



## LIFE HELP PROJECT

*Nuovo approccio per la gestione delle pratiche di governance olistica dell'ambiente.*

*New approach for managing Holistic Environmental governance Practices*

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**Deliverable D3.1 – Protocol for the regulation of the access to SensorNet**

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## 1. INTRODUCTION

The Municipality of Rimini has signed with the Company Lepida S.c.p.A. (an in-house company with total and exclusive public capital of the Emilia-Romagna Region) a “Memorandum of Understanding between Lepida and the Municipality of Rimini for IOT systems” (approved by Municipal Council resolution no. 36 of 02/02/2021 and signed with prot.no. 192316/2021). This protocol provides in art. 2, paragraph 1 that Lepida, as part of its initiative “IoT Network for Public Administration,” implements an IoT network called SensorNet in which all stakeholders in the initiative can participate, through the installation of sensors and taking advantage of the communication services offered by Lepida. Through this network, Lepida will collect and transport the data collected by these sensors, making them available to their owners at <https://www.retepaiot.it>.

Lepida has developed the SensorNet project for indoor and outdoor environmental monitoring through a centralised federated collection system, exploiting every network available for collection and providing data to Lepida's Members through profiling, as provided for in Lepida's 2021-2023 Service Contract referred to in DGR 137/2021 and DGR 433/2021; the IOT network is a data collection element integrated with the SensorNet project.

With funding from the Life Help project from CINEA, the City of Rimini purchased and installed the following environmental sensors:

- n. 2 air-weather monitoring sensors powered by photovoltaic panel capable of measuring the following parameters:
  - air quality parameters: concentration of CO, CO<sub>2</sub>, NO<sub>x</sub>, NO<sub>2</sub>, SO<sub>2</sub>, O<sub>3</sub>, PM<sub>10</sub>, PM<sub>4</sub>, PM<sub>2.5</sub>, PM<sub>1</sub>, TVOC;
  - weather parameters: temperature, air pressure and humidity, wind speed and direction;
- n. 4 sensors for acoustic monitoring (sound level metres) with supply from photovoltaic panel.

As part of what is governed by the “Memorandum of Understanding between Lepida and the Municipality of Rimini for IOT systems,” Lepida has also provided and installed two LoRaWan Gateways (antennas for receiving data), at no cost to the Municipality of Rimini, which receive data from LoRaWan sensors and transmit the data to the Lo-Ra™ Server through the Lepida broadband network (as better explained in section no. 3).



## 2. ACCESS TO SENSORNET

The data transmitted in real time from the sensors installed on the municipal territory can be viewed on the PAIoT Network platform which authorised users can access via Sistema Pubblico di Identità Digitale (SPID).

For access to some monitoring systems, such as ARPAE's air quality systems, no access protocol is required because the integrated data are natively 'open'.

Instead, ad hoc protocols will have to be entered into for all data of interest from other monitoring systems integrated into Sensornet owned by other agencies and/or organizations.

Below is a used fac simile of an access protocol for the traffic monitoring system:

### *Draft Sensornet data access protocol: regional traffic monitoring system (MTS)*

*Lepida SCPA has access to real time data from the regional MTS traffic flow detection system made available by the Emilia Romagna Region's Viability, Logistics and Waterway Transport Service.*

*Lepida SCPA is authorized by the aforementioned Regional Service to allow, as part of the "Help Life" project coordinated by \_\_\_\_\_ access to the following project partners:*

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*The Municipality of Rimini will acquire data from Lepida through procedures in compliance with the principles of confidentiality and privacy and, will be authorized to allow access to*

*-----  
and\_-----.*



----- and  
----- guarantee in turn to respect the principles of confidentiality and privacy.

*Partners will be able to use the data to prepare maps and graphs using real-time data, or time series, as per the project objectives.*

*All partners agree to display publicly only summaries and derived data related to the achievement of the objectives inherent in the "Help Life" project. No partner will in any way redistribute the data received.*

*Signature of the parties*

On this track, it will also be possible to request data access from other monitoring systems integrated into SensorNet, such as data related to ARPAE's hydropluviometric system (hydrometers and rain gauges), which are currently integrated into SensorNet in real time and are not 'open,' and therefore require formal authorization from ARPAE.

Given the wide variety of case histories of the different types of data available on SensorNet, it is considered to proceed by activating specific protocols where necessary, a procedure that is considered feasible and replicable to other interested agencies as well.



## 4. MEMORANDUM OF UNDERSTANDING BETWEEN LEPIDA AND THE MUNICIPALITY OF RIMINI FOR IOT SYSTEM

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## MEMORANDUM OF UNDERSTANDING BETWEEN LEPIDA AND THE MUNICIPALITY OF RIMINI FOR IOT SYSTEMS

With this private agreement between:

- LEPIDA S.c.p.A, (hereinafter "Lepida");
- Municipality of Rimini, (hereinafter "Institution");

Hereinafter Lepida and the Institution will be jointly referred to as the "Parties".

### GIVEN THAT:

1. Lepida is the in-house instrumental society with total and exclusive public capital started by Emilia-Romagna region pursuant to article 10 of regional law 11/2004, "Regional development of the information society", for the supply of the regional broadband network of Public Administration, formed with the goal identified by regional politics, among the others, of the supply, in agreement with the partners, of network tracts and services in areas of digital divide risk.
2. Article 6 (4 bis) of regional law no. 11/2004 and subsequent amendments provides that "the organization and the ways in which Region and local Institution collaborate for the implementation of interventions and measures provided by this law, are established with general convention having the function of framework agreement and with specific implementation agreements. The general convention, that has to be discussed and signed in accordance with laws about organization of local institutions, defines the aforementioned collaboration between the various public institutions coming to join the aggregation referred to as Emilia-Romagna Community Network (CN-ER) [...]" and defines the instruments and governance bodies of CN-ER.
3. Lepida is in possession of general authorization for the supply of networks and electronic communication services according to Article 25 of Legislative Decree 259/2003 and has full availability of broadband and ultra-broadband connectivity



on fiber and radio networks (hereinafter cumulatively referred to as “Lepida network”), having access points to Lepida network in various digital divide areas to be transferred to service providers or telecommunications networks operators, in order to promote the enlargement of public electronic communication services in favor of the territory of Emilia-Romagna.

4. Lepida offers, among other things, services to telecommunication operators interested in providing service in digital divide zones with respect to the European objectives, if there aren't other operators with technical/commercial offers having similar features of the ones of areas without market failure.
5. Lepida's corporate purpose, as disciplined in Article 12 of regional law 1/2018, provides for the development of “activities related to the adoption of new technologies applied to the government of the territory, as the ones concerning the so called smart cities.
6. Lepida has developed the SensorNet project for the indoor and outdoor environmental monitoring through a centralized federated collection system, using every available network for the collection and providing data to Lepida's partners through profiling, as provided in the Lepida's Service Contract 2021-2023 defined in the Decision of the Regional Council 137/2021 and 433/2021; the IOT network of the public sector is an element of data collection integrated with SensorNet project.
7. Lepida has experimented with various IOT (Internet of Things) technologies directly integrated with the SensorNet project and, among those, has gained experience in the IOT network for the public sector.
8. The Institution houses various terminations of the Lepida network that can be used as Gateway for IOT networks for the public sector.
9. The Institution is interested in developing an IOT network as a Smart City element in accordance with the national, regional and local Digital Agenda.
10. The Institution has approved this Memorandum of Understanding with Decision of the Regional Council n. 36 of 02/02/2021.





IN THE LIGHT OF THE ABOVE, IT IS AGREED AS FOLLOWS:

## ART. 1 PREMISES AND ATTACHMENTS

1. The premises above and the attachments constitute an integral and substantial part of this Memorandum of Understanding.

## ART. 2 PURPOSE AND OBJECTIVE

This Memorandum of Understanding has the following purposes:

1. In the field of self-initiative "IOT network for the Public Administration", Lepida will realize a network for the PA, in which any interested party (institutions of PA, citizens, enterprises, companies, societies, associations etc.) can participate through the installation of own sensors, benefiting of the communication services offered by Lepida. Through the mentioned network, Lepida will gather and transfer data collected from these sensors making them available to their owners, who will have free access to the data, transfer them i.e. download them through the Lepida's API interface described on the website [<https://www.retepaiot.it/informativa>], or through the website [<https://www.retepaiot.it>];
2. For this purpose, the stakeholders can buy the sensor independently (in compliance with the characteristics possibly defined in the Institution's guidelines) and place it in private or public areas of interest;
3. Lepida can process the data collected from sensors for the pursuit of its own institutional purposes, after data anonymization that will be performed through hashing algorithm Fowler–Noll–Vo type 1a, in order to be aggregated and elaborated also with the application of obfuscation, permutation or granularity techniques on space-time data. In particular, the system maintains these informations (in clear) for the time of the connection and then it stores them;
4. Lepida will communicate data collected by the sensors and previously anonymized, accordingly to the techniques and procedures above-mentioned, to the Public Administrations that signed the Community Network convention, which can use those data in anonymous form exclusively for the pursuing of its own institutional and public interest purposes, such as addressing territorial politics;



5. Final aim is therefore to promote IOT development with an approach based on rationalizing the use of frequencies through the constitution of a single network managed by the Public Administration, allowing the optimisation of resources. This objective will be pursued through a mapping of every sensor that exists on the territory through the creation of a Cadastre, that is a register of the enabled sensors containing the descriptive characteristics of the sensors and the owner's identification.

### ART. 3 LEPIDA'S COMMITMENTS

1. Lepida agrees to use Lepida's network for the transport of data from sensors of the IOT network for PA and to reconfigure the network to allow this transport where necessary.
2. Lepida agrees to acquire, configure and install the Radio Base LoRa Stations, necessary for the coverage of the Institution's territory in an increasing way and in compliance with needs expressed.
3. Lepida agrees to build an Internet-facing mechanism to allow the owners to access the sensor data, with appropriate documentation, as well as to receive via Internet data from their own sensors in both push and pull mode.
4. Lepida, after anonymization according to the techniques mentioned in Art. 2, agrees to make available the data collected by the sensors to every Public Administration of the Community Network.
5. Lepida is committed to providing a web interface for sensor registration by sensor owners; this interface allows the networking of sensors and the definition of their position and of the type of data detected in the Cadastre.
6. The sensors maintain their operation and functionality until they deliver data; in case of no activity detected by Lepida for a period of 60 consecutive days, the sensors are deleted from the Cadastre, information will be given to the owner and the same must be removed by the owner.

### ART. 4 INSTITUTION'S COMMITMENTS

1. The Institution agrees to define the Guidelines to allow the placement of the sensors with specifications for public and private areas within 90 days of the signing of this Memorandum; these Guidelines must indicate the dimensions, colors, aesthetic



characteristics that sensors must have to be installed, without permission for participants in this IOT network.

2. The Institution provides without charge the space for the installation of the Gateways Lora used for the purpose of this Memorandum and the relative power supply to keep them in operation, considering that the cost of electricity consumption is in total less than 40 Euro per year for Gateways.
3. The Institution authorizes with the subscription of this Memorandum the installation of the necessary Gateways in the Communal territory.
4. The Institution agrees, with Lepida, to make this opportunity known to stakeholders, such as citizens, associations, businesses, training bodies and others, in order to encourage greater use of the IOT network.
5. The Institution agrees to use the data derived from the sensors and communicated by Lepida in anonymous form exclusively in order to pursue its own institutional and public interest purposes.
6. The Institutions abstain from the use of information, already in their possession, in order to re-certify the owner of the sensor from which the reported data was collected or, in any case, extrapolate or infer new data or information regarding the same.

## ART. 5 CONSIDERATION

1. This Memorandum of Understanding does not provide for any direct consideration by the Parties and the sensor owner.
2. The Parties agree to respect the obligations recalled in this Memorandum to the mere purpose of achieving the shared objectives as defined in Art. 2.

## ART. 6 DURATION AND RENEWAL

1. This Memorandum of Understanding has a duration of 3 years from its subscription between the Parties.
2. The Parties agree to analyze the results achieved after the development of the IOT network for the PA and, in the light of these, reserve the right to renew the Memorandum in written form.



3. Every possible change and/or integration of this Memorandum of Understanding shall be imposed with a written deed signed by the Parties.

## ART. 7 WITHDRAWAL

1. The Parties agree that it is a reciprocal right to withdraw from this Memorandum at any time by giving notice by certified e-mail at least 180 (one hundred and eighty) days before the date on which the withdrawal must take effect.
2. In the case of communication of withdrawal referred to in the previous point, the Parties agree that all infrastructure must be returned to the state of origin, after verification of the state of use of infrastructure in the territory of the Institution.

## ART. 8 DATA PROCESSING

1. By signing this Memorandum, the Parties declare that they have communicated to each other all the information required by Art. 13 of "Regulation (EU) 2016/679 on the processing of personal data and the free movement of such data, that repeals Directive 95/46/CE on the processing of personal data provided for the performance of the contract, and to be aware of their rights under that legislation" for the contractual execution of this Understanding.
2. Lepida is the data controller of the data recorded in the Cadastre and of any data received by Radio Base stations and transported on the Lepida network. Lepida therefore undertakes to carry out the processing in compliance with the current legislation on the protection of personal data, in particular the aforementioned Regulation (EU) 2016/679, of Legislative Decree no. 196 of June 30, 2003, s.m.i. "Personal Data Protection Code" and any provisions of the Data Protection Authority applicable.
3. Any data collected by the sensors is made available to the Institution, anonymously and not traceable to the owner, exclusively so that the Institution can pursue its own institutional and public interest purposes.
4. Considering that the Institution will receive data exclusively in anonymous form, the legislation on the protection of personal data does not apply. However, should the Institution become aware – even accidentally – of the data of which Lepida is the owner, it undertakes to process such data in compliance with current national and



European legislation on the protection of personal data and exclusively for the purposes indicated above.

5. If personal data is involved in the execution of this Protocol, the Parties will define all the profiles related to it, which may involve a separate agreement.

Read, approved and undersigned.

Rimini, 02/12/2024