



# Body Sensor Network for Ambulatory Monitoring of Patients

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## Objectives

- Techniques for portable communicator interactions with implantable sensors and interventional devices
- Wearable communicator performing multi-sensor interfacing
- Automated techniques for integrating multi-sensory data leading to an intervention strategy
- Preliminary clinical evaluation for management of patients with ischaemic and arrhythmic heart disease

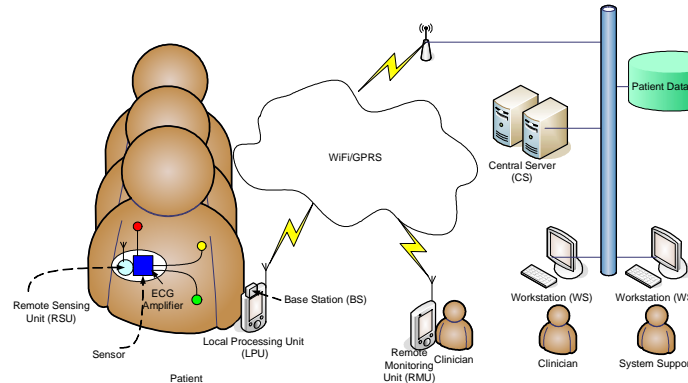
## Preliminary Deliverables

- Novel micro-power circuitry for fully integrated sensory processing
- Incorporation of ambient sensors, context awareness for improved sensing and episode detection
- Intelligent data fusion and mining for reliable prediction of critical events

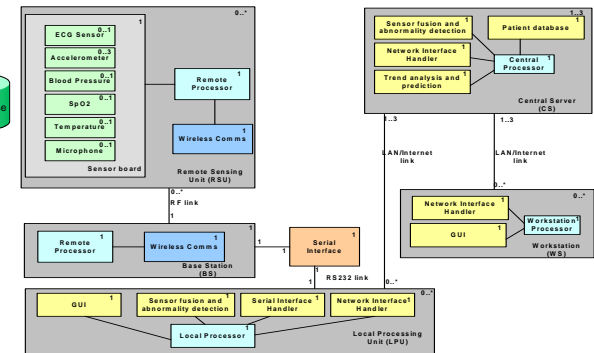
## Technical Innovations

- Low power sensor coupling and telemetry suitable for long term implants
- Context aware and adapt to environment changes
- Integrated local processing with remote long term trend analysis
- Multi-sensory fusion and data mining with prediction for critical events

## System Design

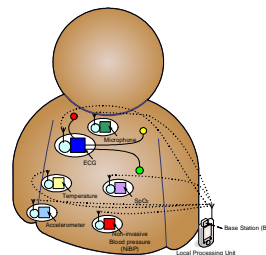


## Class Diagram

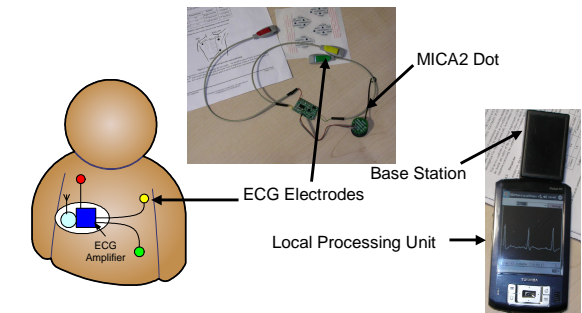


## Body Sensor Network

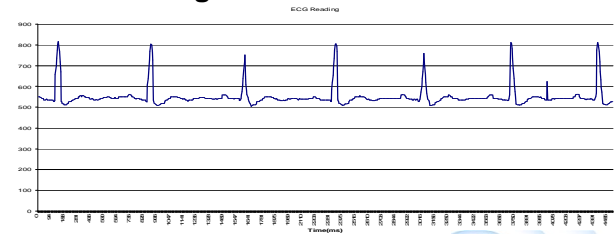
- Star topology
- Up to 6 remote sensor units
- Data throughput:  $200\text{Hz} \times 6 \times 16\text{bits} = 19.2\text{kbps}$   
Range: 2m
- Operating temperature:  $-10$  to  $+55^\circ\text{C}$



## ECG Sensor



## ECG Readings



Ubiquitous Monitoring Environment for Wearable and Implantable Sensors <http://www.ubimon.net>

