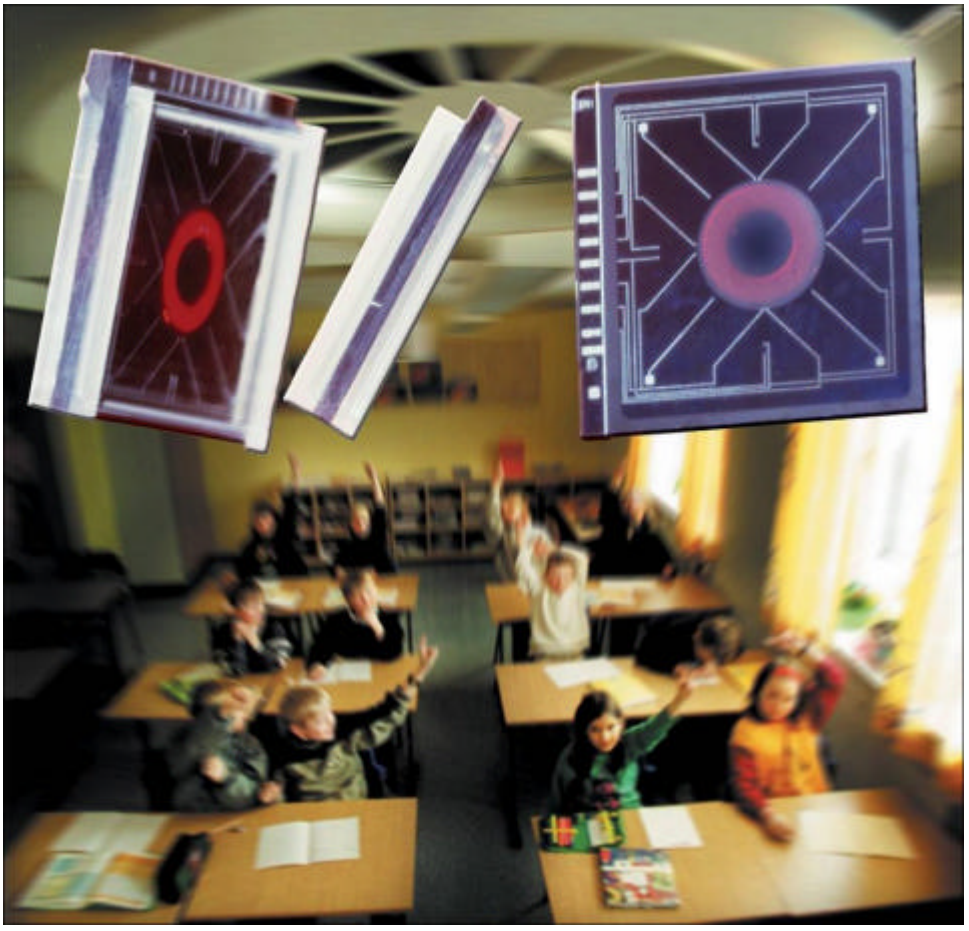
norden
Nordic Innovation Centre

MONTIE
Multisensors and Other New Technology for Improved Indoor Environment in buildings

Technological advances for controlling indoor environment

A TWO-DAY INTERNATIONAL WORKSHOP ON STATE-OF-THE-ART TECHNOLOGY, WORLD-CLASS RESEARCH AND NEW BUSINESS OPPORTUNITIES



Danish Technological Institute, Taastrup, Denmark

Thursday 24 – Friday 25 November 2005

- **Key note and technical presentations**
- **Combined poster session and exhibition**
- **Networking**

Introduction

The importance of indoor air quality (IAQ) in buildings is indisputable. Numerous studies have documented that IAQ significantly impacts occupants' comfort, health and productivity. Potential savings and productivity gains from ensuring users a "good" IAQ are enormous.

The key parameters for current evaluation of IAQ in buildings are temperature, humidity and CO_2 concentration. Measurement and control of these parameters is crucial to meet the requirements for a healthy, comfortable and productive IAQ but traditional HVAC control strategies in buildings are often insufficient. Although more promising strategies are emerging, their potential will only be fully utilised when reliable, accurate and inexpensive sensors/multi-sensors become widely available. It will then become possible to use measurements from these sensors to help improve HVAC control strategies.

Workshop background: The Nordic initiative MONTIE

Northern Europe has an outstanding international reputation and track record regarding research on IAQ and work-related conditions. The Nordic countries are also home for a large number of companies and organisations specialising in the manufacture and sale of HVAC installation components and systems and in associated building services.

An initiative carried out with funding from the Nordic Innovation Centre has enabled a consortium of Nordic partners to cooperate in an joint effort to increase focus on IAQ. The project is called "**M**ultisensors and **O**ther **N**ew **T**echnology for **I**mproved indoor **E**nvironment in buildings", or "MONTIE". Each partner in the project has their own competences and specialist know-how, and the goal of MONTIE is to establish a strong Nordic knowledge base and discussion forum to address the current – and future - uses of advanced multi-sensors to provide key information about IAQ relevant to health, comfort and conservation of resources. This will be combined with information about other technological advances to support the development of improved HVAC systems and their control strategies. Special emphasis is on transforming expert academic knowledge into practical applications for users within the field to generate new business opportunities. Visit the MONTIE web site at www.teknologisk.dk/montie

Topics and Themes

The workshop will address the following subjects:

- IAQ, sensors and measurements, wireless communication and other new technology,
- Intelligent HVAC installations, including the use of sensors and coupling with security aspects
- Market aspects: New business opportunities and challenges
- Innovative solutions

Who should attend?

The workshop is aimed at participants from industry, institutes and academia with an interest in IAQ issues and technological advances within the field. The workshop will allow participants from different sectors of industry to share experience and to learn from the latest research and applications within the fields of IAQ, intelligent HVAC installations, the use of sensors, measurements, wireless communications, market and business opportunities and challenges. The workshop will be an excellent opportunity for networking and discussions between participants, speakers and exhibitors.

Location, hotel and social programme

The workshop will be held at the Danish Technological Institute in Taastrup, Denmark. Help with reserving accommodation can be provided for the night 24 – 25 November at a nearby hotel. The Institute is located close to Høje Taastrup railway station, which has direct connections to Copenhagen Airport. A technical tour and informal dinner will be arranged for the evening of 24 November.

Workshop fees

The workshop fee is 2,500 DKK (335 Euro), excl. Danish VAT. This includes the workshop keynote and technical sessions, proceedings, technical visit, informal dinner, lunches and refreshments. Accommodation is not included and hotel bills must be settled directly with the hotel on leaving.

Technical Programme

Thursday 24 November

12.00 Registration and lunch for participants already arrived

13.00 Theme: Keynote presentations on user-driven issues

1. Indoor air quality, new technology and sensors. "Setting the standard"
   - Professor Bjarne Olesen Technical University of Denmark / International Centre for Indoor Environment and Energy
2. Intelligent HVAC installations, use of sensors, coupling with security aspects and the advantages of "Continuous Commissioning"
   - Johnny Holst, The Norwegian University of Science and Technology
3. New business opportunities and challenges: A facility management view on how new intelligent technology can improve the value of buildings over their lifetime
   - Associate professor Per Anker Jensen, Technical University of Denmark, Department of Civil Engineering

15.00 Coffee

Theme: Invited presentations on technology driven issues and discussion forum

- Benefits of sensor controlled ventilation, Mads Mysen, The Norwegian Building Research Institute
- What do we have and what do we need – to control the future indoor environment? Jens Møller Jensen and Peter Gravesen, Danfoss A/S
- Future potential of individually controlled indoor environment, Arsen Melikov, Technical University of Denmark / International Centre for Indoor Environment and Energy
- Open discussion

Evening Technical visit to the main offices of DFDS Transport A/S with the following theme: Examples of how to improve existing HVAC systems to provide better IAQ for users.

With a turnover of 13 billion DKK, DFDS Transport is one of Denmark's largest companies. It is also one of the largest Northern European providers of international transport and logistics solutions with more than 250 locations in Europe. In Denmark alone there are 1000 employees. The offices in Copenhagen account for approximately 600 employees and 50,000 m^2 of combined office and warehouse space.

The visit will be followed by an informal dinner at a restaurant in Copenhagen.

Friday 25 November

09.00 Theme: Invited presentations on technology driven issues and discussion forum

- Multi-sensor concepts for indoor environment, Ralph W. Bernstein, SINTEF
- Autonomous sensor networks, Thomas Lentsch, Infineon Technologies AG
- Ambient air monitoring IR gas sensors go into mass production – CO_2 sensors go low cost, Hans Martin, SenseAir AB
- Open discussion followed by a coffee break
- Criteria for development and production of temperature and humidity sensors, Bo Nilsson Senmatic A/S
- Multi-sensor calibration issues and characterisation concepts, Jan Nielsen, Danish Technological Institute
- Zigbee: The New Standard for Wireless Monitoring and Control, Svein Anders Tunheim, CHIPCON AS
- Open discussion followed by a short break
- European developments in the field of Intelligent Home Environments, Isabel Vergara, Micro- and Nanosystems Unit, Information Society and media Directorate General of the European Commission
- End of workshop summary and close.

13.00 Lunch

Practical information and registration

How to register

Please register before 9 November 2005. You can register by:

- E-mail to: malene.hougard@teknologisk.dk
- Faxing this page to: +45 7220 1212
- Phoning Malene Hougaard on +45 7220 1210
- Returning the attached slip by post to:
  Danish Technological Institute
  Attention: Malene Hougaard
  Kongsvangs Alle 29
  DK 8000 Aarhus C

Accommodation, technical visit and informal dinner

If you are interested in hotel accommodation, the technical visit and/or participating in the informal dinner please note this on the registration form.

Further information

For further information visit the MONTIE web site at www.teknologisk.dk/montie or contact:

Andy Drysdale
E-mail: andy.drysdale@teknologisk.dk
Phone: +45 7220 1221

or

Jan Nielsen
E-mail: jan.nielsen@teknologisk.dk
Phone: +45 7220 1236

Cancellation policy

All cancellations must be received in writing. A cancellation fee of 15% will be charged for cancellation up to 14 days before the start of the workshop. After this the full amount will be charged. If, after registering, you are unable to attend you are welcome to give your place to a colleague.

Registration Form for two-day international workshop on: Technological advances for controlling indoor environment

Thursday 24 – Friday 25 November 2005, Danish Technological Institute, Taastrup, Denmark

Name	I will arrive in time for lunch on Thursday 24 November: yes / no
Company	I will participate in the informal dinner yes / no
Address	I will participate in the technical visit yes / no
Post code and town	Please reserve accommodation for the night 24 – 25 November yes / no
Country	I will stay for lunch on Friday 25 November yes / no
E-mail	Payment: We will invoice you/your company directly. Please write your company VAT number clearly.
Phone	VAT no: _____