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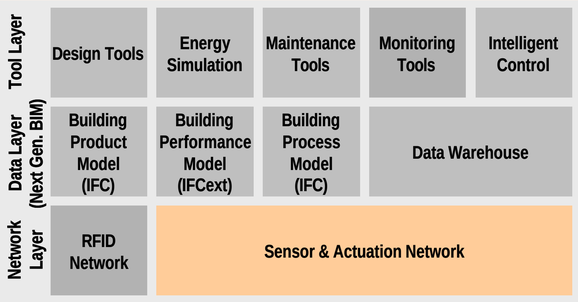
Context



Tyndall has provided the World's only platform designed specifically for Building Monitoring and Control. The platform has wide range of sensors, sub metering interface and actuation capability based on a unique granularity for better energy efficiency. The platform was designed to enable self powering (Energy harvesting) feature in addition to the miniaturization factor which was introduced to improve robustness and drop down overall total cost.

Objectives

Phase 1 – Q3 08 to Q2 10

- Deploy Tyndall Modular 25mm Platform (Atmel + 2.4 GHz Zigbee) with Building Sensing and Actuation Layer BEM1

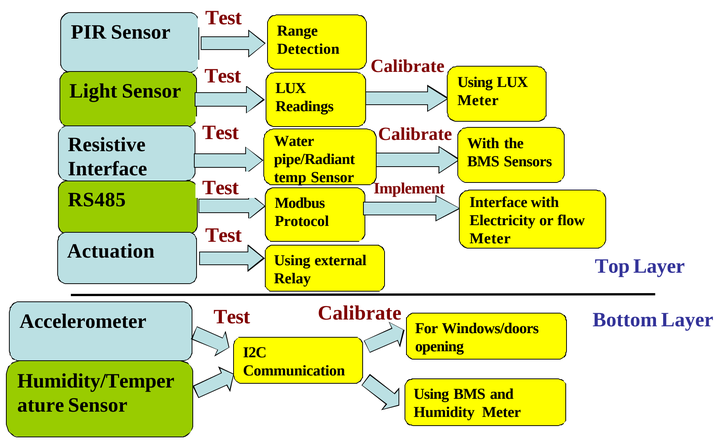
Phase 2 – Q3 09 to Q2 10

- Deploy large scale ERI Building management WSN using BEM1 nodes
- Tyndall Custom designed System BEM2

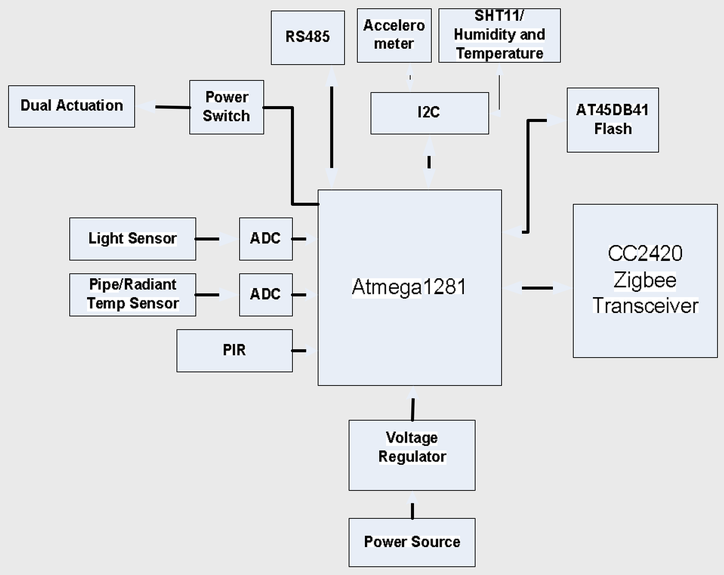
Phase 3 – Q3 09 – Q4 10

- Support national and international deployments
- Increase list of sensor and meter integration functionality and the use of Energy Harvesting

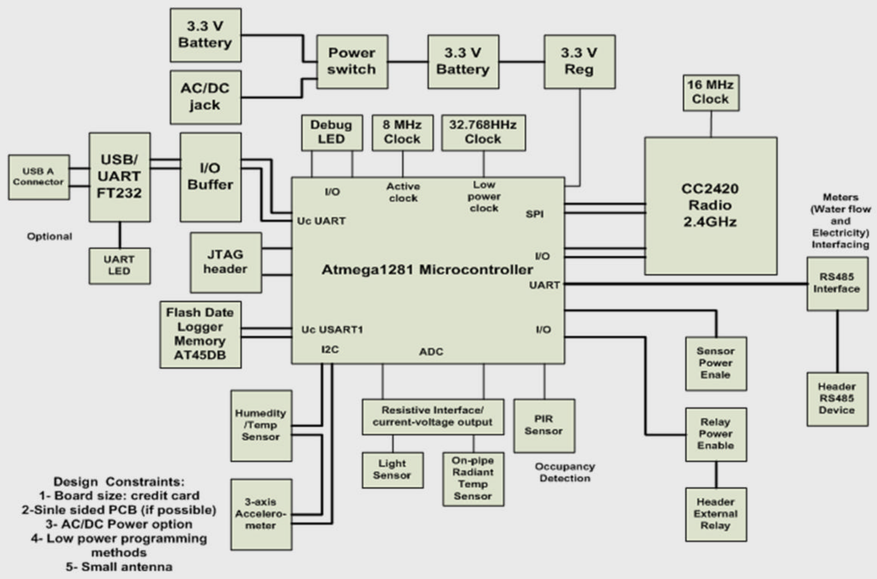
Approach



Sensors/Meters Testing and Calibration approach

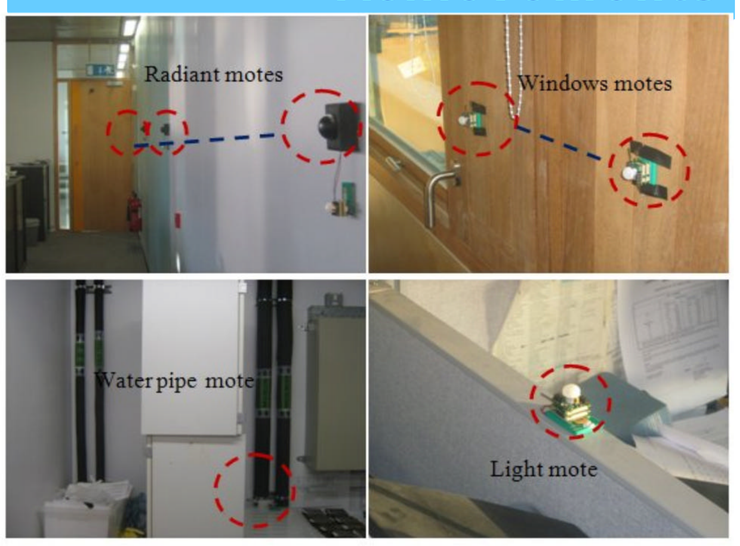


BEM1 25mm platform used in Phase 1 Deployment

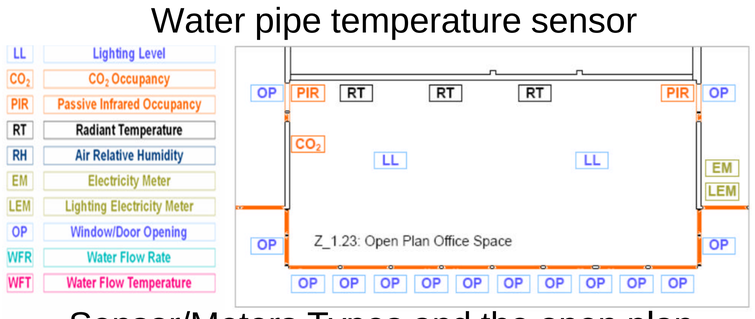


BEM2 Functional block diagram

Achievements

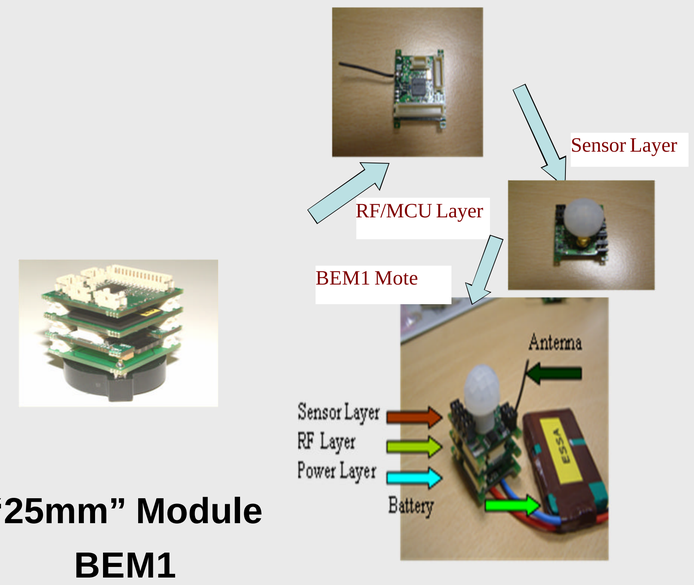


Deployed Radiant, Light, Doors/Windows and Water pipe temperature sensor



Sensor/Meters Types and the open plan office selected Deployment Zone

1. 61 nodes were deployed in 4 main zones within the ERI building to perform various functions of sensing and monitoring.
2. BEM2 mote developed with over 70% reduction in cost with scalability optimization.
3. Basic actuation demonstrators (lighting and electricity heaters)

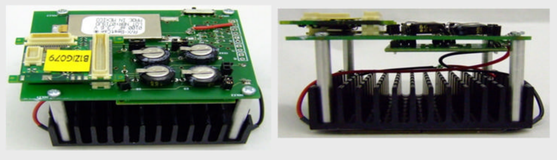


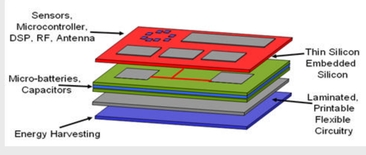
"25mm" Module BEM1

Credit Card outline Module BEM2

Future Work

Implement and deploy indefinite life time Wireless Sensor Network (WSN) HW infrastructure including the integration of next generation Energy Harvesting units, new miniaturized Hardware Sensing technology and Service Orientated Architecture (SOA) SW Protocol capabilities.





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