MINUTES of FIRST COmmunications- NAvigation-SEnsing-Services (CONASENSE) WORKSHOP

Held at: Mercure Airport Hotel, Amsterdam on 13 Feb. 2012

Present: Leo Ligthart, Homayoun Nikookar, Ramjee Prasad, Durk vWilligen, Tomasso Rossi, Ole Lauridsen, Silvester Heijnen, Kwan-Cheng Chen, Mehmet Safak, Silvano Populin, Enrico Del Re, Vladimir Poulkov, Rajeev Prasad

I.   The first workshop meeting of CONASENSE started after the luncheon at 14:00hrs and was chaired by Leo Ligthart. As the participants had a chance to know each other during the luncheon the introduction of participants was deleted from the agenda. Leo Ligthart presented the CONASENSE initiative, mentioned the background information about the CONASENSE and thanked the GAUSS Research Foundation (GRF) for sponsoring the first CONASENSE Workshop. After this Durk v. Willigen gave an introduction about the GRF, followed by a presentation of Ramjee Prasad about CONANSENSE expectations and objectives. Thereafter the following presentations were given
Tomasso Rossi (replacing Marina Ruggieri): "IEEE-AESS and CONASENSE"
DurkvWilligen: "Some worrying on GNSS issues"
Ole Lauridsen: "NavCom and Emergency use"
SilvesterHeijnen: "Importance of CONASENSE for CHL"
Kwan-Cheng Chen: "Machine-to-machine communications"
HomayounNikookar: "Research directions on wireless sensor networks"
Mehmet Safak: "Perspectives on CONASENSE Initiative/Research"
Silvano Populin: Precise positioning and pervasive MIMO systems for future CONASENSE services
Enrico Del Re: "Some ideas for CONASENSE"
Vladimir Poulkov: "Users profiles and Roles"
Rajeev Prasad: "River publisher and CONANSENSE"

II.   Ligthart noted many points and remarks on the presentations. They cover a wide range of subjects which are of importance for the CONESENSE. Mainly due to time constraints he suggested to discussing in more detail those and other remarks from the participants in the meeting of 14 Feb.
Exception was made for the presentation of Rossi, who could not attend the meeting of 14 February 2012. Main discussion points after his presentations were:
-       support from AESS for the CONASENSE initiative is very positively judged and of crucial importance.
-       support from EuMA (European Microwave Association) and GRF is highly appreciated
-       for support from EU and ESA it is important that besides smaller EU countries (as the Netherlands, Denmark) also a minimum of 2 larger EU countries (Italy, Germany) play an initiating role in establishing CONASENSE
In the Netherlands support from the radio science and engineering society will be requested by Ligthart. Similar actions are needed in Denmark (action Prasad), Bulgaria (action Poulkov) and Turkey (action Safak). Chen was asked to investigate support for CONASENSE in Taiwan and other Asian countries (in particular China and Japan). Prasad and Ligthart will search for support from India and Indonesia. Specific actions may be needed in Italy. Rossi will discuss this with Ruggieri. In Germany it is expected that support may come from Frauenhofer, DFG, VDE, EFGAN (action Ligthart).

The meeting ended at 19:00 hrs. The pdf files of all presentations are attached in Appendix 1. Participants attended the dinner (again sponsored by Gauss Research Foundation) at the Mercure Hotel in Amsterdam. During the dinner Prof. Ligthart presented the CONASENSE organization structure. The pdf of this presentation is also attached in Appendix 1.

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Discussion 1: Most promising CONASENSE services to be available in 5-20 years

Safak: Finds the proposal of v.Willigen technology driven. Are there services in mind? The trend is more towards information society, meaning the applications are important. Ligthart replies that certainly services are integrated in CONASENSE topics for air-, road-, vessel traffic applications. vWilligen will read this comment and will give his vision on this.

Chen: Computing and Communications should be integrated in CONASENSE, computing in the background f.e. energy efficient devices is important. Disadvantage at present concerns: energy consuming. Computing can be less precise, which in many cases can save energy. Robot-like locationing should not always mean precise computing. He mentions the swarm problem in M2M and the fact that only 10% is in use. New research is already taking into account on lowering energy consumption. New challenge shows a trend from mobile computing communication channels to distributed computing

Lauridsen: Software defined radio + cognitive radio are important for new developments. He proposes to create a CONASENSE charter, indicating the focusing of CONASENSE

Del Re: Now many problems are faced in processing, radio transmission, etc. But in case all these nowadays problems have been solved more attention can be paid to new services to be realized.

Ligthart: Conclusion: the idea is that CONASENSE brainstorming leads to futuristic developments, assuming that the problems of today can be solved. A platform should be created and CONASENSE should go for the challenges. CONASENSE could have a focus on lowering energy consumption in devices and increasing functionalities of the devices.

Safak: Communications/navigation should operate at various frequencies; the device should be able to hopping in frequencies. In case multiple front-ends can be realized, rf sampling can be avoided.

Fledderus: Remaining technological constraints are still important; computing developments are going fast and should not be a real CONASENSE issue. More important can be cooperation policies, f.e. integration of intelligent systems and their interferences.

Prasad Ramjee: In my presentation visionary applications were emphasized. He proposes to select one topic for the CONASENSE direction in the coming 2 years. The topic should have attention for the cooperative policies and for software defined radio.

Del Re: Most issues are co-related, f.e. cognitive radio in health applications. You should only extract the info you want and this is sensing related.

Nikookar: Cognitive is meant in my presentation as communications related

Fledderus: Cognitive is also machine-learning related

Ligthart: Conclusions: we should not focus on the 'now' situation, but we should think about applications to be feasible over 10-15 years, f.e. miniaturizing the sensors. CONASENSE is oriented on the future. Even when there are no technological limitations cooperation and interference policies have still to be taken into account. All devices should be intelligent, in that sense the presentation of Nikookar is highlighting the cognitive information, derived from an adaptive, intelligent and green CONASENSE system.

Discussion 2: CONASENSE focus
Activities complementary to ongoing R&D elsewhere
Overview of multiple disciplines

Prasad Ramjee: Proposes to examine what research is necessary to focus on the topic 'health' in CONASENSE
Poulkov: heard that it would be helpful to track the health of pregnant women + unborn baby. It means that knowledge about health should be obtained via medical channels.
Fledderus: When CONASENSE is focused on health issues my opinion is that only 1 topic is too limited for CONASENSE. My experience is that for getting funding commonalities have to be integrated; besides the outer world will see CONASENSE as an organization concentrating on health issues. In Netherlands he is chairing intelligent communications in the ICT innovation platform. Especially the cross-sections with other disciplines are emphasized in my sub-committee. The strategic research agenda focuses on developments 13-15 years from now. The platform has a huge network focusing on technology, which is a mean and not the goal. I shall send the strategic document to all participants of the workshop.
Lauridsen: May be extra topics could be introduced in CONASENSE like imaging and testing radars
Ligthart: Conclusions: commonalities in health topics are manifold. Everyone can introduce topics for CONASENSE. One can think about many topics like security, scanning, etc.
I think the choice for one topic in the initial phase of CONASENSE for the coming 2 years is already challenging enough. It means that CONASENSE is not narrow-minded and after 2 years a new topic can be chosen. Within the theme health, many issues can be raised, f.e. 65+ problems, pregnant women, medical care, etc. The medical world has to be involved in CONASENSE to define the wish list in the health community. Problems are addressed that can not yet be solved, but could be in future. That is what CONASENSE is about.

Discussion 3: Parties (+ expertise areas) in CONASENSE
parties present
missing parties

Ligthart: Who can be invited to participate in CONASENSE. In The Netherlands the KNAW (scientific society) could be involved for supporting academic workshops with recognized organizations. The question is should CONASENSE invite
- industries: in order to transfer the knowledge, related industries focused on the theme health should be involved
- the present list of invited parties is fine, but also other parties should be invited. Especially Asian countries (Taiwan, China, Japan, India, Indonesia) and EU countries (Germany, France, UK) should be represented in CONASENSE.

Lauridsen: There exist 2 sides of CONASENSE. On the one hand science and on other hand organizations that need applications. Open brainstorm sessions should be organized with various sectors
Del Re: I have the same opinion. Keep contacts with the society via working groups. In Italy national initiatives have already been started up in relation to the CONASENSE start-up. International cooperation could be possible.
Nikookar: In the working group 'health' the party on services is missing. They should be involved in a CONASENSE working group.
Safak: ICT802 cost is operating from 2009-2012. DLR is working in this area and could be contacted by me.
Poulkov: Not only graduates, but also MSc. students can be attracted to do research on a CONASENSE topic. Young bright students could be asked to come forward with ideas; good ideas should be worked out by giving them a small grant.

Prasad Ramjee: I propose that we should find talented students in our own team. Seed money is always needed. The Erasmus Mundus program was successful and more applications than places were submitted.

Heijnen: Not only students at universities, but even at high school level could be approached.

Ligthart: Conclusions: EU, but also ASIAN programs are huge. Chen can promote CONASENSE in the ASIA programs. Working groups can do the preparatory phase; the full scale activities of CONASENSE should be executed by selected partners in CONASENSE. Young people should be more involved in the CONASENSE organization. Student exchange is at the moment very common, especially within Europe. The Erasmus Mundus program offers opportunities for students outside Europe. Main problem with attracting students is money-related. In Turkey a strong selection for entering the university takes place. It means that the brightest students study at the university. Young bright people could be invited for the next CONASENSE workshop. Until now CONASENSE is not yet a legal entity. After legislation of CONASENSE, cooperation opportunities can be considered. Also KNAW-like organizations should be approached to check if those organizations are willing support official recognition.

CONASENSE should be extended by representatives of big countries. Ligthart shall contact groups in Germany and France in order to find out their interest in CONASENSE.

ACTIONS

Support for CONASENSE:
All CONSENSE members contact National Research organizations for support CONASENSE
Ligthart contact CONASENSE interest in Germany, France and Indonesia
Chen contact CONASENSE interest in Japan and China
Prasad contact CONASENSE interest In India

Book:
1. Ligthart and Prasad will write the 1st Chapter of the CONASENSE book, describing the CONASENSE aims, mission, organizational structure, etc.
2. All participants of the workshop shall write a chapter in the book
3. Lauridsen will design the charter (1 page).
4. Time schedule:
    a. Format for writing the Chapters to be sent by River Publisher
    b. Title of each Chapter to be sent before the end of February 2012
    c. Final submission of a full Chapter (around 10 pp), June 30, 2012
    d. Book available October 2012

Minutes:
1. Title of book chapters will be included
2. Presentations included
3. Invitation WPMC2012 in Taipei, Taiwan

River Publisher (represented by Rajeev Prasad)
1. Will be the publisher for CONASENSE
2. Will send Format for writing the Chapters
3. Will set up a website for CONASENSE

Foundation:
1. CONASENSE will become a legal entity by establishing a foundation

2. Ligthart will undertake action in order to establish the foundation
3. The members of the board of the foundation are:
    a. L.P. Ligthart (chairman)
    b. R. Prasad (treasurer)
    c. M. Rugieri (member)
    d. H. Nikookar (secretary)
4. Registration name protection to be checked

Next CONASENSE workshop 2013 will take place on March 25-26, 2013 in Amsterdam

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Chapters Workshop

Leo Ligthart, Ramjee Prasad, "CONASENSE essentials"

Silvano Pupolin, Giulia Cisotto: "MIMO systems and application to
Brain Computer Interface by using EEG"

Enrico Del Re: "Flexible intelligent Heterogeneous systems for
Enhancing Quality of Life"

Homayoun Nikookar: "Research Directions in Wireless Sensor Networks"

Mehmat Safak: "Potential Research and Application Areas of the
CONASENSE Initiative"

Erik Fledderus, Patrick Essers (Ericsson) en Henk Eertink (Novay), "CONASENSE as cross-cutting
challenge – a Dutch perspective based on IIP Intelligent Communication"

K.J. Chen, "….."

O. Lauridsen, "…."

S. Heijnen, "…."

D. van Willigen, "….."