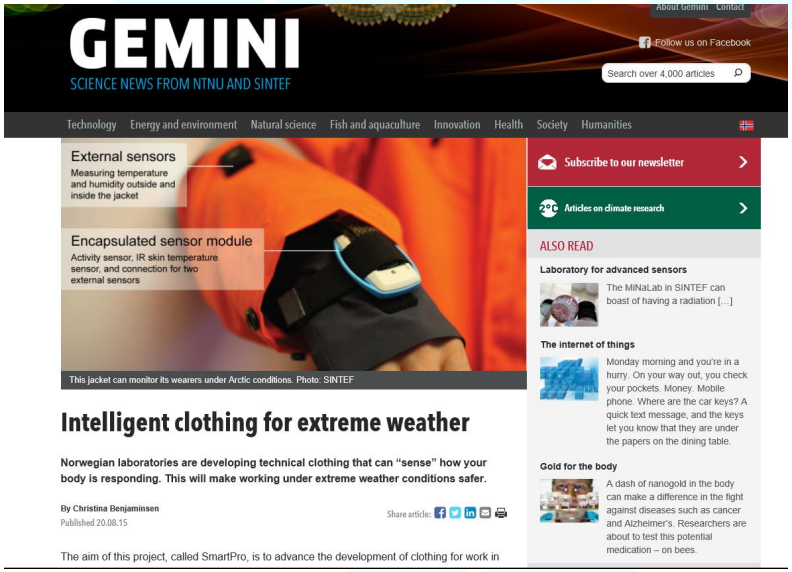
WP 3 - Management and Dissemination

- Consortium agreement
- Organizing meetings and work shops
- Dissemination
- Reporting



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Expected Outcomes

- Novel smart protective solutions will enable safer working in difficult weather conditions
    - Integrated wireless sensors in protective clothing and gloves will provide an early warning mechanism of critical level of cold exposure on work site and on an individual level in real time.
    - Improved manual performance enhances industrial processes by minimizing errors.
- Monitoring systems will improve the decision–making in critical work operations, and furthermore improve safety, work capacity and efficient resource exploitation on the workplaces.
- Knowledge gathered from the smart applications could be used as a basis for the dynamic risk management in the industry.
- The results are applicable in several industries, such as the petroleum, mining, construction, fisheries, and rescue authorities, where workers are frequently exposed to harsh weather environment.

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Thank you!

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SE1 Tämä on vakio lopetussivu

Smeds Ella; 1.7.2015