

Green Building Integration

Lessons from Green Human

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Green Building Integration- Macro view:

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Green Building Integration- Granular View:

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Current features and requirements:

Multi-faceted
Multi-levels- City, campus, buildings, floors, rooms, systems-----Value proposition: Create new solutions and applications
Cost-effectiveness
Plug-n-play
Seamless
Adaptability and flexibility

Current solutions:

Interoperability
open protocol, standard communication language
Create drivers for systems & sub-systems levels integration



Human body Integration





Somatic Nervous System:

- Similar to building control systems
- SMS connects to brain via spinal cord
- Responsible for:
 - Body movement & sensing external stimuli
- Covers all neurons:
 - Muscles, skin, & sense organs
- Sensing includes:
 - Light, vibration, pressure, pain, T etc.,
- E-signal from receptor flows to the brain through fibers
 Receptor ———



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Ganglion Junction/Relay Distribution channel (with local intelligence) that connects Spinal Cord and Sensory neurons and motors/actuators

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C: Neck, arms T: Trunk, abdomen L&S: Legs, bladder, bowel, & sex organs



Spinal cord- X Section:

Segmented location specific input-output channels carrying electrical signals



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Proposed Building Nervous Systems:

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Location/System specific dedicated processors w/ bundled sensor and actuators specific input and output signals

Bundled input and output electrical signals

Input

Applications specific processing using I/O signals

> Sensor Actuator

Sensor signal **Actuator signal**

Distributed junction/controllers with local intelligence





Summary of human nervous systems: Yet to Explore!

Key features:

- Free of language and protocol
- Integration at sensor level
- •Point-to-point integration between sensing and processing
- Distributed communication with built-in intelligence
- Dedicated communication channels for specific locations
- Sensor & Actuator specific bundled signals within channels
- Distributed relays with built-in intelligence for handling local controls
 Can be wired or wireless

Suggested Websites:

- 1. Wikipedia
- 2. Gray's Anatomy
- 3. NIH
- 4. Howard Hughes Medical Institute

Key words search:

- Somatic Nervous System. Spinal Cord.
- Brain Sensory Information

Yet to be explored!



