Use Cases and Case Studies

Facilities Monitoring and Energy Management

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Application example – Westfield Shopping Mall BMS integration for temperature control

Westfield Mall
First Floor
Schematic

Legend:
- Gateway antenna (red)
- Mesh repeater (yellow)
- Sensor (green)

250m

110m

~40m

Shops, built up area

Atrium – no floor slab at first floor level
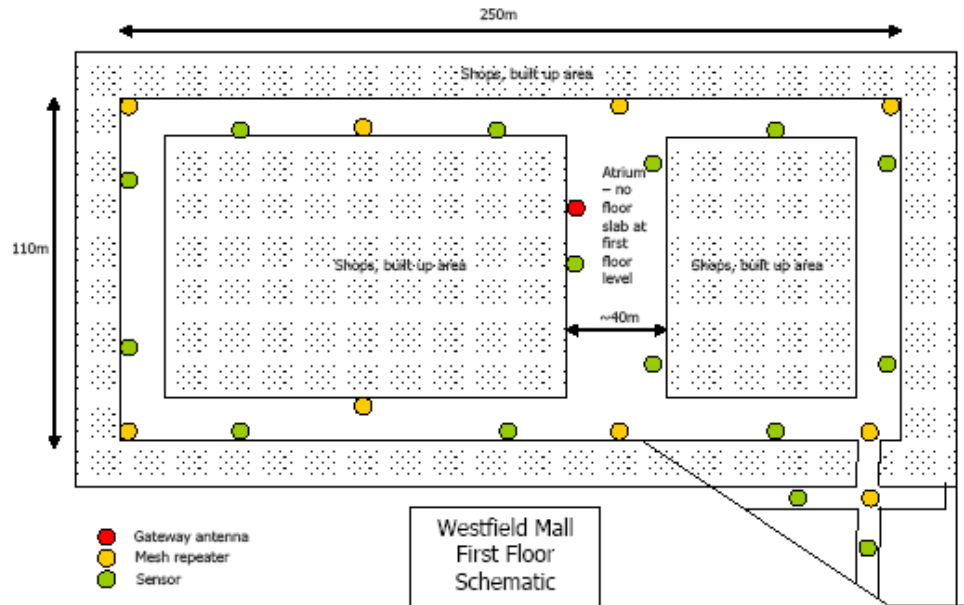
55,000 Sq Metres on two floors with Atrium

49 Air handling units on roof

1 Wireless network

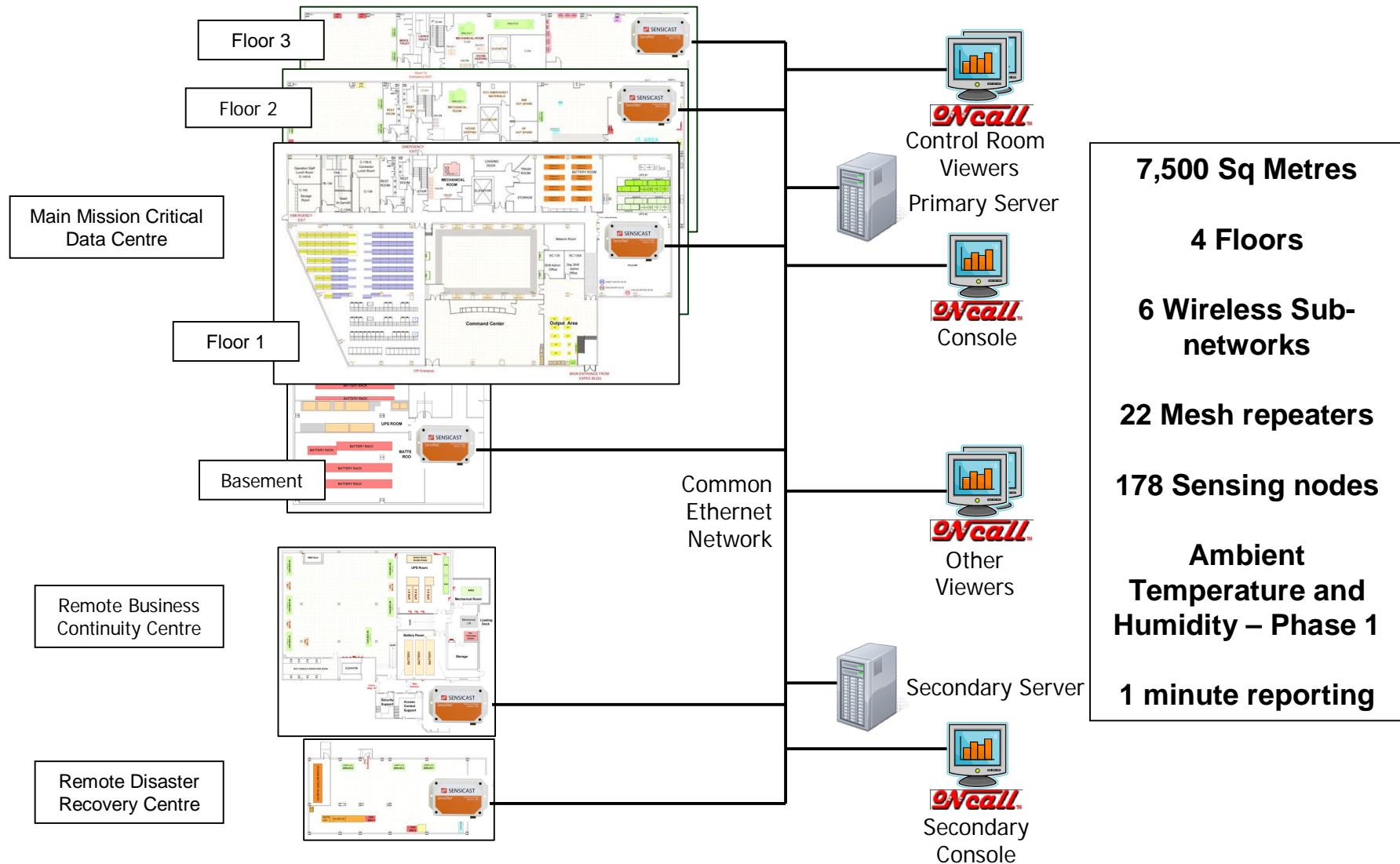**18 Mesh repeaters**

30 Sensing nodes

Ambient Temperature input to HVAC zone controls via Modbus TCP

**Installed in 2 days to resolve critical operating requirement**

£6,100 equipment cost

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Application example – Large Data Centre Monitoring Solution

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Floor 3

Floor 2

Main Mission Critical Data Centre

Floor 1

Basement

Remote Business Continuity Centre

Remote Disaster Recovery Centre

Control Room Viewers

Primary Server

Console

Common Ethernet Network

Other Viewers

Secondary Server

Secondary Console

7,500 Sq Metres

4 Floors

6 Wireless Sub-networks

22 Mesh repeaters

178 Sensing nodes

Ambient Temperature and Humidity – Phase 1

1 minute reporting

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Application example – University Site
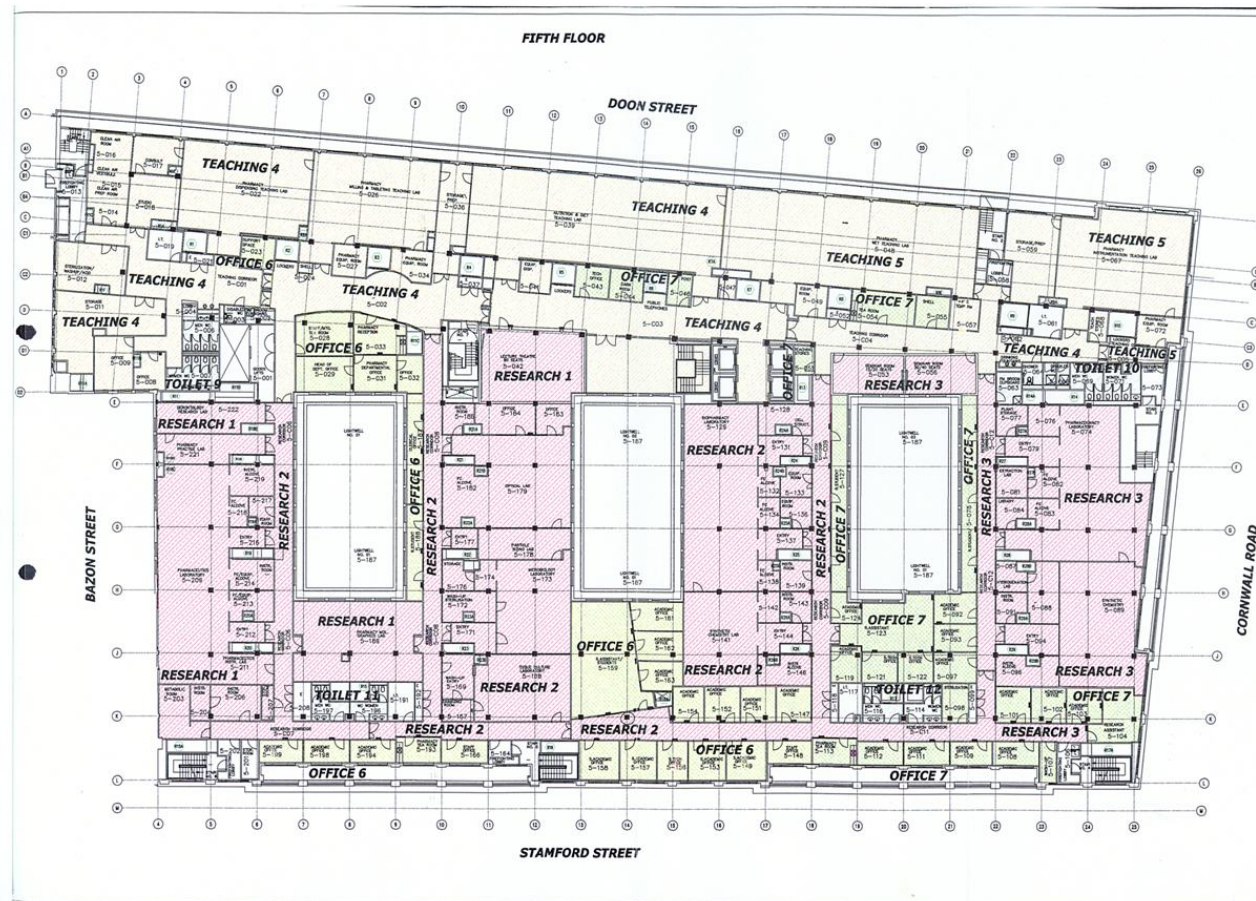
University Building with Gas, water and electricity monitoring on 6 floors

1 Wireless network

Stage 1 main incomers – 5 meters
Stage 2 – primary submeters. 44 electricity, 13 gas, 8 water
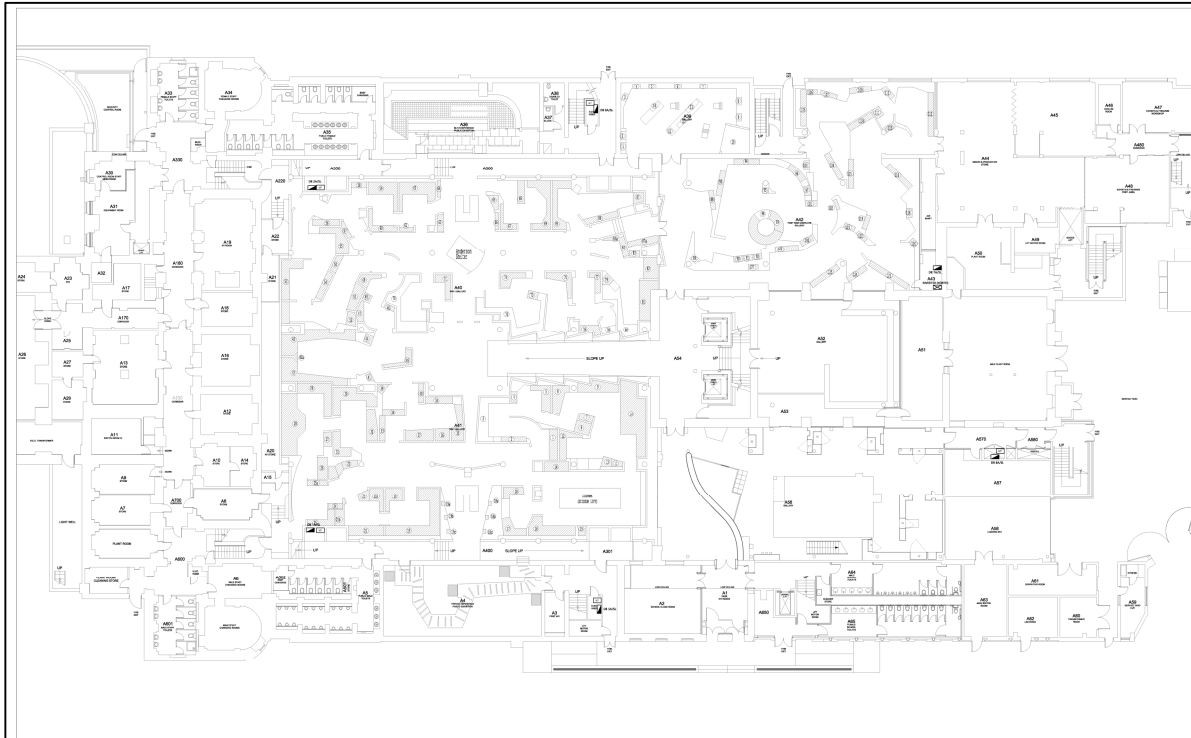
Supply Enerlytics software

£15,000 wireless equipment, software and commissioning cost

£15,000 electricity meters

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Application example – Heritage Museum Site

Landmark Museum Site

Complex Heritage building with heavy and variable construction on 4 floors

1 Wireless network

100 TRH Sensing nodes

25 electricity sub meters

Ambient Temperature input to HVAC zone controls via Modbus TCP

£25,000 wireless equipment cost

Application Example – UK Power station

Large site with dispersed transformer condition monitoring

Application Example – Rotating Pasteurisation Vessels at Organic Waste Recycling plants

- Wireless Temperature Sensing to meet State Veterinary compliance requirements
- Integration with Wonderware InTouch using Modbus TCP
- Hostile Environment – ammonia-laden atmosphere, hot vessels with steam injection
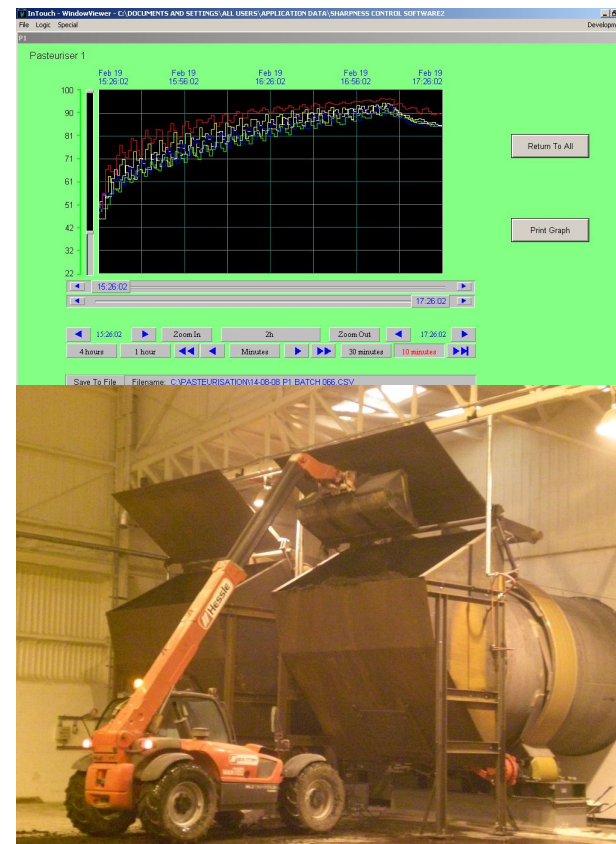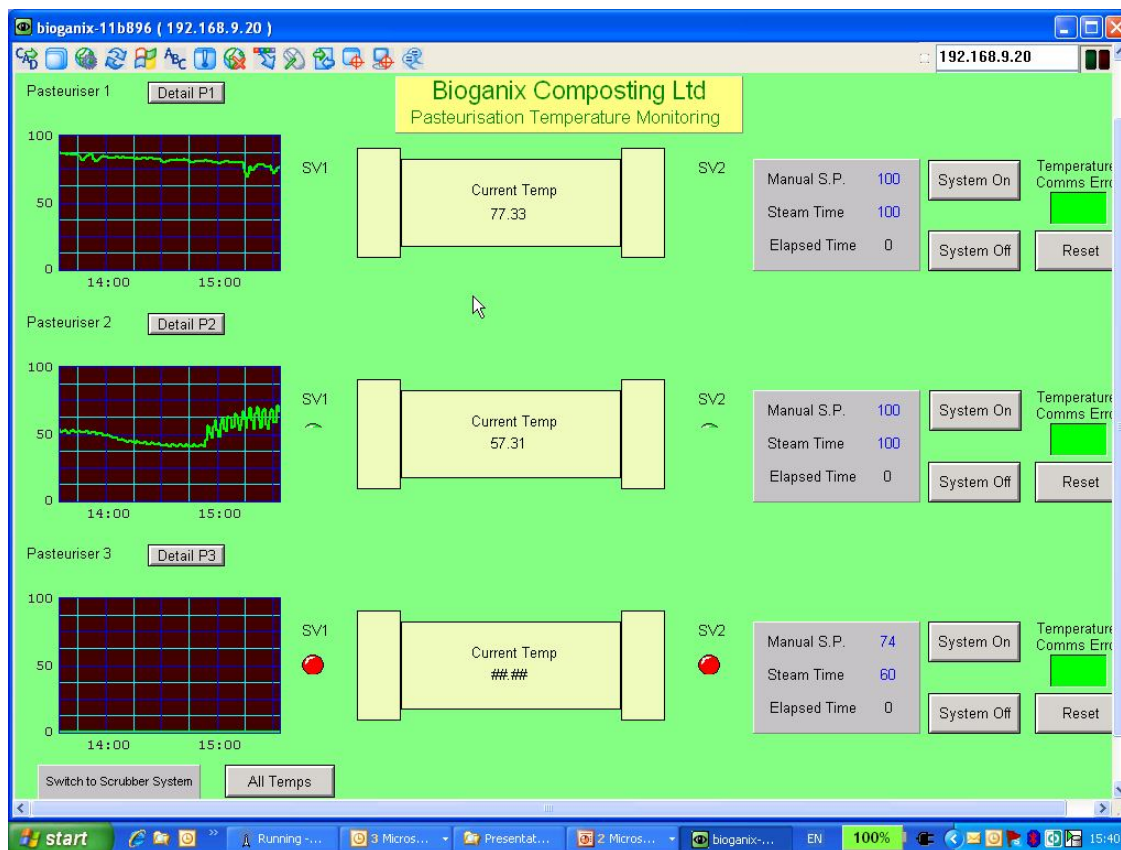
Industrial process monitoring

Application

- Process alignment and process temperature monitoring for roofing sandwich manufacturing line

Problem

- Product quality being affected by process misalignment and wrong bonding temperatures
- Lack of space, congested nature of plant and cost of downtime and disruption all precluded a wired solution

Solution:

- Wireless mesh network with 4-20mA nodes deployed using laser alignment sensors and infra-red process temperature sensors
- Standalone system using monitoring software for data display and alerting

Result

- Problem solved at low cost
- Fast installation – zero downtime
- Product quality improved

Wireless Nodes

Laser distance sensor