5G-RANGE - Remote area Access Network for 5th Generation

EU-Brazil Joint Call - H2020-EUB-2017

MINISTÉRIO DA CIÊNCIA, TECNOLOGIA, INOVAÇÕES E COMUNICAÇÕES

RNP REDE NACIONAL DE ENSINO E PESQUISA

European Commission Information Society and Media

http://www.5g-range.eu/

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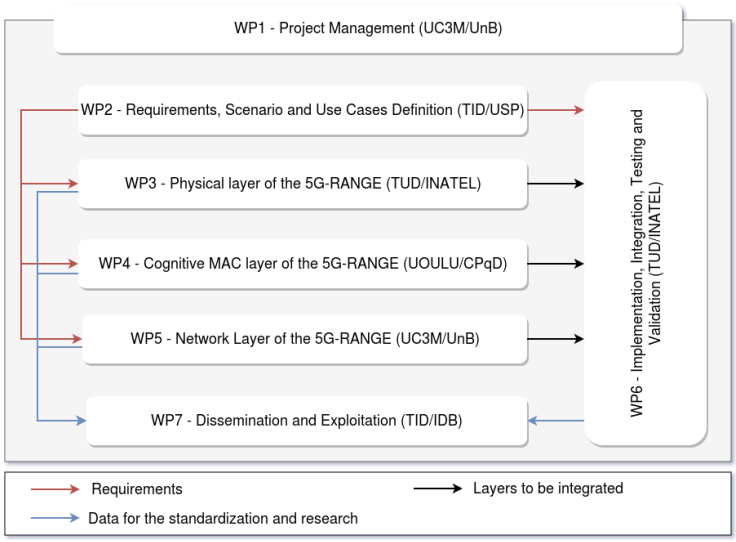
Project Goals and Objectives

The goal of the 5G-RANGE project is to design, develop, implement and validate the mechanisms to enable the 5G network to provide an economically effective solution for Internet access for remote areas. 5G-RANGE aims to develop a Remote area Access Network for 5G that can be used to provide reliable and cost effective Internet access in low populated areas, as well as enable new agribusiness services and support high mobility coverage for highways. High cost of spectrum and low population density are the main barriers for widespread deployment of Internet broadband access in remote areas. 5G-RANGE proposes the opportunistic usage of TVWS (TV White Spaces) in the VHF (Very High Frequency) and UHF (Ultra High Frequency) bands.

The project has the following objectives:

1. To design, development and implementation of a novel PHY for 5G-RANGE;
2. To develop and implement new algorithms for the cognitive MAC layer;
3. To implement a Proof-of-concept (PoC) for the 5G Remote Area Access Network;
4. Disseminate and exploit the project results between Brazil and Europe.

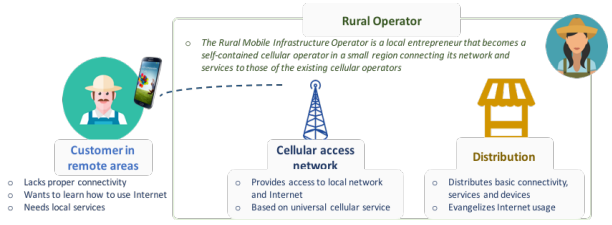
5G-Range Structure and Work Packages



The 5G-RANGE project is structured in 7 work packages:

WP1 will provide a balanced EU-BR management approach for the bilateral consortia; in WP2 the project will define the application requirements and architecture of the proposed solution for the 5G Remote Area Access Network. WP3 will define the channel characterization, encoding/decoding and waveforms that fulfil the remote rate requirements. In WP4 will be defined the cognitive MAC reference architecture, comprising components and interfaces for the physical and network layers requirements. WP5 will work with design and deploy end-to-end IP network connectivity. WP6 will implement the techniques and algorithms defined in work packages 3, 4 and 5 into a final system that can be seen as a PoC of the proposed solution. Finally, WP7 will strengthen the impact of the 5G-RANGE project through specific exploitation oriented activities and foster the proposal of new business mechanisms.

ACTIVITIES	EU WP Leader	BR WP Leader	Nov 17	Dec 17	Jan 18	Feb 18	Mar 18	Apr 18	May 18	Jun 18	Jul 18	Aug 18	Sep 18	Oct 18	Nov 18	Dec 18	Jan 19	Feb 19	Mar 19	Apr 19	May 19	Jun 19	Jul 19	Aug 19	Sep 19	Oct 19	Nov 19	Dec 19	Jan 20	Feb 20	Mar 20	Apr 20
WP1 Project Management and Coordination	UC3M	UnB																													
WP2 Requirements, scenario and business models use cases definition	TID	USP																													
WP3 Physical layer of the 5G-RANGE	TUD	INATEL																													
WP4 Cognitive MAC layer for 5G-RANGE	UOULU	CPqD																													
WP5 Network Layer of the 5G-RANGE	UC3M	UnB																													
WP6 Implementation, integration, testing and validation	TUD	INATEL																													
WP7 Dissemination and Exploitation	TID	EDB																													

Expected Impacts

New business models for the the rural operator, novel contributions on 5G standards, support and spin-off contributions to the ITU/3GPP standardization roadmaps, validation of 5G use cases applied to low density areas, economical and societal benefits.