Energy Consumption in Internet of Things (IOT)

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1 Introduction

The things we use such as laptop,mobile phones are connected to internet through optical fibres and are given a particular IP address to identify it.What if? every possible thing in this world are connected to internet and enables communication between people and things and between things themselves.The communication is enabled by sensors.Sensors are becoming the end points of IoT network and this network demands more number of sensors to increase the accuracy of data.In IoT network there is a problem of high energy consumption either due to the need of continuous data or during data transferring.So we have to take this into account and build a network with proper energy management.

2 Energy Management in IoT

Power consumption is one of the most important challenge in Wireless Sensor Networks(WNSs) as energy demand is increasing day by day.Survey report at the end of 2020 was that total energy demand has been increased to 75 percent as compared to 2000.As increasing applications in IoT,energy efficient techniques also evolving namely Predictive models for energy consumption, cloud-based approach,Duty Cycling Techniques etc. Predictive Models: Predictive models for energy consumption in IoT are indeed of vital importance. They have various applications such as predictive models for traffic, travel, models for controlling temperature and humidity.Models such as neural networks and Markov decision processes can be incorporated here Cloud-Based Approach: We generate a huge amount of data with the help of sensors.Cloud computing has reshaped the computing and storage services, which can be used to provide energy-efficient solutions for IoT.IoT involves billions of connected devices mainly communicating through wireless networks, their power consumption is a major concern and limitation for the widespread of IoT. Duty Cycling Techniques: With duty cycling, the energy conservation and increased network lifetime are achieved by alternating the operational mode of the IoT devices.They use the ability of an IoT device to operate in various modes to reduce the power being consumed.
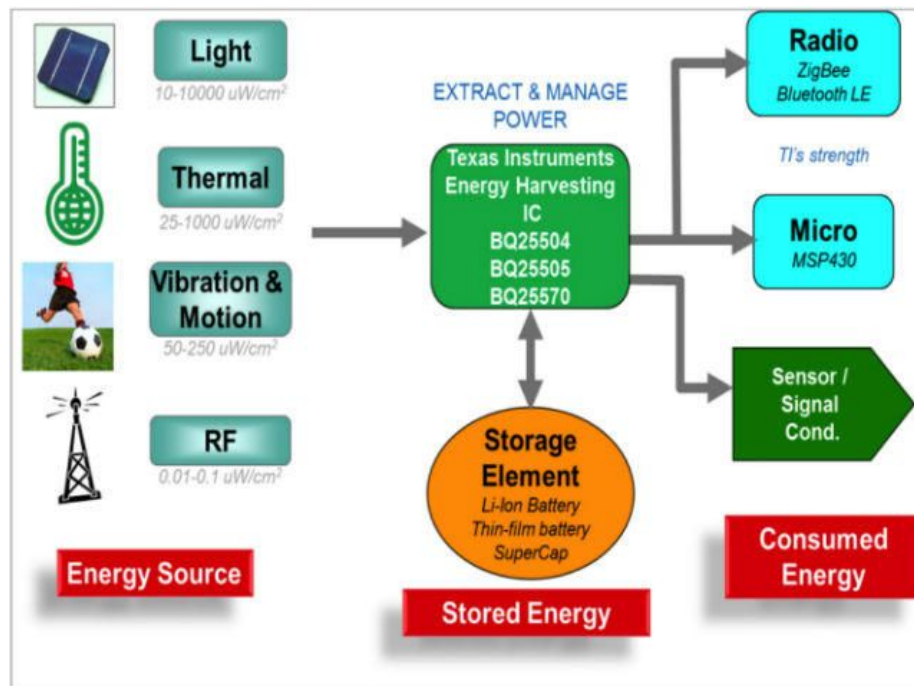
3 Conclusion

All the wireless sensors network will consume more power and moreover will operate for a finite duration.In-order to overcome this problem they have come up with an alternative technique called energy harvesting.Energy harvesting refers to harnessing energy from the environment or other energy sources and converting it to electrical energy.If the harvested energy source is large and periodically continuously available, a sensor node can be powered permanently.