Assignment #4

Herewith is your assignment for this week. It is due by next lecture   We need to discuss your progress Wednesday evening

Assignment objective : to familiarize you with   various methods proposed in recent literature for IOT network performance optimization thorough analysis of certain design factors and requirements. Major factors discussed may include Reliability , scalability or energy efficiency. You will also review various suggested solutions implemented at different layers of IOT Architecture , to achieve the optimization of IOT performance

<u>**Research Plan   :**</u>   The papers cover the following subjects:

- An IOT & sensor networks performance optimization research subject (IOT reliability , IOT energy efficiency , scalability , security   , ….etc)
- Application of various Algorithm for solving the chosen networking optimization problem .

<u>**Assignment Tasks**</u> :Do the following in order :

<u>Group A</u>

1- Read the paper titled (**Energy and time efficient task offloading and resource allocation on the generic IoT-fog-cloud architecture)**
   This paper gives you an example how the energy and time efficient computation for tasks offloading and resource allocation for IoT -fog architecture is formulated into the energy and time cost minimization problem
2- Read the paper titled (**Energy Efficient and Reliable Transport of Data in Cloud-Based IoT**) This paper research shows   several strategies to ensure energy efficiency and reliability for transport of data , that can be implemented in the IoT-cloud system
3- Read the paper titled (**Energy efficient fog computing for 6G enabled massive IoT: Recent trends and future opportunities**) This help you see the overall application of different energy-efficient fog computing solutions for fog computing in the future 6G   massive IoT network
4- Read the paper titled (**Performance, Reliability and Scalability for IoT**) This paper discuss   the most important problem of QoS optimization, which lays in Performance, Reliability and **"Big Data"** Scalability for IoT .   Some advanced approaches for optimization of Performance, Reliability and Scalability   are offered .
5- Read the paper titled (**New Frontiers in IoT: Networking, Systems, Reliability, and Security Challenges**) This paper **discuss the unique challenges for reliability, security, and privacy posed by IoT systems due to their salient characteristics which include heterogeneity of devices and protocols, dependence on the physical environment,**

6- Read the paper titled(**A Survey on Architecture, Protocols and Challenges in IoT)   This paper surveyed various architecture and protocols used in IoT systems and proposed suitable taxonomies for classifying them**

<u>**Assignment duties**</u>

- Your assignment is to write a report of two sections for **two papers** selected from the above papers.   The report   is considered a literature review & summary for **each paper selected of the papers 1-6 of the** list above . The report should   covers **in short** : Summary Review of each article , type and methodology of the research work done in the article , the results concluded by the article , and Submit a short critique of the required readings. The critique should be about   three   pages report **with a PPT file** that summarizes the reviewed paper. The report should roughly cover the main points of the paper and a critical assessment of the work that has been done. (i.e the strengths and weaknesses of the article) . At the end of the report Write **a   detailed summary** with title **Suggestion of a future research topic**   that suggest a topic that you may consider a potential future work in the area **as concluded from reviewing these papers** . You may add to this also previous topics considered as future research topic on Assignment II.

- You may Search google scholar for recent papers on IOT network reliability & Security and scalability and include the   search results on your report at the reference section

- **Note : The** aim of this assignment & previous one is to get acquainted with **research topic** of IOT extracted from a large number of papers published in recent literature