
TRONXWARE
Making Buildings Smart
Solutions to meet your needs

Finding right Soltutions for your Organizations

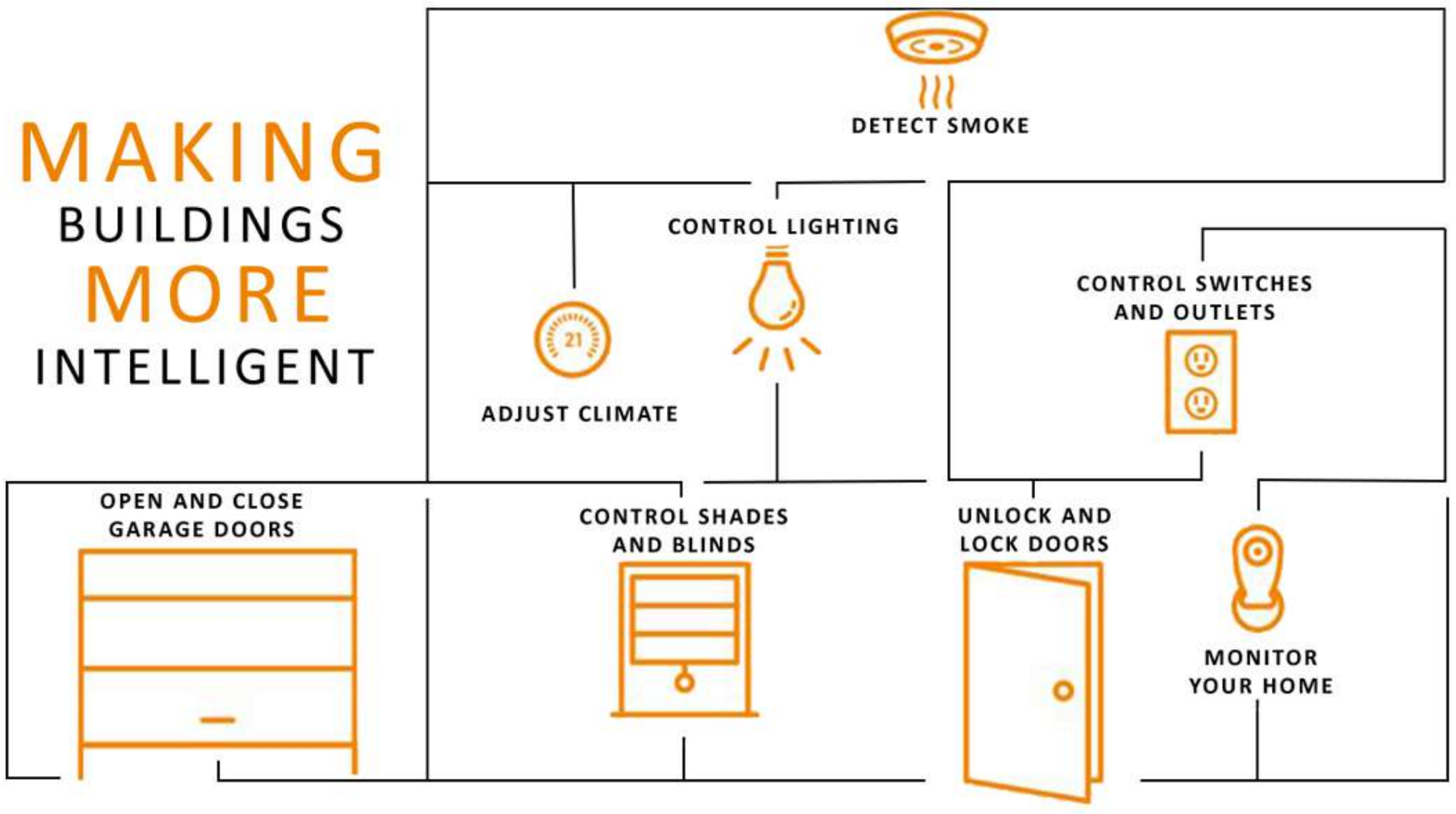
A BEMS typically controls up to 80% of a building's energy requirements. By optimising and maintaining the system – getting it to perform consistently with the way a building is used- it can deliver significant energy savings which can be measured, monitored and be sustained.
Repeatedly, the installation of a BEMtS has proved a highly cost-effective way for Offices, Commercial buildings, Schools, Colleges and Universities to cut their energy consumption – frequently making savings of more than 25%. This has often produced similar or greater cost reductions in maintenance expenditure.

Baseline facts

- Save what is being wasted
- Wastages cannot be eradicated – What matters is how big or small it is ?
- We have to measure first before going for savings !!
- Energy cost can be reduced significantly - it may not required financial investment.
- It requires focus, drive, a systematic approach and wilingness to change

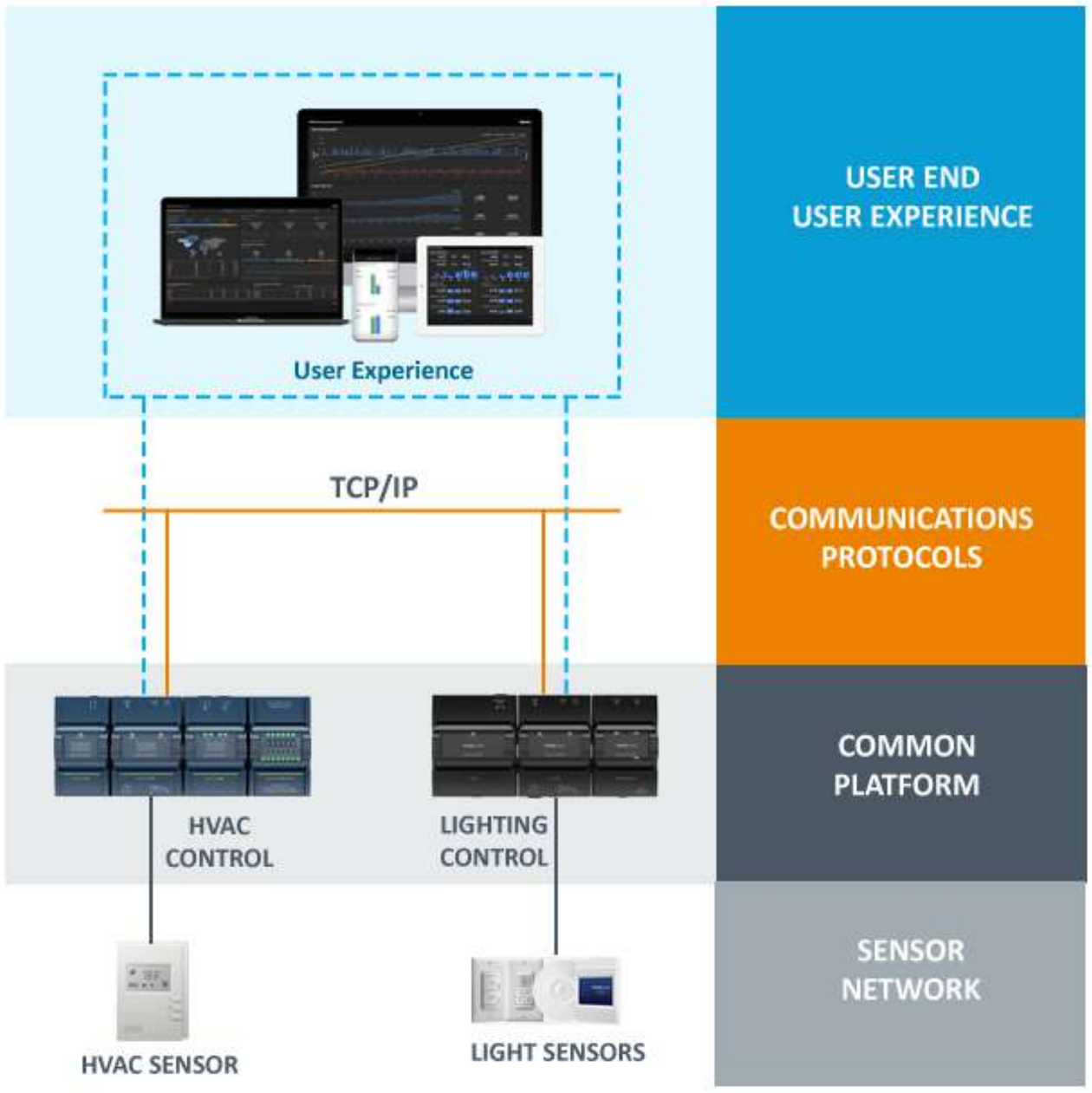
Reducing Energy usage and Carbon Emissions

MAKING BUILDINGS MORE INTELLIGENT



Drivers for Smart Building Systems

Energy, water and fuel consumption Data – Metering InfrastructureEquipment & Machines operating behavior guided by Timers & Relays Smart Interface in shape of Mobile Apps, Web Apps & Touch based wireless HMI Automated control of devices guided by sensors & smart switches Building emission data – fuel exhaust & effluent monitorsOptimum performance of HVAC systems - Smart controllers



The Challanges in Realizing the Target

Financial

- Retsource Optimization
- Actual Utilization over raising demands
- Unutilized Energy
- Rise in Energy sources
- Operation Losses

Operational

- Human Error
- Sudden Breakdowns
- Inefficient Equipment
- Unnecessary Trippings

Workforce

- Manpower planning
- Reporting & MIS
- Monitoring Intervals
- Maintenance planning & Service History

Business Process

- Optimize opertaions
- Streamline Service
- Enable business inteligence
- Reduces opertional expenses

Utilizing IoT value -

About 70% of all commercial buildings in India were constructed with limited or no automation—meaning they're obsolete and not energy efficient. While retro-fitting these building with automation equipments are incredibly useful in helping these buildings become more energy-efficient and comfortable for occupants, Internet of Things (IoT) technology should also be considered as a major player in transforming your building automation system to ultimately work for your building,

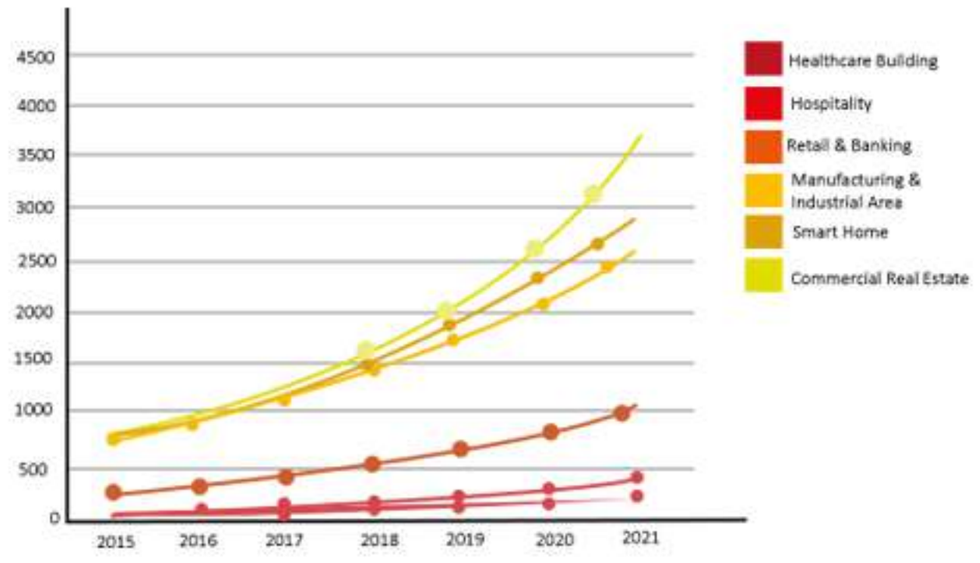
Hesitant to switch to IoT

Even if a facility may be old, your facilities manager can argue that it is still (mostly) fully functional, and would not require a total upgrade to IoT technology to manage its operations. If a building's HVAC, lighting, fire protection, and other systems operate just fine without connecting to an IoT network, then why mess with a system that isn't broken?

Improve Satisfaction, Retention and Productivity

Even if a building seems to be doing "just fine" at a surface level (comfort, maintenance, energy usage, etc.), it's probably failing to meet goals of providing a healthy, safe, sustainable, and pleasant working and/or living environment for its occupants. By implementing IoT technology into your system, you can improve all of these aspects of your building and then some.

Growth in Smart Building Connected Devices Over Time



Addressing the Challenges

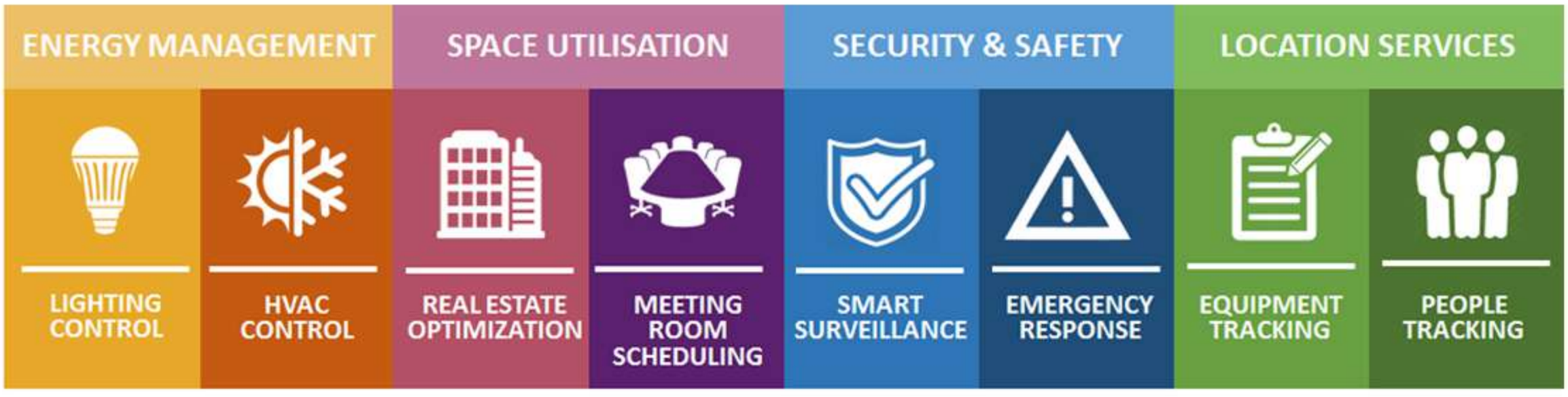
A BEMS is also ideal as a monitoring and targeting system (M&T), since it is typically deployed in all parts of the building where energy is consumed, has the technical capacity to monitor and record the field data and, perhaps more importantly, can analyse and react to the information to improve the performance of the building.

To get the best out of a system it is advisable to source a remote energy management service such as that provided by Tronixware, which applies monitoring and targeting techniques to reduce energy costs and improve building performance. Web-based analysis of building energy performance with consumption profiles and exception reporting can be accessed via a standard web-browser. System performance can also be improved by a remote response service, where specialist engineers with remote access can fault find, monitor and adjust control strategies to maximise the effectiveness of the BEMS.

Key Solutions

- Energy balancing
- Usage study & Patterns
- Equipment Health Status
- Maintaining Power Factor
- Prevent Maximum demand Overshoot
- Idle running alerts
- Online monitoring
- Live Alerts and Alarms
- Reporting Modules
- Analytical Tools – Scheduling operating hours
- Automated Metering & Billing infrastructure

Providing continuous feedback of buildings operational and energy performance

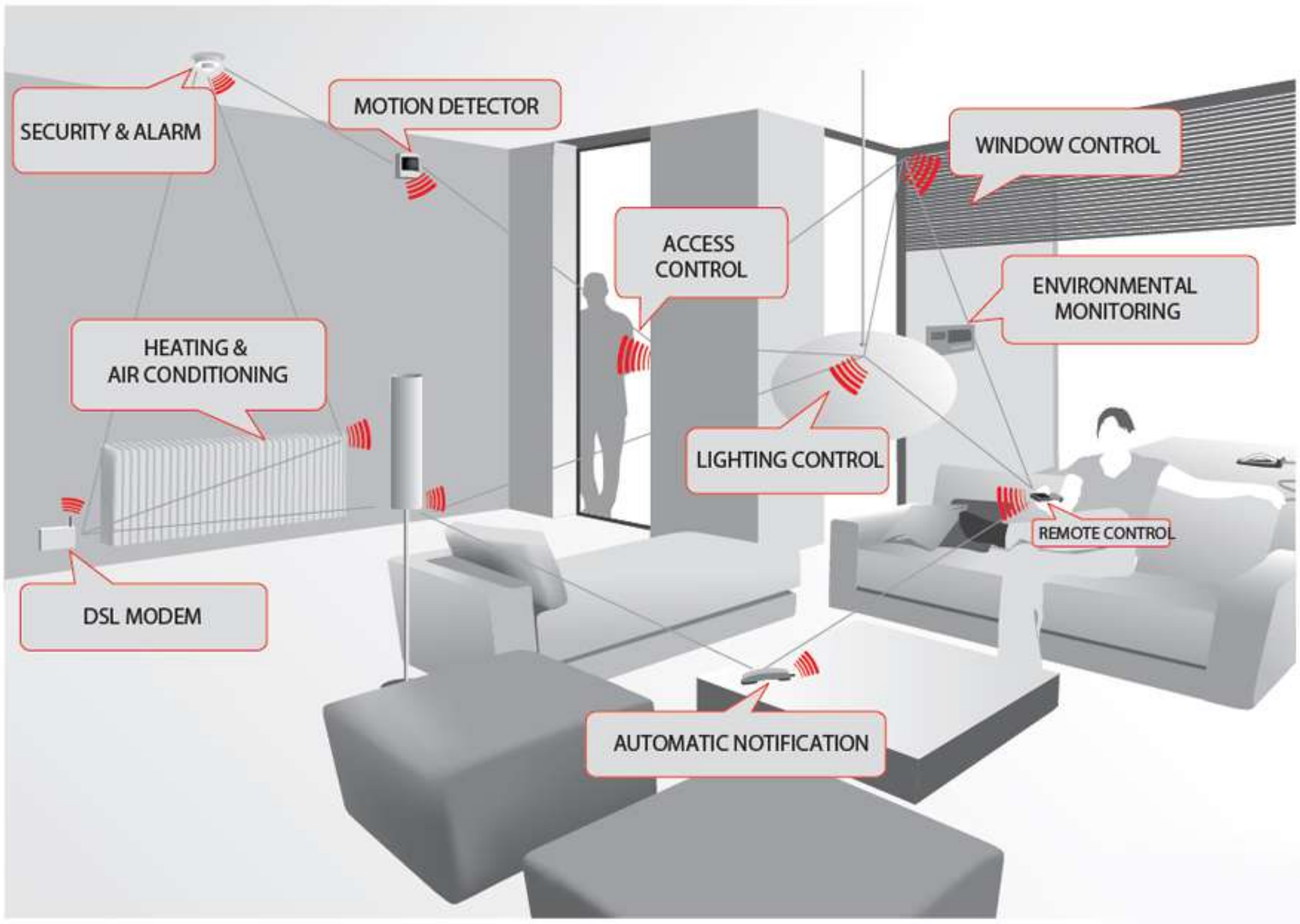


Energy efficient control Techniques

BEMS has two major benefits –

Firstly - by providing continuous feedback allowing user to fine tune the operation, further enhanced by alerts and reporting tools.

Secondly - being software based are easy to configure as per the users requirement.



Control Strategies-

Optimizing Start & Stop Timings – Operates economically by calculating the occupancy hours if temperatures are within comfort levels.

Environmental factors – Utilizing external weather conditions to balance temperature and humidity factors thus saving energy

Scheduled based Operation- To maintain an acceptable building condition in cold weather the compensator settings permit overheating in mild weather.

Identifying Sources-

Grid

Transformer Monitoring
Load characteristics / Demand overview / Harmonic Analysis / (Auxiliary Scope for Oil & Winding Temperature)

Solar

Unit Generation measure and analysis / Operating Hours

DG

Run Hours / Load Hours / Energy Consumption / Fuel Consumption

Loads

MCC & PCC

Consumption & Load Analysis / P.F. Monitoring / Run Hours

Lighting

Energy Consumption/ Day & Night consumption Pattern, Operation Hours & Intensity

HVAC, Central AC's, ventilation and other equipments

Process

Pressure – Compressors
Energy Consumption / Operating Patterns (Loading & Unloading Intervals) / Line pressure
Flow – Totalizer / Flow rate / Temperature

TRONIXWARE

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3rd Floor ,# 139, District Center,
Chandrasekharpur ,Bhubaneswar,
Odisha751016