

INTERNATIONAL FREQUENCY SENSOR ASSOCIATION (IFSA): SUCCESSFUL EXAMPLE OF MEASUREMENT INFRASTRUCTURE

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Abstract – International Frequency Sensor Association (IFSA), its aim, objectives and activities are described in the Paper. A key role of IFSA in the building of a measurement infrastructure – network of excellence devoted to smart sensors, data acquisition and sensor instrumentation is outlined. Presently, IFSA includes 298 members from 55 countries (70 % are from industry, 30 % - from academy). An overview of specific activities and achievements after 3 years existing are given.

Keywords: measurement infrastructure, IFSA, network of excellence.

1. INTRODUCTION

International Frequency Sensor Association (IFSA) has been founded in 1999 as professional association, with the aim to promote research and development, production and application of modern smart sensors with frequency (period), duty-cycle, time interval, pulse number or digital output through worldwide, thus preparing industries for the world market in this promising field. IFSA has been registered by the Union of International Associations (UIA) in Brussels (Belgium) in 2000.

Integrated infrastructures for measurements are necessary ingredients in the establishment of a knowledge base economy and society that the European Union is striving to build [1]. IFSA is solid platform to build the network of excellence in smart sensors, data acquisition systems and sensor instrumentation areas. It helps to build critical mass in these key areas of research and encourage co-operation between industry and academia for the benefit of European science.

2. MAIN AIM AND OBJECTIVES

The main aim of IFSA is to provide a forum for academicians, researchers and engineers from industry to present and discuss the latest research results, experiences and future trends in the area of design and application of different smart sensors and create the network of excellence – solid basis for integrated measurements infrastructure.

The main IFSA objectives are:

- Bring together the key players in industries and R&D working on mentioned scientific topics and provide platform for the mutual exchange of information within those communities and end-users;
- Stimulate cooperation and research by providing an appropriate infrastructure;
- Increase the number of practitioners and users by stimulating effective links between customers, R&D providers, manufacturers and supplies to help members improve the market profitability of their existing products and develop new ones;
- Establish strong link between R&D in instrumentation, sensors and modern technologies including nanosensors, as well as working partnerships between industry and academia.

3. IFSA ACTIVITIES AND INFORMATION DISSEMINATION

Information dissemination is one of the main IFSA activities. IFSA's Web site has been launched at 23 August 1999 [2]. In 2001, Sensors Web Portal Inc. has been registered (Toronto, Canada) in order to host this biggest Internet specialized recourse devoted to sensors, transducers and sensor instrumentation [3]. The start web page of sensors web portal is shown in Fig.1.

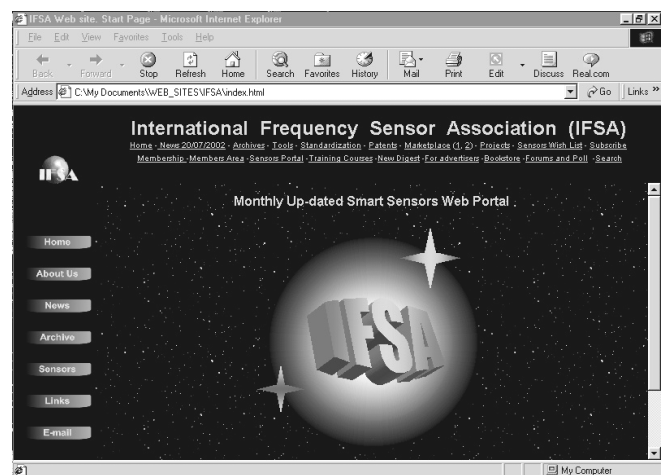


Fig. 1. Sensors web portal's start page

This specialized vertical portal offers the opportunity to place here information about new products, papers, articles and links. It is a snap-short of what is happening now in the field of sensors and measuring instruments. Edited from international printed and electronic media, using research, application, novelty and innovation as key words, it gives the best. Today, it is a primary dynamic Internet resource in this high technological area, works well with the latest technologies and standards, with free regularly up-dating content, always giving something new to excite visitor's interest. This web portal is a concentrator of knowledge, ideas, engineering solutions, new physical effects and principles of smart sensors based on modern technologies. It is snap-short of what is happening now in the field of sensors and instrumentation and serves for dissemination of current research information in this area Here IFSA members and visitors can find and place the information about all mentioned topics, to discuss proposals, receive consulting and references, find investors, partners for joint research and networking projects.

Sensors Web portal contains a variety of useful information:

- Reports on sensor related projects;
- Sensors & Transducers e-Digest;
- Publications (including full pages papers and articles), references, patents, press releases, thesis annotations;
- Sensor Industry News;
- List of manufacturers including links and products specifications;
- Standardization initiatives;
- Marketplace;
- Tools;
- Calendar of related events;
- Training courses;
- Bookstore;
- B2B and B2C sensors e-Shop;
- Sensor wish list;
- Forums and poll;
- Links to other sensor related Web sites;
- IFSA members area.

The Sensors section divided into the following subsections: Acoustic, Biosensors, Chemical, Flow, Gas, Humidity, Magnetic, Mechanical, Optical, Pressure, Proximity, Resonant, Rotation speed, Temperature, Tilt, Ultrasonic, Vacuum and Others subsections, including Sensor Instrumentation.

Sensors & Transducers journal provides an advanced forum for the science and technology of sensors and biosensors. It publishes reviews, regular research papers and short notes. Because it is a free online journal, papers rapidly published in Sensors & Transducers will receive very high publicity. Topics of interest include, but are not restricted to:

- Digital, frequency, period, duty-cycle, time interval, pulse number output sensors and transducers;

- Theory, design, standardization and modelling;
- Smart sensors;
- Sensor instrumentation;
- Virtual instruments;
- Sensors interfaces, buses and system issue;
- Signal processing;
- Frequency (period, duty-cycle)-to-code converters, ADC;
- Technologies and materials;
- Microsystems;
- Applications.

Web site services include free information content, mailing list, monthly *Sensors & Transducers e-Digest* (ISSN 1726- 5479), *IFSA Newsletter* (ISSN 1726-6017), on-line members registration and subscription.

In 2002 Sensors Web Portal has been Awarded by Golden Web Award 2002-2003 from The International Association of Web Masters and Designers (IAWMD) in recognition of creativity, integrity and excellence on the Web and presented to those sites whose web design, originality and content have achieved levels of excellence deserving of recognition.

Every month more than 27 000 persons from IFSA mailing list receive information about new up-dated items and IFSA activities.

IFSA has founded the Best Exhibition Awards that will be given every year during different sensors event for outstanding achievements in this area. So, it has been granted to ten exhibitors during SENSOR'2001 exhibition (Nuremberg, Germany) and to five exhibitors during ISA'2002 (Toronto) exhibition [4].

The association has developed new engineering advanced training course on *Data Acquisition and Signal Processing in Smart Sensors and MEMS* (up to 20 hours lectures and PC demonstrations). This is 3-5 days course devoted to modern achievements in this promised area. In 2001-2002 this course has been given in technical universities of Germany, Italy and Spain. The lecture from this course has been included in the annual Quality Labelling EUROPRACTICE course on Smart Sensors Systems (2001, 2002 and 2003), Delft University of Technology, The Netherlands.

Presently, IFSA includes 298 members (70 % are from industry, 30 % - from academy) from 55 countries (countries are listed in order registration in IFSA): France, Germany, Great Britain, Korea, Romania, Sweden, Greece, USA, Belgium, The Netherlands, Ukraine, Belarus, Hungary, Portugal, Taiwan, Slovak Republic, Russia, Singapore, Italy, Czech Republic, Switzerland, Poland, Canada, Austria, Denmark, Spain, Malaysia, Israel, Finland, Japan, Lithuania, Yugoslavia, Indonesia, Croatia, Australia, Egypt, Venezuela, Slovenia, Thailand, Hong Kong, Scotland, Brazil, Colombia, Iran, India, Pakistan, China, Turkey, Jordan, Norway, Mexico, Armenia, Bangladesh, Bulgaria and Ireland. Visitors from 117 countries have visited the portal.

It is brand name corporations as ABB, Analog Device, Bell Technologies, Bosch, IMEC, Keller, Mazda, Melexis, Motorola, Sandia Labs and Yokogawa, different SMEs and

individual members as well as government organizations like NASA (USA) and US Navy SMEs and universities. The membership growth is shown in Figure 2, and members per continent – in Figure 3. Strong growth of members from North America and Asia is observed during the last two years.

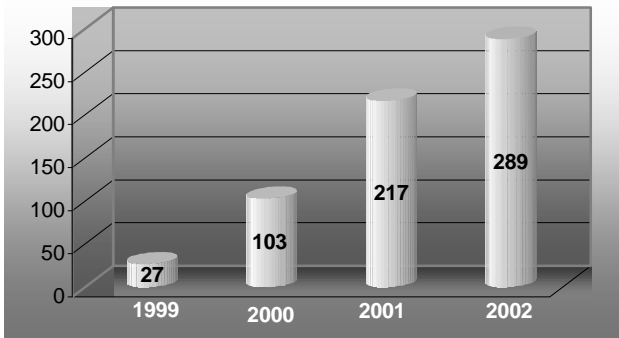


Fig. 2. IFSA membership growth

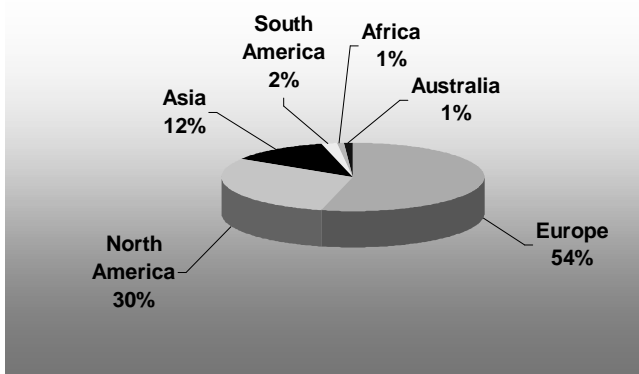


Fig. 3. IFSA members per continent

4. CONCLUSIONS

IFSA has completed its three-year of operation with a growing membership taken from many sectors of sensor industry and appropriate departments of the universities. Now it is solid platform to build the network of excellence and successful example of measurement infrastructure. Due to IFSA activities the smart sensors market has been increased up to 12-16 %. Stronger working partnerships between industry and academy will continue to be necessary to facilitate the growth of market.

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