



Self Assessment Towards Optimization of Building Energy

Deliverable 9.4

Second progress report

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EXECUTIVE SUMMARY / ABSTRACT / SCOPE

This deliverable summarizes the SATO project progress after the second semester of execution. It includes progress details for every initiated work package, milestones completion, and use of resources. Overall, the project is on track according to the plan, but with potential future delays in the short term, due to the impacts of the Covid-19 pandemic.

Horizon 2020 Energy Efficiency

Technical Progress Report

Project acronym and number:	SATO (GA 957128)
Date of submission of the report:	07/10/2021
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Project start date:	October 1 st 2020
Project end date:	September 31 st 2023
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1. Progress of work plan in the period

The following sub-sections present one table per work package (WP) that had development in the report period. WP 6 has not started within the reporting period, therefore no table is included. The tables describe the work related to WP key objectives, and the corresponding progress status.

1.1 Work package 1

WP 1 – Specifications and Requirements for SATO			
Key objectives	Progress	On track	Delayed
Identification of relevant stakeholders and their roles related to the user-centred self-assessment and optimization SATO concept.	The identification of relevant stakeholders was conducted from M1 to M6 and its activities and results were described in D1.1. A survey with 105 potential SATO users was conducted to identify the potential of SATO solutions, providing a clear picture on the desired level of user interaction as well as the division of interfaces of the SATO platform.	✓	
Definition of platform, data security and privacy requirements.	The definition of platform data security and privacy requirements was conducted from M2 to M4 and described in D1.3, identifying the key requirements and best practices that are adopted in the enterprise and scientific community and how those can be applied in SATO.	✓	
Definition of the system architecture of the SATO platform	The SATO Platform architecture was defined according to its objectives and modules identified. The description of the architecture can be found in D1.4.	✓	
Definition of requirements for the energy performance self-assessment framework and services.	The definition of requirement for the energy performance self-assessment framework was developed between M2 and M7. This worked defined precisely which systems, components and appliances will be object of assessments as well as data requirements to implement the models and algorithms. The work is described in D1.2.	✓	
Definition of user stories, use cases and	The definition of use cases was conducted from M3 to M10 and it consists on the identification of the set of actions that will be developed during the project and applied in the pilot sites, along with	✓	

operational test experiments.	the requirements to develop and implement these actions. The Use Cases defined for SATO were divided between monitoring, assessment, visualization, optimization, and controlling. This work can be consulted in D1.5.		
Definition of an evaluation and demonstration framework based on predefined key performance indicators.	The evaluation framework for SATO will be submitted in D1.6 by the end of the current reporting period, M12. The evaluation framework described focus on the use of the key performance indicators to establish a score that enables a performance comparison of SATO solutions. This work also included the mapping of solutions with key performance indicators, monitoring requirements and its application in the pilot sites.	✓	
Validation and refinement of the business cases.	The extension and validation of business cases started on M4 and the first results will be shared on M14 in D1.7. The task will continue until M36. During the reporting period the different customers segment were identified, and business models canvas prepared.	✓	

1.2 Work package 2

WP 2 – Development of integrated technical Platform for SATO			
Key objectives	Progress	On track	Delayed
Streamlining the inputs from WP1 into the overall SATO concept.	Input knowledge identified in WP1 was considered in the design of the overall SATO concept in WP2. Examples of such input include Deliverables D1.2 (requirements for energy performance self-assessment framework), D1.3 (data security and privacy requirements), and D1.4 (SATO platform architecture). The main concepts to enable the SRI with the SATO platform were described by Task T2.1 in the Deliverable D2.1 (M7). Additionally, this task is producing the Deliverable D2.2, which will describe the main interfaces between the SATO platform, its services, and stakeholders and will be delivered in M12.	✓	
Develop SRI calculation related capabilities into the SATO platform.	The main concepts to enable the SRI calculation within the SATO platform were described by Task T2.1 in the Deliverable D2.1 (M7). Additionally, the SRI calculation will occur within the self-assessment framework (SAF) in the SATO platform. The Deliverable D3.8 (M10) from Task T3.8 described the initial steps towards integrating the SAF with the SATO platform. Finally, this calculation (and the platform itself) are being developed in Task T2.4 and documented in	✓	

	Deliverable D2.5 (M16).		
Upgrading existing devices to non-intrusively monitor and manage building environment.	The work towards this objective is being executed within Task T2.2, which has assessed the necessary upgrades on firmware and software of devices and commercial platforms to support the requirements from the SATO project. Examples of upgrades taking place include: increasing the sampling rate to support measurements minute-by-minute on EDP RE:DY devices and platform; and the design of new devices by XTEL technologies to include a CO2 sensor in a gateway device. These upgrades are being developed and will be documented in Deliverable D2.3 (M14).	✓	Possible delay in XTEL new device due to limited availability of components.
Development of platform extensions and aggregation of the modules into the SATO platform.	The work related to this objective is being developed mainly in Task T2.3 (in close collaboration with Task T2.2). An example of an extension developed is the process in EDP RE:DY platform that will aggregate, in intervals of 15 minutes, the minute-based measurements sent by its devices. Other examples include the processes of sending data to public clouds, from which the SATO platform will receive/collect the measurements. These (and other) extensions are described in Deliverable D2.4, which will be submitted in M13.	✓	

1.3 Work package 3

WP 3 – Development of SATO Self-assessment framework

Key objectives	Progress	On track	Delayed
Develop a self-assessment framework that can support the types of assessments and scales.	<p>The work on this objective is carried out in Task 3.8.</p> <p>The integration of the self-assessment framework (SAF) into the SATO platform started in M9 (June 2021). The Deliverable D3.8 presented the first steps on this integration and was submitted (its first release) at the end of M10 (July 2021). Currently, Task T3.8 has been following closely all the decisions and developments of the specific self-assessments from the other tasks of WP3 to seamlessly integrate them into the proposed SAF architecture before the project pilots start in WP6.</p>	✓	
To develop a library of recommended automatic	<p>The work on this objective is carried out in Task 3.1.</p> <p>A literature study on the potential parameter and system identification methods to be applied has been completed. The methods use different approaches in relation to set-up and data collection, system modelling and mathematical methods.</p>	✓	

<p>parameter and system identification methods to be applied in the smart self-assessment and optimization framework.</p>	<p>Currently, work is focusing on structuring the self-assessment and optimization framework and on matching relevant identification methods with this framework and to the different key variables and performance indicators defined in Task 1.2.</p>		
<p>Develop data quality assessments that enable fault tolerance methods, to allow a better data store at the platform level.</p>	<p>The work on this objective is carried out in Task 3.2.</p> <p>During this period, the work progressed with the implementation and integration of the data quality framework infrastructure into the SATO platform. Considering that the SATO pilots have not started, the work will progress by testing the framework with data from publicly available datasets and by correcting features if necessary.</p>	✓	Possible future delay related to difficulties to hire PhD student.
<p>Develop a sensor placement assessment able to decide sensor locations for a desired minimum level of energy performance.</p>	<p>Most of the work for the subtask a and b defined in the previous progress report has been already done (a) Spatial analysis of sensors requirements based on the work made in WP1 and WP2, b) BIM entities identification to be studied according to sensors requirements and the open standard IFC) Now the work is focus on the development of the subtask c) Development of a mock-up of set of rules to provide self-assessment and self-optimization of energy performance. Regarding to this last subtask, new rules have been considered according to the data provided by the different sensors so currently this subtask has been divided in two different groups depending on the source of information considered (BIM Location Data, Sensors Perform Data). We will update the subtask c results as the project progresses according to the new requirements identified.</p>	✓	
<p>Develop a database for reference energy performance of specific appliances or types of</p>	<p>The work on this objective is carried out in Tasks 3.4 and 3.5.</p> <p>This work is being developed at FC.ID with the collaboration of SAGOE. We have created a reference database using the European Product Database for Energy Labelling (EPREL) database as a primary source of information on the energy performance of appliances. Additionally, an appliance classification and labeling approach was developed for monitoring the real-life operation of appliances. Preliminary results were published on a workshop paper within the European</p>	✓	(Experimental work on the real-life energy assessment of appliances

appliances.	<p>Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECMLPKDD'2021).</p> <p>We are also finishing the literature review of existing data on the energy performance of high energy-consuming equipment, such as heat pumps, air handling units, HVAC systems, lighting, building envelope, and building-as-a-whole.</p>		<p>is delayed. Due to covid-19, laboratory facilities were provided with delay)</p>
Develop building and equipment energy performance assessments considering the metrics and benchmarks defined in T1.2.	<p>The work on this objective is carried out in Task 3.6.</p> <p>To develop a unique set of indicators shared by all partners to assess building energy performance, an analysis of the national energy certification schemes has been carried out for the countries participating to the project (even when the key variables are the same, national legislations offer in fact different ways to aggregate the data), taking also profit of available reports by European institutions (e.g. Concerted Actions, BPIE). In this way, a common basis for the task has been established, including indicators already available for all pilot buildings (since their calculation is mandatory by law in each country), with clear understanding of calculating procedures and common terminology.</p> <p>Next steps include an upgrade of this list, including relevant indicators from scientific literature, and defining some country- or pilot- specific variants</p>	<p>✓</p>	
Develop a user a building/occupancy behaviour extraction library to enable real-life user dependent equipment and building energy assessments.	<p>The work on this objective is carried out in Task 3.7.</p> <p>It has been clarified what types of equipment and methods can be used to provide the necessary input parameters for the SATO platform on user behaviour/actions, occupancy, IEQ user preferences and other user feedback (from/to user).</p> <p>Currently, pilot specific descriptions of the planned approaches, equipment, and methods for collecting input data for the SATO platform are described.</p> <p>A proof-of-concept of occupancy detection using wireless signals was developed in the laboratory and tested in the Lisbon office pilot. Preliminary results have been published on a workshop paper within the European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECMLPKDD'2021).</p>	<p>✓</p>	

1.4 Work package 4

WP 4 – Development of SATO Self-assessment and Self-optimisation Services Toolbox			
Key objectives	Progress	On track	Delayed
Establishing a framework for the integration of all available data sources from the buildings and from external sources, including the observation of equipment and end-user behaviour.	The work related to this objective is developed in task 4.5. Its aim is to deliver an integrated framework and API providing a complete view of the SATO platform data and assessments, to support the development of energy management services. Although the task has not started, under the scope of tasks 2.8 and 3.4, we are ensuring alignment with WP4.	✓	
Development of energy efficiency management services which make use of the self-assessment framework and all available synergies within the building in order to obtain an optimal, adaptive and predictive control of the energy system with respect to all identified user-satisfaction related constraints.	<p>The work has until now focused on the development of a Self-optimization services framework that build on the self-assessment framework developed in Task 3.1 in order to ensure exploitation of the synergies between Task 3.1 and 4.1.</p> <p>A coherent framework has been developed that clearly defines the different building performance models required for control optimization and energy efficiency management services, depending on building and system types, data quality and quantity available as well as user preferences and actions.</p> <p>Toolbox services fitting into the developed framework are under development.</p>	✓	
Development of flexibility management services improved by the self-assessments developed, that achieve the desired system flexibility with respect to the considered economic incentives with predictive and adaptive control of the volatile energy flows and storage capacities for the	To set a common framework for this task, a critical literature review is being carried out, in the first place regarding terminology and definitions on the topic of flexible buildings and providing energy flexibility to the grid, and in the second place regarding indicators and methods to assess the energy flexibility of a building, taking into account energy and comfort constraints and the different types of storage capacities currently available. In particular, the final outcomes of the IEA EBC Annex 67 “Energy Flexibility Buildings” and the research currently ongoing in IEA EBC Annex 82 “Energy Flexible Buildings Towards Resilient Low Carbon Energy Systems” have been considered as a relevant source of information.	✓	

building.			
Development of an Energy Performance Self-Assessment Service that conveys diverse information from the self-assessment framework (WP3) and is able to continuously evaluate components of the smart readiness indicator (SRI).	<p>The work on this objective is carried out in Task 4.4.</p> <p>Work has progressed in close relation to WP2, to design middleware services aligned with the SATO platform architecture. Since these services will provide data and assessments knowledge to third-parties, part of the work consisted in analysing the specific privacy and security requirements, beyond those of the platform.</p>	✓	
Integration of all developed services into an aggregated control framework leveraged by knowledge produced by the self-assessments, focusing on resource management, and capable of simultaneously dealing with flexibility, comfort, efficiency and user satisfaction.	<p>The work on this objective is carried out in Task 4.3.</p> <p>After the kick-off of WP4, this task was started with a meeting with the participant Partners. From the group, three approaches are being pursued for implementation in distinct pilots: one where aggregated control is carried out at a supervisory level, considering decisions of individual services (pre-existing or not) that might be conflicting and/or sub-optimal; another that considers state-of-the-art Model Predictive Control (MPC) approaches; and finally, an approach that will combine MPC and reinforcement learning. Currently, surveys are being pursued on the current state-of-the art of the relevant techniques and on their application to buildings energy management. A co-simulation testing environment is being developed, so that different techniques and algorithms can be tested before deployment in pilots, considering KPIs and equipment and building components specified in WP1.</p>	✓	
Integration of the control framework into the developed SATO platform.	<p>This work is developed in Task 4.5, which has not started within the reporting period.</p>	✓	

1.5 Work package 5

WP 5 – Development of SATO User Interaction and Interfaces			
Key objectives	Progress	On track	Delayed
Define the web-based interaction design for the operational and residential sector interactive applications.	The definition of the web-based interaction design has started in M7 specifying the key functionalities of the system proposed considering the first results of WP3	✓	
Define the BIM-based interaction design for the tertiary sector interactive applications.	The discussions to define approach to integrate BIM models started in M7 considering the requirements of the different stakeholders to visualize and manage building spatial 3D models with some data linked. Technical meetings have been organized to specify how to distribute this information through the different components of the project.	✓	
Develop the interactive applications for the different actors and building sectors.	The development activities started in M8 creating the first mockups of the different applications defined.	✓	
Evaluate and validate the implemented applications.	The evaluation of the implemented applications will start in M16	✓	

1.6 Work package 7

WP 7 – Economic Evaluation, Exploitation and Replication			
Key objectives	Progress	On track	Delayed
Development of clear business models for the different stakeholders such as occupants, energy service providers, grid operators, aggregators, or manufacturers.	Business model related tasks start at M21. No progress reported.	✓	
Assurance of compliance with regulatory	Development of assurance of compliance with regulatory frameworks and	✓	

frameworks and solid solutions certification strategies.	solid certification strategies are closely related with the results and insights from WP1 to WP4, during an initial phase. Based on the results, deliverables, and insights from the initial WPs, it will be possible to perform the related technical activities that Sonae/Worten has already planned and foreseen within T 7.1.		
Development of replication strategies to reach a broad marked uptake of the SATO solutions with potential analysis of different building typologies in the European building stock.	Replication Strategy related tasks start at M25. No progress reported.	✓	
Creation of exploitation plans for commercial and non-commercial partners of the consortium.	Exploitation Plans related tasks start at M25. No progress reported.	✓	

1.7 Work package 8

WP 8 – Market Actors Engagement through Communication and Dissemination			
Key objectives	Progress	On track	Delayed
To actively involve additional stakeholders to the project (end-users, ESCO, building owners, facility managers, grid operators), in order to get their commitment to the design and implementation of the project, and also to broaden the	<p>Stakeholders' engagement has been designed as a series of studied and structured actions, which takes into account the heterogeneity of the involved subjects, and has been conceived as a two-way process where feedbacks are used to shape the research and innovation process. The first step has been to map all SATO stakeholders (activity developed in synergy with other tasks, e.g. <i>T1.1 - Analysis of actors, roles, and interfaces related to A&O services</i>), followed by the development of tailored strategies to involve each of them actively. In <i>D8.5 - Periodic Stakeholder Engagement Report</i> is contained a description of stakeholders, which has been refined starting from the identified segments presented in <i>D8.1 - Dissemination and Communication Plan, including project identity</i>.</p> <p>On the base of the Communication and Dissemination Plan, a quite significant number of activities has been developed between M7 and M12 to engage different target audience. SATO Partners took part in eight events (mainly webinars and workshops) presenting the project and its first results and involving different actors such as grid operators, SMEs and start-ups, building industry, academy, end-users and policymakers. A detailed description of each event (type of activity, leading partner, number of attendees, coverage level, target audience, pictures) is presented in D8.5 and for some of</p>	✓	

<p>network for the commercialisation after the project completion.</p>	<p>them a link with the registration is available. All the information have been collected in a structured way using web forms developed by POLIMI and CORE.</p> <p>During these months, FC.ID, POLIMI and CORE have carried out also the necessary steps to organise future events, e.g. SATO will take part in the Sustainable Energy Week with the event named “AI² for self-assessment of building energy performance” organized in collaboration with the EU H2020 project Auto-DAN.</p> <p>Further details can be found in <i>D8.5 - Periodic Stakeholder Engagement Report</i>, submitted according to GA.</p>		
<p>To foster the full utilization of the results and findings during and after the end of the project, by activating tight relationship with the stakeholders for the full roll-out of the system after the project. Besides, this WP will focus broadly on dissemination and communication of the state of the project as well as key results and development. The dissemination will create awareness and interactions between the consortium and other stakeholders, in industrial,</p>	<p>Between M7 and M12 the communication and dissemination activities continued to aid in expanding further the project’s reach.</p> <p>In parallel to events, the first results of the project have been presented in scientific publications to involve academy and experts. POLIMI has published a peer-review open access paper, developed within SATO framework, which explores the topic of energy flexibility potential while FC.ID has published two papers on the topic of buildings occupancy estimation and building appliances energy performance assessment. Further, online articles, press releases and posts have been created to reach multiple audience.</p> <p>CORE, as leader of the communication activities, proceeded with the following activities: the release of SATO’s first video, the introduction of a news section on SATO’s website and keeping the project’s calendar up to date. Also, the second Press Release and Newsletter were issued and delivered.</p> <p>Social media: The SATO Twitter and LinkedIn accounts saw a great rise in followers. They currently stand at 347 and 250 respectively. In addition, the project’s YouTube channel was created where SATO’s first video was uploaded. It currently counts 140 views.</p> <p>Website: The website is frequently monitored and updated in order to include the project’s latest news and other project-related news (e.g. relevant events). Furthermore, a new section, called ‘Latest News’ was recently added to the website where visitors can quickly see all relevant information. To this date, the total number of website visitors is 2000.</p> <p>2nd Press Release: The second Press Release of the project was published; it takes a closer look at the project and provides a more in-depth outline of the processes followed so far. The press release was uploaded on the corresponding section of the website. It was also circulated among partners and promoted through SATO’s social media as well as the 2nd Newsletter.</p> <p>2nd Newsletter: The second Newsletter was set up and distributed with the use of the MailChimp</p>	✓	

academic, and public interest groups, as well as policy makers.	<p>platform. The second issue of the Newsletter included the 2nd Press Release along with the latest news since the circulation of the first Newsletter. To date, the Newsletter mailing list counts 48 subscribers.</p> <p>Internal communication: The calendar section on SATO's website and on the repository is monitored and updated to include relevant events.</p>		
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1.8 Work package 9

WP 9 – Project, risk, data, and innovation management			
Key objectives	Progress	On track	Delayed
Coordination of the activities of the project and coordination of efforts among all partners in order to guarantee an effective operation of the project.	<p>The consortium has monthly General Assembly (GA) and Project Steering Committee (PSC) meetings where an assessment is made on the progress of the different ongoing and upcoming activities within the project. The project has reached a point in time where internal management procedures have been assimilated by the partners.</p> <p>Since the evolution of the Covid-19 pandemic is favorable in Portugal after vaccination, SATO will have its first physical, in-person. The meeting has been planned and is scheduled for the end of October. This will be a second kick-off, considering that the more experimental and pilot-driven part of the project is yet to be started.</p>	✓	
To adequately maintain the communication channels between the beneficiaries and between the European Commission (EC) and the Project Coordinator (PC).	<p>The consortium is now successfully using the tools implemented in the beginning of the project: mailing lists, file repository, wiki webpage, project website, and specific reporting tools developed for the communication of events and dissemination activities</p>	✓	
Management and control of the project resources (personnel, finance, equipment, etc.), covering the overall legal, intellectual property rights,	<p>FC.ID administrative collaborators are available and maintain periodic contacts with the Consortium partners to help overcome problems and doubts related to human resources, financial management, or acquisitions.</p> <p>FC.ID is currently in connection with all Partners to assess the current state of</p>	✓	

contractual, ethical, financial and administrative management always in compliance with any consortium agreements.	resource execution in the project.		
Implementation of a Data and Ethical Policy concerning all project domains, complying with EC rules.	<p>With the approaching of WP6 start date, the policies described in the first release of deliverable 9.8 will be implemented and possibly reviewed, although for now nothing has changed in this respect.</p> <p>In the technical domain, the project continues to develop the SATO platform with embedded data privacy and security mechanisms, associated to all data sources and services managed by the platform.</p>	✓	
Monitoring of the progress of all technical activities described in the DOA and achievement of results and ensuring that they are delivered on time and to budget by the development of a project risk management and quality assurance.	<p>The progress of the project is periodically monitored through the monthly PSC meetings, where each WP leader presents an overview of the progress, the challenges that are faced, and any risks that have been detected on the WP. All the scheduled meetings have occurred.</p> <p>The deliverable quality procedure has been ensuring a common quality standard and, in general, the timely release of deliverables.</p>	✓	
Promote gender equality.	The SATO project promotes a hiring policy guaranteeing equal opportunities. All opened position calls include an equality statement to ensure this to the candidates. The project has successfully hired and involved several collaborators of both genders.	✓	

2. Progress on milestones

Milestone number	Milestone title	Delivery date in Annex 1	Means of verification	Achieved	If not achieved, forecast date	Comments
MS 1	Platform requirements and stakeholder framework completed	30/06/2021	Validated by D1.1 to D1.4	✓		

3. Other issues

In the following, we report issues related to previous internal changes in the project plan, to delays in the preparation of pilots, and to difficulties in hiring specialized human resources.

1. In the first semester of the project the Partners detected task leaderships, deliverable leaderships, and effort changes that required corrections. These problems were due to inaccuracies and mistakes made before project submission, that did not correspond to the initial plan. The changes were agreed between the Partners, the project coordination, and the EU project manager at the time. Since these did not affect the Partners budget, no project amendment was requested. In this report we are documenting those changes that were internally adopted before:
 - CORE had effort (23 PM) in T4.4 that should be allocated to T3.5. This resulted from a change in WP structure during the preparation of the proposal.
 - The leadership of T3.4 was incorrect. T3.4 is led by FC.ID.
 - In WP6, since POLIMI leads T6.2, POLIMI leads D6.3.
 - Additionally, during the kick-off, EKAG showed interest to contribute in T6.1, although they had no effort allocated in this task, which was completely allocated to T6.3. Therefore, EKAG effort in 6.3 will be shared with T6.1, since EKAG considers it enough for both tasks.
 - In WP8, changes were required to align with the original consortium plan and CORE main role as dissemination/communication Partner:
 - Leadership of T8.2 changed from SONAE to CORE.
 - Leadership of T8.3 changed from POLIMI to CORE.
 - Leadership of T8.4 changed from CORE to POLIMI.

This adjusted leadership structure reflects the fact that CORE is effectively managing communication and dissemination, leaving the leadership related to the organization of several events in T8.4 (webinars, workshops, final conference) to an academic partner. By considering this, the leadership of D8.3 changed from SONAE to CORE, and that of D8.4 from POLIMI to CORE.

Although there was no required change in the WP partner's and global effort, to make it consistent with the required changes, the effort in T8.1 to T8.4 was allocated differently:

- FC.ID PM allocation becomes 0.5, 0.5, 0.5, 2.5 (was 0.5, 2, 1, 0.5)
 - POLIMI PM allocation becomes 0.0, 0.0, 0.0, 14.0 (was 3, 2, 5, 4)
 - CORE PM allocation becomes 9.0, 9.0, 9.0, 0.0 (was 7, 2, 2, 16)
 - SONAE PM allocation becomes 0.0, 0.5, 0.0, 5.5 (was 1, 4, 0, 1)
2. Although WP6 has not started by the time of delivering this report, the SATO coordination is aware of delays in pilot preparation tasks. Due to Covid-19 pandemic and related lockdowns, preparation work was significantly delayed in some pilots and other necessary experimental facilities. In part, this was due to total lockdown of facilities, but also, due to the lack of availability of equipment and (in one case) of electronic components necessary to develop sensor devices.
 3. Additionally, we are aware of difficulties to hire specialized human resources, namely PhD students in specific areas.

Considering the WP progress report, we can conclude that the project is still on track, but already with some difficulties related to the necessity of progressing from conceptual and design work to experimental development work, especially in tasks that require more involvement and physical collaboration between Partners. So, by considering also issues 2 and 3 above, and the potential future delay in the project, the Consortium will analyze a project extension plan during the first in-person meeting to be held in Lisbon from October 20 to 22.

4. Use of resources

Nothing to report.