Bahan Ajar

Chapter 7

Materi Pembelajaran

Matakuliah :

WIRELESS SENSOR NETWORKS

Kode Matakuliah : SKO 20428

Prodi : SISTEM KOMPUTER

Dosen Pengampu Matakuliah:

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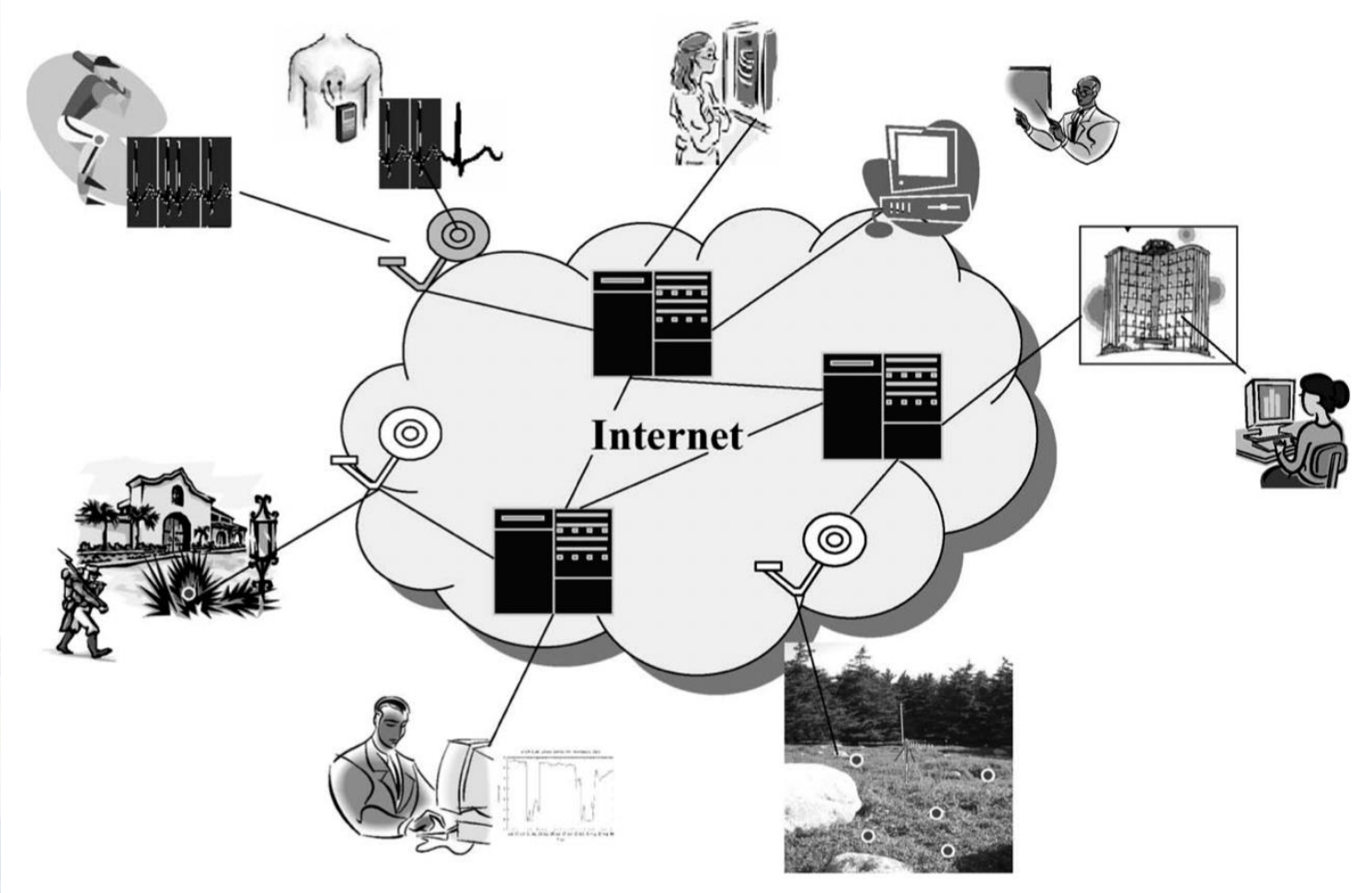
Tables of Content

Wireless sensor network applications

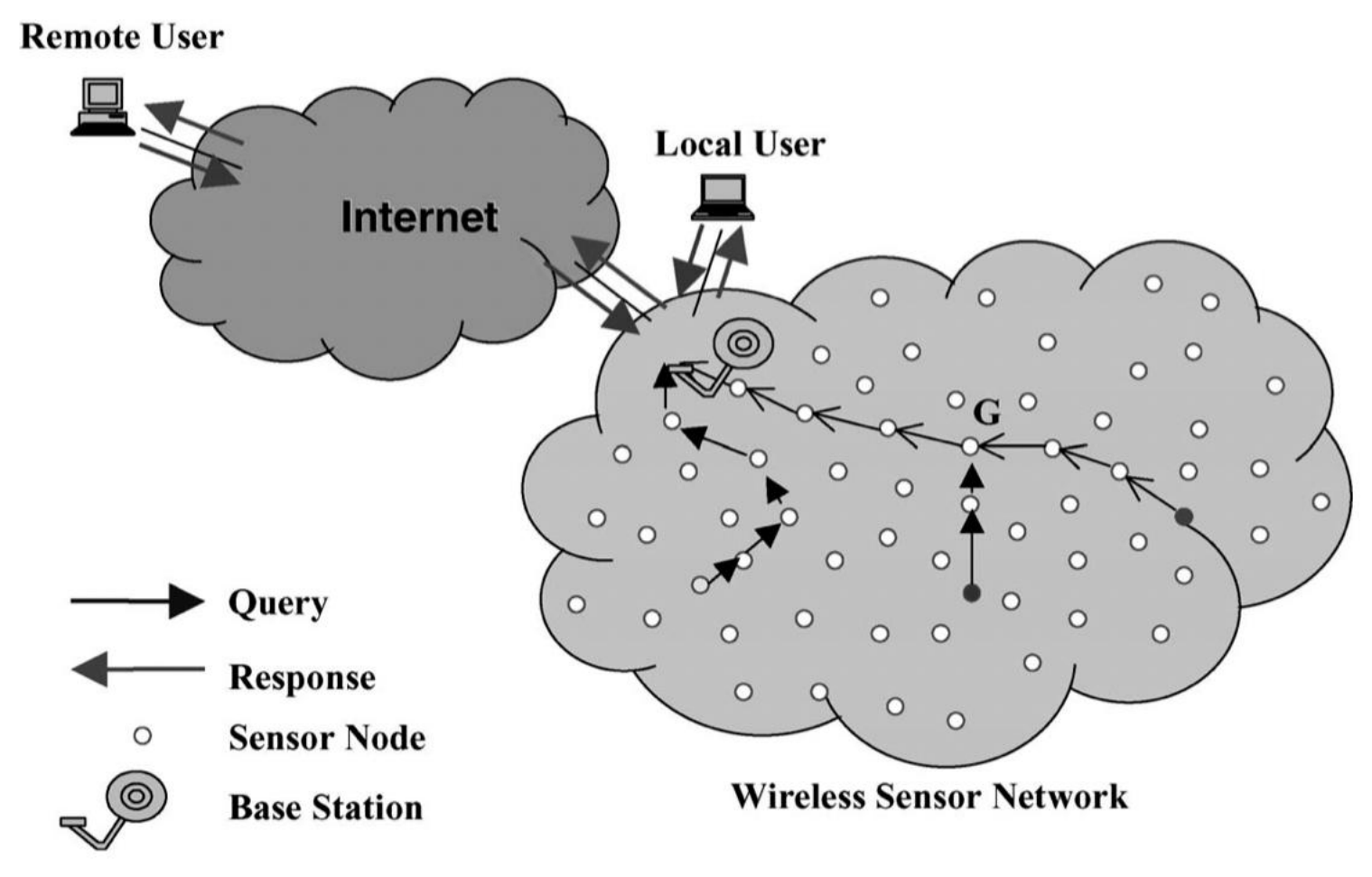


Data Dissemination And Gathering

The way that data and queries are forwarded between the base station and the location where the target phenomena are observed is an important aspect and a basic feature of WSNs.

Nodes that are farther away from the base station may deplete their energy reserves quickly, thereby severely limiting the lifetime of the network. This is the case particularly where the wireless sensors are deployed to cover a large geographical region or where the wireless sensors are mobile and may move away from the base station.

Multihop data and query forwarding



Routing Challenges in WSN

- Network Scale and Time-Varying Characteristics
- Resource Constraints
- Sensor Applications Data Models

Routing Strategies in WSN

Reactive routing strategies establish routes to a limited set of destinations on demand.

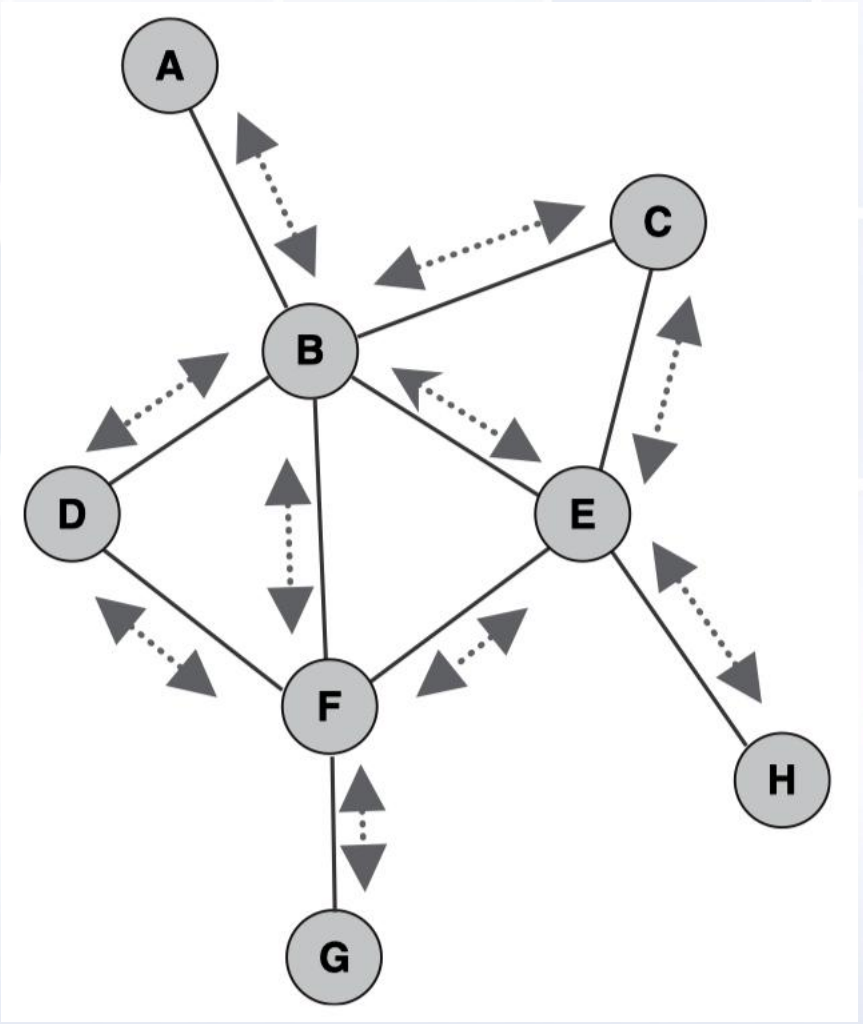
The **Proactive routing** strategy, also referred to as table driven, relies on periodic dissemination of routing information to maintain consistent and accurate routing tables across all nodes of the network.

Hybrid routing strategies rely on the existence of network structure to achieve stability and scalability in large networks.

WSN Routing Techniques

Flooding

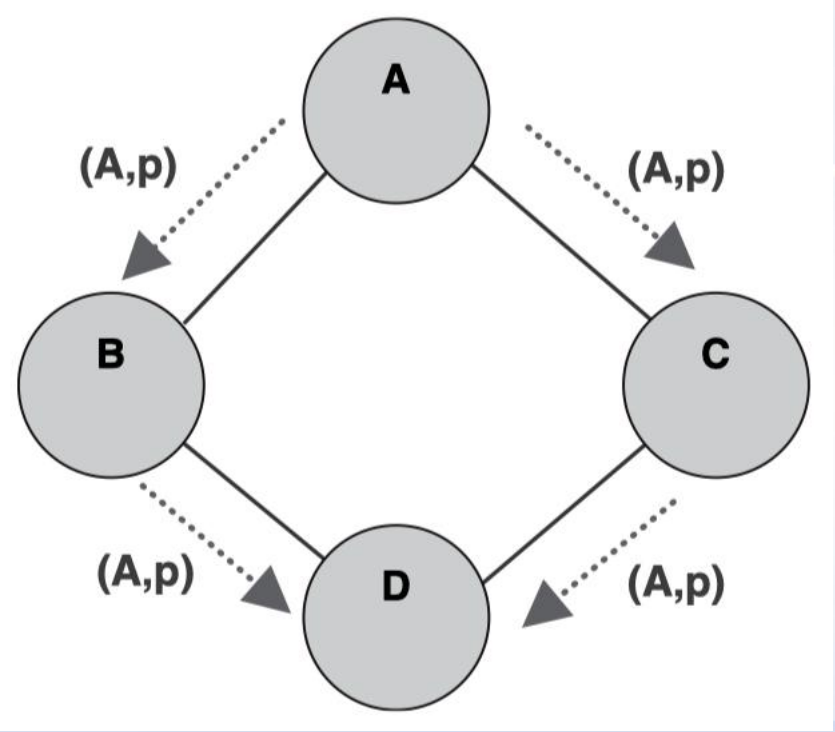
Flooding is a common technique frequently used for path discovery and information dissemination in wired and wireless ad hoc networks.



WSN Routing Techniques

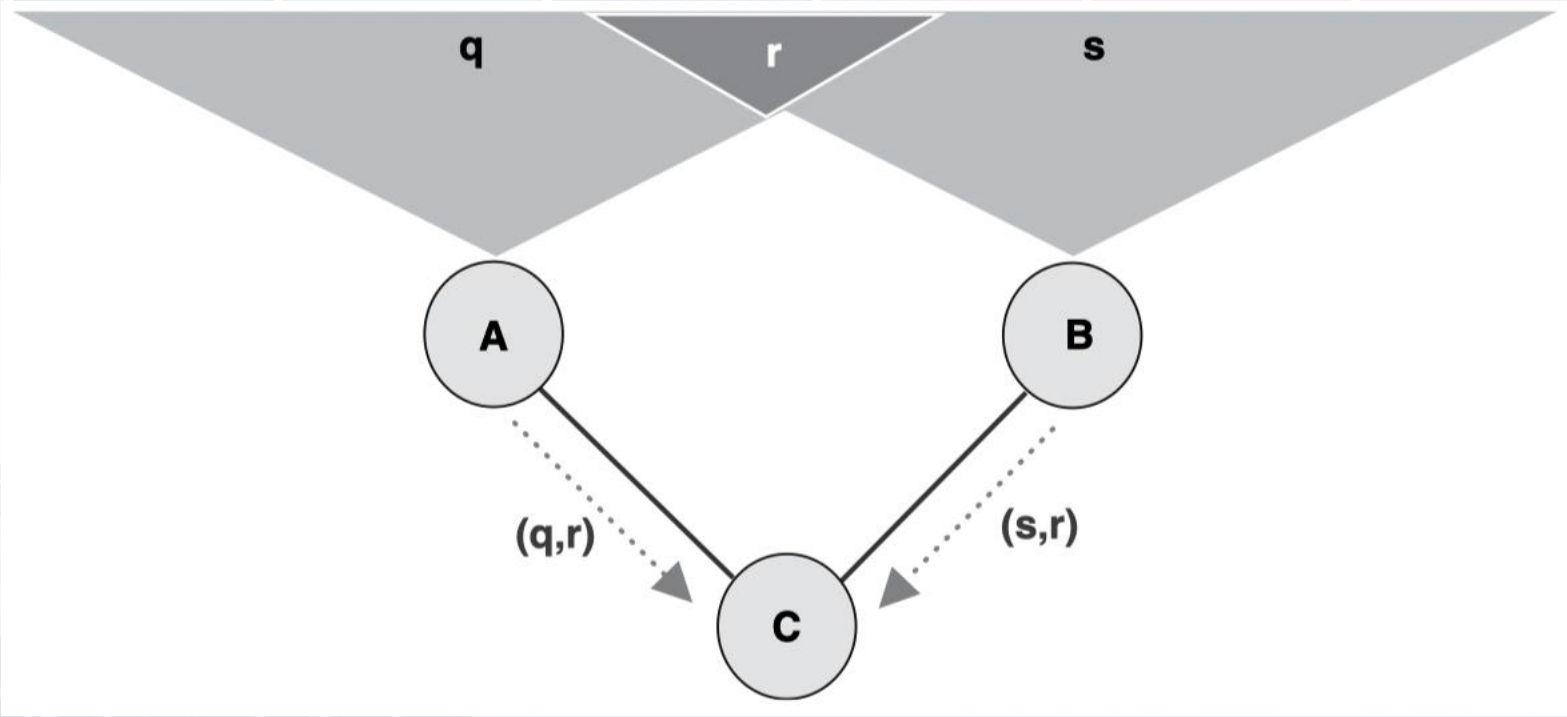
Flooding uses a reactive approach whereby each node receiving a data or control packet sends the packet to all its neighbors.

The First Drawback of flooding is its susceptibility to traffic implosion.



WSN Routing Techniques

The second drawback of flooding is the overlap problem to which it gives rise.



The attributes of WSNs and the characteristics of the environment within which sensor nodes are typically deployed make the routing problem very challenging.

Multiple strategies have emerged as feasible solutions to the routing problem. As the application of WSNs to different fields become more apparent, advances in network hardware and battery technology will pave the way to practical cost-effective implementations of these routing protocols.

Tugas Mandiri (teori):

1. Jelaskan Kelebihan dan kekurangan dari beberapa teknik routing di WSN.
2. Jelaskan beberapa kebutuhan mendasar dari WSN.

Tugas Mandiri (praktikum):

Rancang mobility model di WSN menggunakan Network Simulator.

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