19EC621 – IoT and Wireless Sensor Networks

Unit -1 Overview of Internet of Things

Data enrich ment, data consolidation and device management at IoT/M2M Gateway

Data management, privacy, data security, data enrichment and data consolidation

Data Management and Consolidation Gateway Functions

- Transcoding
- Integration
- Compaction
- Fusion

Transcoding
• Adaptation
• Conversions, and changes •
Using software which renders
the web responses and
messages
• Required in the IoT device
acceptable Formats and
representations

Data Privacy

• Examples: Patient medical data, data for a company supplies from and to different locations, and changes in inventories

• Privacy and protection from consciously or unconsciously transferring to untrustworthy destination using the Internet

Privacy Model
• Depends on following components:
• (i) Device and Applications Identities management
• (ii) Authentication
• (iii) Authorisation
• (iv) Trust and
• v) Reputation

Data Security sub-layer for confidentiality and authorization

• A standard algorithm AES (Advanced Encryption Algorithm based on symmetric 128-bit block data encryption)

• CCM mode (Counter with CBC-MAC)

• CBC stands for cryptographic block cipher with a block length of 128 bits.

• CCM is method which provisions for the authenticated encryption algorithm for confidentiality and authentication

Data Gathering

2017 Chapter-2 L05: "Internet of Things ",
Raj Kamal,
Publs.: McGraw-Hill Education 9

• Data gathering means data-acquisition from the device(s)
Four modes of data gathering are:
(i) Polling means data sought from a device by addressing the device
(ii) Event based
(iii) Scheduled interval
(iv) Continuous monitoring

Data Enrichment
• Adding value
• Security and
• Usability of the data

Data Dissemination:
 Prior Actions
• (i) Aggregation of joining together present and previously received data.
• (ii) Compaction making information short without changing the meaning or context
• (iii) Fusion means formatting the information received in parts through
various data frames and several types of data (or data from several sources),

Energy Dissipation due to Data Dissipation

• Higher the data rate, the greater will be the energy consumed

• Higher is the radio frequency used, the greater will be the energy consumed

Energy efficient computations by using concepts of data aggregation, compaction and fusion