ICT-601102 STP TUCAN3G

Wireless technologies for isolated rural communities in developing countries based on cellular 3G femtocell deployments

1st Quarterly Management Report

Reference Period *(from 01.02.2013 to 30.04.2013)*

Project coordinator

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Consortium composition

1 *UPC*
2 *URJC*
3 *PUCP*
4 *UNICA*
5 *FITEL*
6 *IPA*
7 *TdP*
8 *EHAS*
9 *TIWS*
10 *CREP*
11 *KINNO*

1 – Project status: Technical plan and corresponding achievements

WP1: Management

1A1: Administrative management

- UPC. Attended the Future Networks 11th FP7 Concertation meeting in Brussels, and presented project TUCAN3G at the RAS cluster meeting. Also the Consortium Agreement and kickoff meeting were managed. The project website and email reflectors were setup in Nov 2012. The project flyer was designed, made available online and distributed in several events. On the financial side, the first budget transfer was timely distributed among partners.

1A2: Technical management

- UPC lauched technical coordination of activities in 4A1 and WP4.
- URJC. Set up a web-based technical management software for active monitoring on overall project and online coordination between the partners. The objective is minimizing risks and impacts of any unexpected technical problem as a result of synchronizing all activities and partners with a consideration of their interactions.
- PUCP
- UCAU. Ad-hoc meetings with CREPIC personnel for coordinating actions in WP7.
- FITEL
- EHAS has coordinated the definition of WP2 work plan and now is coordinating WP2 activities. Two WP2 phone conferences has been hold.

WP2: Requirements and specifications

2A1: Technical and socio-economical scenarios

- UPC. Participation in this task in relation with the definition and description of the following aspects: energy efficiency requirements, coverage scenarios, description of the 3G and 4G air interface (with the corresponding releases) and the system architecture, traffic models, interference models, and PHY layer abstraction. All these aspects have been included in the deliverable D21, for which the corresponding contributions have been generated.
- URJC. Contributed to generate general contraints of the transport network regardless of technology in D21, essential requirements and a description of a specific case of WIFI and WIMAX technologies for long distance links.
- PUCP has collected detailed information about the networks deployed in the river Napo, Putumayo and Balsapuerto district in Peru.
- FITEL has contributed to the description of the operational scenarios for rural areas of Peru, identifying and describing potential target localities and end users (for different regions of Peru) based on the information of previous projects funded by FITEL.
- TdP.
- EHAS has defined the table of contents for D21 and coordinated with WP2 partners the tasks of this activity. Besides being responsible of integrating information that each partner is contributing to D21, EHAS is working specifically on the description of scenarios of remote rural areas of developing countries, focusing specially in Latin American case.

2A2: Requirements and specifications for transport and access networks

- UPC has been working on the definition system requirements and the technical scenarios to be addressed in the project. Moreover, the main properties of the radio access technologies considered in TUCAN3G: 3G, 3G-HSPA and LTE has been provided. UPC has also been working on the elaboration of a common evaluation methodology to be considered in the project.

- URJC. Specified the technical requirements of WP5. In addition, validation methodology and workplan of WP5 have been provided with detailed description including scheduling information, participants, responsibles, inputs and outputs.
- EHAS has worked with UPC, URJC and TIWS in order to define the parameters to be used in the requirements and specifications for transport and access networks.
- TIWS has made an analysis about the state-of-the-art related to IP transport network through satellite links. In the first part, the objective is to have a brief overview of satellite communications: satellite orbits, network architecture and topology, frequency bands, etc. In the second part, the objective is analyzing the mechanisms to achieve greater efficiency and savings of satellite bandwidth in cellular networks (3G and 4G).

2A3: Parameters and scope of market research and business models

- UCAU: Contribution to the description of the operational scenarios for rural areas of Colombia, describing the services provided by operators in rural Colombia and the issues related with these services based on existing studies.
- FITEL has provided the public sector perspective and the analysis of public investment funds in telecommunication. Also, has identified the research questions for the public sector actors.
- TdP.
- EHAS has defined the table of contents for D23 and coordinated with WP2 partners the tasks of this activity. Besides being responsible of integrating information that each partner is contributing to D23, EHAS is researching similar initiatives worldwide.
- CREP. Identification of six rural localities in Colombia that may be a potential market for the technology developed in TUCAN 3G and description of social and economic characteristics of these localities based on existing studies. CREPIC proposes the structure of the Business Model for TUCAN3G in three phases: Phase 1 description of the nine elements, Phase 2: deepen and evaluate each element of the business model to identify opportunities, strengths, weaknesses and threats, Phase 3: Improving model according to the results of the deepening and evaluation
- KINNO. Design of methodological approach through identification of stakeholders and synthesis of their expectations.
- IPA has contributed description of the current market state of manufacturers towards deliverable D23. Work is ongoing to complete the task with market research questions that a manufacturer would wish to answer before entering the rural coverage market segment.

2A4: Architecture for the demonstration platform

- PUCP.
- IPA. Has provided details of ip.access products, capabilities, and installation manuals for the ip.access system to enable TdP to assess their needs and resources for the system, where elements of it will be physically installed, managed and other necessary data. IPA has also provided technical clarification to questions asked by TdP. In addition, IPA has provided relevant documents to WP2, WP3 and WP4.
- TdP.
- EHAS is working on defining the architecture for the proof of concept, and on a proposal for target localities. EHAS is also working on the Operational Technical Handbook (D22), organizing WPs work plans, analyzing interactions between them and defining mechanisms for technical supervision and the methodology to be used in case of deviations.

WP3: Business case study

3A1: Market study

- UNICA.
- FITEL.
- TdP.

- CREP.
- KINNO. Preparation of business model framework and analysis of planned work. Research on relevant bibliography and business model developed in similar context.

3A2: Product definition

- FITEL.
- TdP.
- EHAS.

3A3: Models for funding and return on investment

- UNICA.
- FITEL.
- TdP.
- EHAS.

3A4: Business model design and verification

- UNICA.
- FITEL.
- IPA.
- TdP.
- EHAS.
- CREP.
- KINNO.

WP4: Access network optimization

4A1: Network dimensioning

- UPC. Definition of a methodology for the network planning, coverage analysis and dimensioning based on a 3G access network. Such methodology is being applied to different scenarios and uses the freeware "RadioMobile". This methodology takes into account aspects such as the traffic, the radiation patterns of the antennas, etc. and evaluates, among other parameters, the coverage and the probability of congestion for an analysis of the traffic/coverage to be supported by the ip.access equipment and the bands defined in the deployment.
- TdP.
- IPA has supplied a description of the current performance (range, power, etc) of IPA products, and analysis of limitations on and possible enhancements to the scope of this performance. This will assist selection of product, frequencies, scenarios and possible modifications to meet the target scenarios.

4A2: Femtocell network optimization and monitoring

- UPC. Review of current existing procedures for network optimization and monitoring. Discussion with other partners in order to define a set of problems to be analysed and solved within the framework of this task.
- URJC.
- IPA.

4A3: Access and transport network interoperability

- UPC. Discussion with other partners in order to define a set of problems to be analysed and solved within the framework of this task.
- URJC.
- IPA.
- TdP.

4A4: Beyong 3G-based access

- UPC. Discussion with other partners in order to define a set of problems to be analysed and solved within the framework of this task.
- URJC.

WP5: Transport network optimization

5A1: Usage terms of WiFi, WiMAX and VSAT links

- URJC.
- PUCP.
- UNICA.
- TIWS has described the requirements about the IP interfaces on satellite modems and also the IP functionalities usually included in these satellite modems. It is just an advance for the rest of work from TIWS of this activity.

5A2: Heterogeneous transport network architecture for the backhaul

- URJC.
- PUCP.
- UNICA.
- TIWS.

5A3: Transport network optimization

- URJC.
- PUCP.
- UNICA.
- TIWS.

WP6: Demonstration platform

6A1: Technical and operational design

- PUCP has made initial coordination with GOREL and other public entities in the areas in which it is planned to develop the demonstration platform, these institutions gathered information about target networks. Also, some sensitization materials have been prepared.
- FITEL.
- IPA.
- TdP.
- EHAS.

6A2: Compatibility tests

- UPC.
- URJC.
- PUCP has made a series of coordination meetings with FITEL in relation to the execution and concretion of the amount contributed by the partner.
- FITEL.
- IPA.
- TdP.

6A3: Pilot network deployment

- PUCP.
- FITEL.
- IPA.
- TdP.
- EHAS.
- TIWS.

6A4: Interconnection to the operator's network

- PUCP.
- FITEL.
- IPA.
- TdP.
- EHAS.
- TIWS.

6A5: Validation

- PUCP.
- UNICA.
- FITEL.
- TdP.
- EHAS.
- TIWS.

WP7: Dissemination and knowledge utilisation

7A1: Dissemination

- UPC.
- URJC. Participated to the conference "Technology, Innovation and Social Change" with the invitation of INSEAD, UPM and Fundación Banesto in 25-26th of April. In the roundtable, TUCAN3G is presented as an opportunity to offer cellular communication in rural areas of developing countries.
- PUCP.
- UCAU: Collaborative elaboration of the work plan for WP7, with detailed description of tasks for each activity: inputs, outputs, schedule, PM, and responsible.
- FITEL.
- IPA.

- TdP.
- EHAS has started to review possible events to co-locate a half-day technical workshop about the project.
- TIWS.
- CREP has designed a communication strategy for the social appropriation of knowledge that includes the following: web information deployment, diffusion through physical media such as newsletters and brochures; performing knowledge fairs, and socialization and awareness stakeholders of project.
- KINNO.

7A2: Standardisation

- UPC. Definition, jointly with other partners, of a roadmap for contribution to standardization bodies: ETSI-BRAN, 3GPP and ITU-D. Contacts done to participate in ITU-D meetings in Sep 2013 and Sep 2014 under the auspices of Spanish Ministerio de Industria. Launch subcontracting of standardization activities.
- UNICA.

7A3: Use of knowledge

- FITEL.
- IPA.
- TdP.
- TIWS.
- KINNO.

2 – Unattained planning items and rationale

Item description *(explanation of the causes)*	**Action Items** *(corrective actions envisaged)*
Changes in schedule of deliverables	Deliverables scheduled in M7 have been moved to M8 with the approval of EC officer
Changes in schedule of milestones	Deliverables scheduled in M7 have been moved to M8 with the approval of EC officer
Red flags	
Any other issues or problems that might affect achievement.	

3 – Deliverables and milestones finished as planned

Deliverables and Milestones in the reporting period		
Document code and title	Originally planned	Actual delivery month
D11 *Project handbook* M1 *TUCAN3G public website*	M1 M1	M1 M1

4 – Dissemination

4.1 Articles published, presentations at conferences, TV broadcasts, etc.

- **Submitted papers**

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- **Accepted papers**

-

- **Presentations**

-

- **Press releases**

-

4.2 Web Sites

The project website (www.ict-tucan3g.eu) was setup in Dec 2012 and has been continuously updated since then.

4.3 Other relevant information: Patent applications, guidelines standards, Masters, PhDs….

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5 – Meetings Held

Meetings, Phone Conferences, Conferences or Workshops attended

Partner	Dates	Meeting place	N° of persons	WP/Task/expected results/details
All	11-15 Feb 2013	Iquitos (TdP premises) – Lima (PUCP premises)	28	Plenary kick-off meeting
UPC, TdP, URJC	17-Apr 2013	PhCall	8	Discussion of the work to be done in activity 4A1 and definition of a Table of Contents for deliverable D4.1
All	14 Mar 2013	Phone Conference	13	WP2 coordination meeting
All (except CREPI)	12 Apr 2013	Phone Conference	15	WP2 coordination meeting
EHAS-CREP	11 Apr 2013	Phone Conference	3	WP2/ review activities 2A3.1 y 2A3.11
CREP-UNICA	26 Apr 2013	Popayán	5	WP7/ review of the proposed CREP for dissemination component
CREP-UNICA	12 Apr 2013	Popayán	4	WP2/ review of progress of the activities 2A3.1 y 2A3.2
URJC - TIWS	31 Jan 2013	Distrito Telefónica (Madrid)	3	WP5 – Checking the contribution of TIWS
PUCP - FITEL	08 Apr 2013	FITEL premises	3	WP6 coordination meeting

6 – Resources Employed/Expenditures

Reference Period: "1 Feb 2013" to "30 Apr 2013"

Effort for the reference period per WP and per Participant (Person-Months): planned vs. actual spent

	WP1		WP2		WP3		WP4		WP5		WP6		WP7		Total per participant		Total Cumulative from start of the project		Justification (if needed)
Participant	plan	spent	plan	spent	plan	spent	plan	spent	plan	spent	plan	spent	plan	spent	plan	spent	plan	spent	
1 – UPC	0,84	**0,84**	0,39	**0,39**			0,83	**0,83**					0,15	**0,15**	2,21	**2,21**	2,21	**2,21**	
2 – URJC	0,40	**0,40**	0,12	**0,12**									0,10	**0,10**	0,62	**0,62**	0,62	**0,62**	
3 – PUCP			1,05	**2,50**							1,15	**1,50**			2,20	**4,00**	2,20	**4,00**	
4 – UCAU	0,10	**0,10**	0,19	**0,19**									0,30	**0,30**	0,59	**0,59**	0,59	**0,59**	
5 – FITEL															0,00	**0,00**	0,00	**0,00**	
6 – IPA			0,76	**0,76**											0,76	**0,76**	0,76	**0,76**	
7 – TdP															0,00	**0,00**	0,00	**0,00**	
8 – EHAS			6,00	**5,00**											6,00	**5,00**	6,00	**5,00**	
9 – TIWS			0,25	**0,25**					0,00	**0,25**					0,25	**0,50**	0,25	**0,50**	
10 – CREP			0,38	**0,38**	0,00	**0,00**							0,15	**0,15**	0,53	**0,53**	0,53	**0,53**	
11 – KINNO			0,75	**0,50**	0,30	**0,50**									1,05	**1,00**	1,05	**1,00**	
Total per WP	1,34	**1,34**	9,89	**10,09**	0,30	**0,50**	0,83	**0,83**	0,00	**0,25**	1,15	**1,50**	0,70	**0,70**	14,21	**15,21**	Grand total for the ref. period		
Total Cumulative from start of the project	1,34	**1,34**	9,89	**10,09**	0,30	**0,50**	0,83	**0,83**	0,00	**0,25**	1,15	**1,50**	0,70	**0,70**	14,21	**15,21**	Grand total from start		

Expenditures for the reference period per Participant (k€, EURO*1000): planned vs. actual spent

	Durable equipment		Subcontracting		Travel and subsistence		Consumables		Protection of knowledge		Other Specific Costs			Total per participant		Total Cumulative from start of the project		Justification (if needed)
Participant	plan	spent	plan	spent	plan	spent	plan	spent	plan	spent	plan	spent		plan	spent	plan	spent	
1 – UPC					8,73	**8,73**								8,73	**8,73**	8,73	**8,73**	
2 – URJC					1,53	**1,53**								1,53	**1,53**	1,53	**1,53**	
3 – PUCP														0,00	**0,00**	0,00	**0,00**	
4 – UCAU					2,53	**2,53**								2,53	**2,53**	2,53	**2,53**	
5 – FITEL														0,00	**0,00**	0,00	**0,00**	
6 – IPA														0,00	**0,00**	0,00	**0,00**	
7 – TdP														0,00	**0,00**	0,00	**0,00**	
8 – EHAS	1,50	**1,35**			2,30	**1,29**								3,80	**2,64**	3,80	**2,64**	
9 – TIWS														0,00	**0,00**	0,00	**0,00**	
10 – CREP					3,43	**3,43**								3,43	**3,43**	3,43	**3,43**	
11 – KINNO						**5,09**								0,00	**5,09**	0,00	**5,09**	
Total per cost item	1,5	**1,3**	0,0	**0,0**	18,5	**22,6**	0,0	**0,0**	0,0	**0,0**	0,0	**0,0**		20,0	**24,0**	Grand total for the ref. period		
Total Cumulative from start of the project	1,5	**1,3**	0,0	**0,0**	18,5	**22,6**	0,0	**0,0**	0,0	**0,0**	0,0	**0,0**		20,0	**24,0**	Grand total from start		

7 – Changes in personnel

Personnel leaving the project		
Name	Partner	WPs involved
Carlos Sotelo Lopez	FITEL	WP2, WP3, WP6, WP7

Personnel joining the project			
Name	Partner	WPs involved	Expected participation (in months)
Marcos Orlando Amaya Urquiza	FITEL	WP2, WP3, WP6, WP7	M3-M30

Short CV of new personnel

Eng. Marcos Orlando Amaya Urquiza is an Electronic Engineer graduated from the National University of Engineering, Diploma in Management and Leadership at the University of Applied Sciences (UPC), postgrado in Systems at the Catholic University of Peru; courses of management at the School of Business at the UPC and University of Piura, courses of productivity , formulation and evaluation of projects in the National Productivity Centre (CENIP), courses of quality and productivity

in the National Society of Industries (SNI), managerial seminars at Seminarium, courses of formulation and evaluation of projects at the University of the Pacific.

He has extensive experience of more than 20 years in the direction, management, planning, deployment and installation of telecommunications networks. Has worked in the Company Peruvian of Telephones, Telefonica del Peru and currently is Head of the Area of project formulation the FITEL.