SNS COLLEGE OF TECHNOLOGY

Coimbatore-35

An Autonomous Institution

Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A++' Grade

Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

19ECT213- IoT SYSTEM ARCHITECTURE

II ECE / IV SEMESTER

UNIT 5 – IOT APPLICATIONS

TOPIC 5 – Examples and case studies; Open issues and challenges

CHALLENGES IN DATA COMMUNICATION (NETWORKING) IN IoRT

Challenges in Data Communication in IoRT	Characteristics
Intercommunication	(a) Necessity of standardization (b) IPv6 addressing must be used to lead the way (c) The current Internet should be easily integrated (d) Components designed with predetermined parameters (e) Cross-layer intercommunication required
Inpregnability	(a) Confidentiality of data (b) Management of identity of privacy (c) Access control (d) Substantiation (e) Trusted platforms (f) Encryption
Extensibility	To enable a higher number of smart objects, an extensible management protocol is being developed

CHALLENGES IN DATA COMMUNICATION (NETWORKING) IN IoRT

Extensibility	To enable a higher number of smart objects, an extensible management protocol is being developed
Identification	Developing a name and identity management system that works
Movability	(a) Detection of movement required (b) Energy and processing restrictions should not exist in VANETs and MANETs
BigData	(a) The qualities of the data management service have a direct correlation with performance (b) The data integrity attribute should be considered
Management of Energy	(a) Green technologies are required for energy-efficient systems (b) Still not fulfilled completely

CHALLENGES IN DATA COMMUNICATION (NETWORKING) IN IoRT

- Considering the global IoRT market size, large device manufacturing, IoRT technology investment, academic interest in IoRT, and the possible return on investment of IoRT businesses, the future of IoRT technology seems extremely bright and promising.
- However, because of the immense scope of the IoRT infrastructure and the large number of devices involved, security issues will become much more prevalent.
- Security procurement is required to disarm malevolent actors that pose a danger to the IoRT, and it has yet to be satisfied effectively, as seen in the preceding section's protocol com768 parison.
- The security concerns posed by IoRT will serve as a crucial research topic

CHALLENGES IN DATA COMMUNICATION (NETWORKING) IN IoRT

- Aside from security provisioning, compatibility between network protocols is another major difficulty in IoRT development.
- Leading firms throughout the world are designing smart devices with complete interoperability in mind.
- These features are critical because they will allow for seamless interaction with the present Internet .
- The expense of an IoRT protocol with numerous sophisticated capabilities rises as the convenience of use decreases.
- Building an attractive protocol is not an easy undertaking, and it is usually a trade-off between system cost and performance.
- IPv6 introduces beneficial and adaptable networking technologies, bringing IoRT features one step closer to desired interoperability.
- The Internet of Things will connect a variety of things to create revolutionary services.

CHALLENGES IN DATA COMMUNICATION (NETWORKING) IN IoRT

- Moreover, IoRT data is characterized by heterogeneity, which implies that information is created in large quantities, arrives in real-time, has a changing structure, and may have an unknown source.
- Because total performance is in a straight line proportional to the characteristics of the data managing service, the problem of managing massive data is crucial.
- Whenever the data integrity component is examined, the problem becomes much more problematic, not only because it impacts service quality, but also because it raises privacy and security concerns, especially with outsourced data.

CHALLENGES IN DATA COMMUNICATION (NETWORKING) IN IoRT

- Another important aspect of the IoRT paradigm is mobility management.
- Because of the hard processing and power limits, conventional mobility-supporting protocols for Vehicular Ad Hoc Networks (VANETs), sensor networks, Mobile Ad Hoc Networks (MANETs) and are unable to effectively cope with common IoRT devices.
- To keep track of the device's location and response to topological changes, movement tracking is required.

CHALLENGES IN DATA COMMUNICATION (NETWORKING) IN IoRT

- Furthermore, the energy needs of IoRT are yet unmet.
- A few routing protocols, as previously mentioned, offer low-power data exchange, however, they are still in the early stages of development. As a result, green technologies mustbe used to make IoRT devices as power-efficient as feasible.