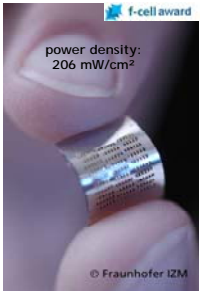


ONGOING RESEARCH IN H-C3 SCOPE

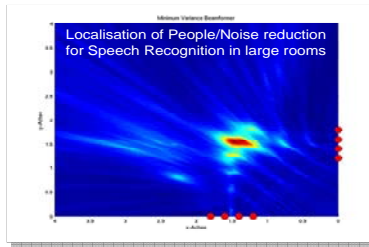
PEM Air Breathing Micro full cell



power density: 206 mW/cm²

1-cell award

© Fraunhofer IZM



The IMS Benchmarking Platform


FOKUS MS Test Environment

The IMS Servers under Test

FOKUS Open IMS Playground

Benchmark Results

World smallest Wireless Sensor Node with ad-hoc Network Capability



Mica 2 architecture

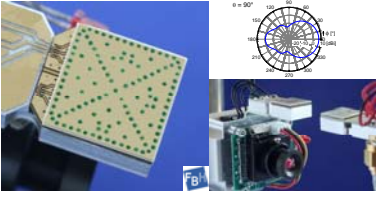
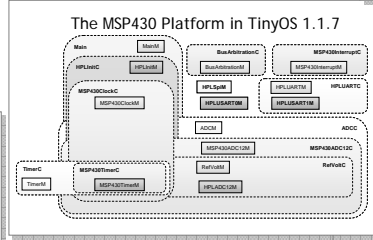
frequency: 848 MHz

data rate: 10 kbit/sec

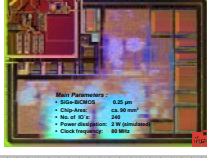
transmission range: 2m

Novel Integrated Slot Antenna

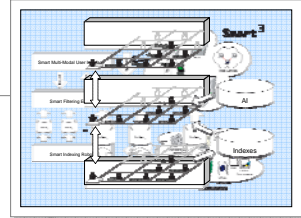
- Size: only 1.2 x 1.2 x 0.2 cm³
- beam steering in 4 directions (3 dB gain)

Single-Chip 5.2 GHz Modem, IEEE 802.11a



- MSM Technology
- 6.25 μm
- 1.5G+1.8GHz
- 4.5 dBm
- No. of IC's: 200
- Power dissipation: 2.5 W
- Clock frequency: 80 MHz




Smart Rooms



Sensed Video

3D-Desktop Computer

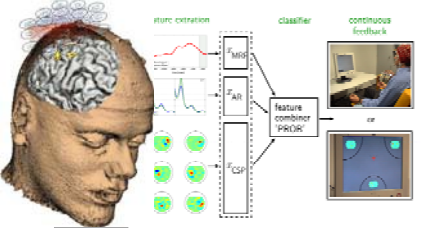
3-D Display 3-D Graphic User Interface



Head-Tracker Camera

Gaze-Tracker Camera

Machine Learning for BCCI



feature extractor

classifier

continuous feedback

feature combiner

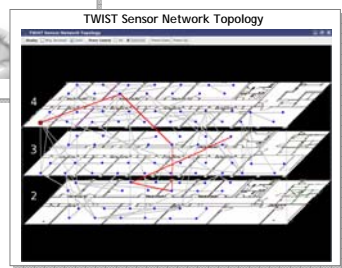
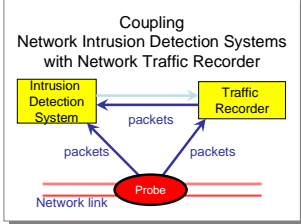
Area Intelligent Agent Components



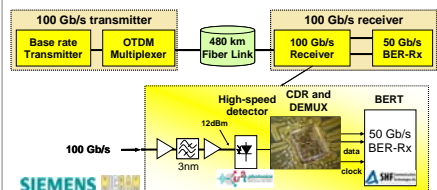
Security

Competition

Stability



100 Gb/s Ethernet over 480km



100 Gb/s transmitter

Base rate Transmitter

OTDM Multiplexer

480 km Fiber Link

100 Gb/s Receiver

100 Gb/s Receiver

50 Gb/s BER-Rx

High-speed detector

120dBm

3nm

CDR and DEMUX

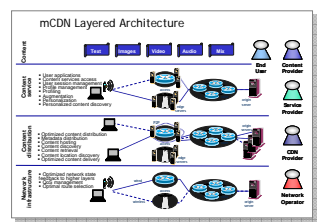
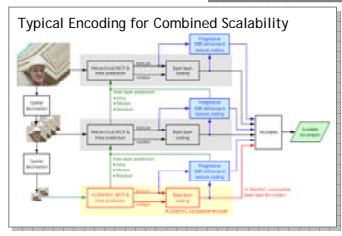
BERT

50 Gb/s BER-Rx


data

clock

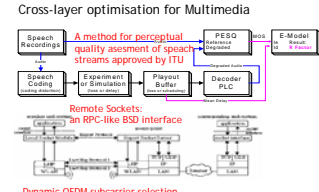
SIEMENS



Standards, IPRs, Innovation: Empirical Analysis



Cross-layer optimisation for Multimedia



Speech Recordings

A method for perceptual quality assessment of speech streams approved by ITU

Speech Coding

Encoder

Decoder

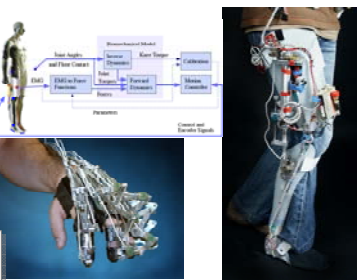
Dynamic OFDM subcarrier selection

Support Vector Machines for Dyadic Data

multimedia documents	1.3	0.3	7.8	-2.0	-0.8	2.5
1.1	-8.2	6.0	7.8	2.2	0.1	
-3.1	4.1	5.8	-1.3	3.3	0.0	
2.3	6.2	-4.4	0.2	-1.2	3.4	
0.5	-0.2	9.8	-1.1	5.2	8.3	


- first SVM-model for classification, regression, and feature of arbitrary dyadic data
- superior prediction performance: DNA microarray data, web-page classification, protein c

Advanced exoskeleton constructions & control



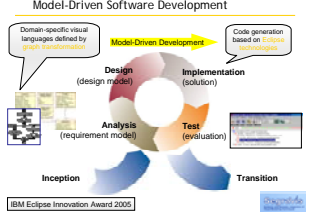
Social Embeddedness, Communities and Cultures

Embedded user and emerging cultures



Emerging practices of social interaction with technical systems and governance of social spaces

Model-Driven Software Development



Domain-specific visual languages defined by

Model Driven Development

Code generation based on Eclipse

Design (design)

Implementation (solution)

Analysis (requirement model)


Test (evaluation)

Inception

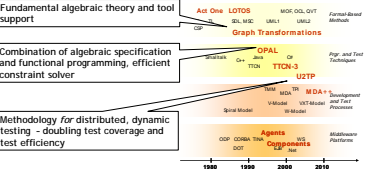
Transition

IBM Eclipse Innovation Award 2005

Component-based Face Detection



Fundamental algebraic theory and tool support



Add One LOTOS

Graph Transformations

OPAL

TTON-3

UZTP

MDA

Agents

Compositions

1980 1990 2000 2010