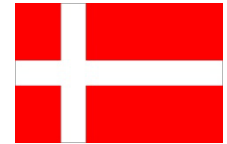


GREEN ROUTING IN WIRELESS SENSOR NETWORK



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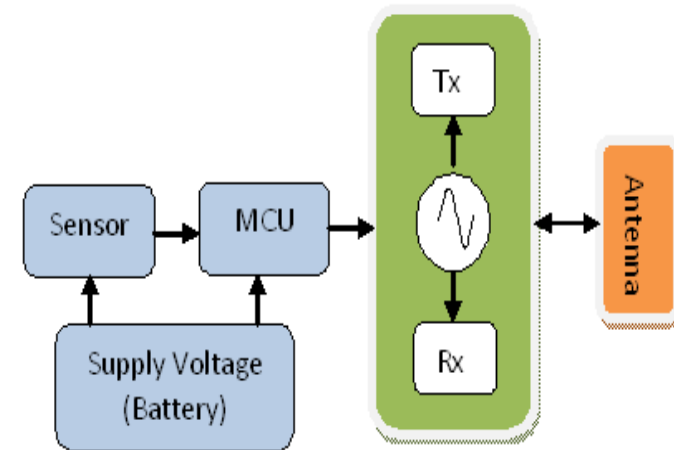
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Outline

- Background
- Routing challenges and design issues
- Routing Protocols in WSNs
- Research Goal
- Milestones
- Questions

Background

- Sensor Node Components
 - Sensor Unit
 - Radio Unit,
 - processing Unit
 - Battery Unit.
- Sources of Energy Consumption
 - Communications (Transmitting & Receiving)
 - Computations
 - Sensing
- space and cost constraints
- Not feasible to recharge or change batteries on a regular basis



Routing Challenges and Design Issues

- Network dynamics
 - Mobile nodes
 - Mobile events – static / dynamic
- Node deployment
 - Manual deployment
 - Random deployment
- Energy Consideration
 - Direct Routing
 - Multihop Routing

Routing Challenges and Design Issues

(contd...)

- Fault tolerance
 - Failure of sensor

- Node Capabilities
 - Homogenous / Heterogeneous Sensor Nodes

- Data Delivery Model
 - Continuous
 - Event driven
 - Query driven
 - Hybrid

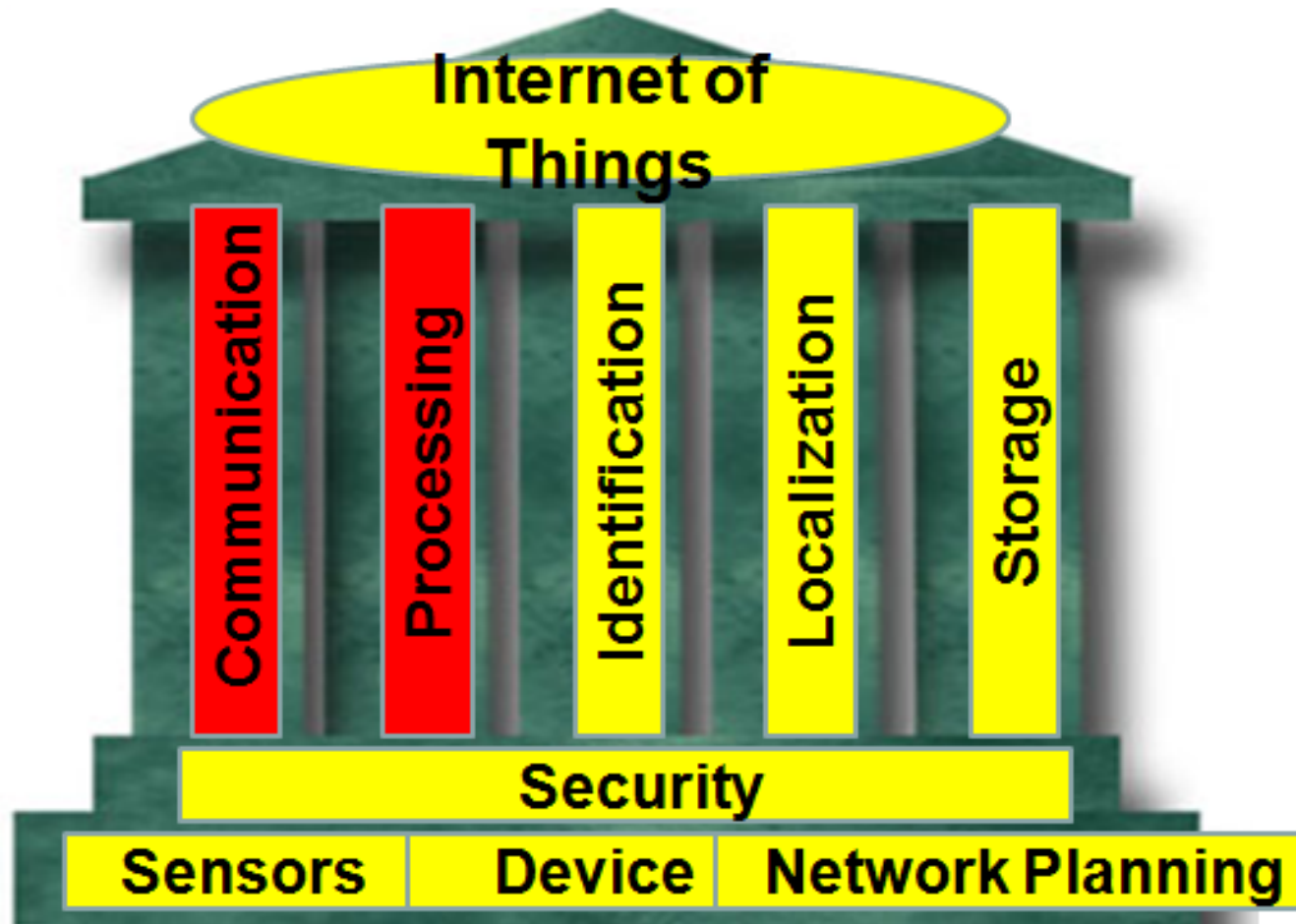
Routing Protocols in WSNs

- Data Centric
- Hierarchical
- Location-based

Routing Protocols in WSNs (contd..)

Routing Protocols	Classification	Power Usage	Data Aggregation	Scalability	Query Based	Over head	Data delivery model
SPIN	Data-centric	Ltd.	Yes	Ltd	Yes	Low	Event driven
DD	Data-centric	Ltd	Yes	Ltd	Yes	Low	Demand driven
RR	Data-centric	Low	Yes	Good	Yes	Low	Demand driven
GBR	Data-centric	Low	Yes	Ltd	Yes	Low	Hybrid
ACQUIRE	Data-centric	Low	Yes	Ltd	Yes	Low	Complex query
LEACH	Hierarchical	High	Yes	Good	No	High	Event driven
TEEN & APTEEN	Hierarchical	High	Yes	Good	No	High	Event driven
PEGASIS	Hierarchical	Max	No	Good	No	Low	Event driven
GAF	Location	Ltd	No	Good	No	Mod	Demand driven
GEAR	Location	Ltd	No	Ltd	No	Mod	Demand driven

House of IoT



Research Goal

- The research goal is
 - To develop **fault tolerant**, **energy efficient**, **multihop routing strategy** for **Quasi Random deployment** of the **sensor nodes** to transfer sensor data for the purpose of **maximizing the lifetime of WSNs**.
 - Framework will be designed for **integrating WSN into the “Internet of Things”**, where sensor nodes join the Internet dynamically, and use it to collaborate and accomplish their tasks.

Milestones

- Design of the framework
- Implementation
- Simulation
- Performance Analysis and Optimization

Questions?

