PREVENTIVE MODEL ON QUALITY OF SERVICE IN IOT APPLICATIONS

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ABSTRACT

The Internet of Things (IoT) is a new paradigm that has changed the traditional way of living into a high tech life style. IoT applications such as smart homes and buildings, smart health care, smart environment, smart city, smart energy and grid, smart transportation and mobility, smart manufacturing and retail, smart agriculture, etc. are using billion devices and trillion sensors which generate enormous data with use of heterogeneous devices and networks every day. But an internet communication in IoT application creates a greater demand on the underlying communication, which affects the quality of service (QoS). QoS is another important factor for IoT can be defined as a measure to evaluate the quality, efficiency and performance of IoT devices, systems and architectures. The important and required QoS metrics for IoT applications are reliability, cost, energy consumption, security, availability and service time, end to end delay, throughput, jitter and packet delivery. With the increase in number of IoT device on the network, it has become essential to concentrate on QoS of devices and smooth data transformation over the networks. This research paper, surveying different challenges and key issues of IoT applications towards QoS such as reliability, interoperability, heterogeneity, energy, cost, security etc. Based on the survey identification we propose a better approach (or) model to reduce the QoS problems arrive in IoT applications. This research will also help the researchers to understand the challenges in various IoT applications and also discussed the adaptive models to increase the QoS in IoT.

KEYWORDS: *Quality of Service, Model, Wireless Sensor Network, IOT, Application*

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INTRODUCTION

The IoT is referred as the Internet of devices, will make a huge difference in our life including ourselves. The Internet greatly affects training, correspondence, business, science, government, humankind and more [1]. Unmistakably, the Internet is significant and extraordinary manifestations in all of mankind's history and now with the idea of the IoT, web turns out to be increasingly ideal to have a keen life in each angle [2]. IoT is a most recent innovation of the Internet getting to. By the IoT, objects perceive themselves and acquire knowledge conduct by settling on or empowering related choices thinks to reality can convey data themselves. These things can get to data that has been amassed by further things, or they can add to different services[3]. This IoT will give the Quality of Service to true the applications such Smart Home and Buildings, Smart Energy and the Smart Grid, Smart Health, Smart Transportation and Mobility, Smart Factory and Smart Manufacturing, Smart Environment, Agriculture and more[4,5].

Figure 1: Quality Applications in IOT.

Quality of Service in IOT Applications

Smart Cities

The IoT gives the accompanying offices in smart cities like *Efficient Water Supply* with smart meters can encourage spillage identification and reduce wastage of water; *Smart Traffic Management* it's simpler to deal with traffic blockage with smart traffic signals, *Reliable Public transportation* to deal with the basic circumstance like barriers or road blocks, transportation is upset. IoT devices can give constant bits of knowledge expected to execute plans to handle such issues and have sheltered, dependable and productive open transportation. *Energy Efficient Buildings* IoT development is making it less complex for building vitality proficient structure structures. With the utilization of IoT Smart Management Application that controls nonstandard heating, cooling, lighting, and fire-security systems. *Smart Parking* utilized GPS information from PDAs and video checking can help a vehicle driver to discover a parking space. *Smart Street lighting* faculties or tracks the development and modifies the lighting to reduce, light up or switch off or on naturally dependent on the earth. Healthy Environment with sensors can be joined to measure the nature of the water by looking at the degree of pH, air, soil, and so on. Waste Management IoT devices like sensors can be joined to a trash compartment that assembles the information about the degree of waste in the holder [6, 7, and 8].

Figure 2: IOT in Smart Cities

Smart Home and Buildings

The IoT as utilized in smart home and buildings to deal with *Smart Television* can associate web to get to information through different applications, for example, significant video and music [10]. *Smart lighting* frameworks can detect while occupants are in the room and change lighting varying. A *smart thermostat* permits shopper to design screen and remotely sort out home temperatures and furnish the inhabitants with greatest solace and effectiveness. *Smart thermostat* report energy utilizes and remains client to change channels, among further things. *Smart locks* distinguish when inhabitants are approach and open the entryways for them. Smart surveillance cameras screen their homes when they are left or on an excursion. *Pet care* computerized with associated feeders. Houseplants and gardens can be watered by method of associated clocks. Kitchen appliances of numerous kinds are accessible, including smart coffee producers that can make you a new cup when your alert goes off; smart coolers used to track of termination dates, make shopping records or even make plans dependent on fixings right now close by, *Household framework* detects an electric flood and mood killer machines or sense water disappointments or freezing funnels and mood killer the water so there isn't a flood in your cellar [11, 12, and 13].

Figure 3: IOT Applications in Smart Home And Buildings.

Smart Energy and the Smart Grid

A smart grid identified with the data and control created to have a smart energy board [17]. A smart grid that coordinate the data and correspondences advancements to the power system will empower a constant, two route correspondence among providers and purchasers, making increasingly unique association on vitality stream, which will help convey power all the more productively and sustainably[18]. The Key components of data and interchanges advances will incorporate detecting and observing advances for power streams; computerized correspondences framework to transmit information over the network; smart meters with in home presentation to educate energy utilization; coordination, control and computerization frameworks to total and procedure different information, and to make an exceptionally intuitive and dependable and can manage ordinary power changes and it will make a stride further towards utilizing a low carbon energy framework, by permitting combination between the sustainable power source and green advances, and offering numerous advantages to client in cost reserve funds through productive vitality use at home[19,20].

Figure 4: IOT Applications in Smart Grids and Smart Energy.

Smart Health

IoT utilized in health care for some individuals around the universes are experiencing the terrible wellbeing since they don't have prepared access to compelling wellbeing observing and might be a suspected to be as basic circumstance patients. Be that as it may, with little, ground-breaking remote arrangements associated through the IoT is presently making workable for checking to go to these patients. These arrangements can be utilized to safely catch tolerant wellbeing information from an assortment of sensors, apply complex calculations to break down the information and afterward share it through remote availability with clinical experts who can make proper wellbeing proposals.

IoT applications are used in health care for cancer treatment utilized rearrange care for the patients and care suppliers to distinguish the rising reactions and tended to rapidly and productively to improve the weight of treatment.. Smart continuous glucose monitoring (CGM) and insulin pens devices ceaselessly screen the patient blood glucose levels for a few times at a day, by taking readings at ordinary stretches. Closed-loop (automated) insulin delivery Open APS is a produces covers inhaler utilize that can be imparted to a patient's primary care physician and show whether they are utilizing it as

frequently as is recommended Ingestible sensors follow and improve how routinely patients take their drug, just as permit the patient to have an increasingly educated discourse with their doctor about their treatment. Connected contact lenses points could figure tear glucose and give an early admonition framework to diabetics to caution them when their blood glucose levels had dropped or ascended past a specific edge. The Apple Watch application that screens sadness, used to screen their temperament and cognizance were likewise found to compare with additional top to bottom and target discernment tests and patient-revealed results. Coagulation testing is utilized to assist patients with remaining inside their helpful range and lower the danger of stroke or draining and ready to transmit results to social insurance suppliers implies less visits to the facility. the objective range.[51]

Figure 5: IOT Application in Health Care [44].

Smart Transportation and Mobility

The improvement in transportation is the important elements to show the prosperity of the nation. A road condition checking and ready application is progressively significant of IoT change application [24]. The primary idea of smart transportation and mobility is to apply the standards of publicly supporting and participatory detecting. The procedure started with client distinguished the course wishes and denoted a few focuses as pothole in the PDA's application [25]. The smart transportation is managing three primary originations as indicated in Figure 6, they are transportation systematic, transportation control, and vehicle network. The transportation expository speaks to the investigation of interest expectation and inconsistency identification. The routing of vehicles and speed control notwithstanding traffic the board are completely known as transportation control which they quite identified with the method of the vehicles network (V2X correspondence), and by and large represented by multi-innovation dispersal.

Figure 6: IOT in Smart Transportation and Mobility.

Smart Factory and Manufacturing

Smart factory included another incentive in assembling unrest by coordinate's man-made brainpower, AI, and robotization of information work and M2Mcommunication with the assembling procedure [27]. The smart factory will on a very basic level change how items are created, fabricated and transported. Simultaneously it will improve laborer safety by empowering low discharges and low episode fabricating. These advances in the manner machines and different items convey and the subsequent manner by which dynamic moves from people to specialized frameworks implies that assembling becomes "more astute" [28]. New advances such as Automation, mechanical technology, and independent versatility are all giving a method for brilliant assembling yet M2Mcommunications empowered by the "modern" IoT will give a full importance of smart factory and manufacturing by the method of Big Data idea which in this specific situation, refers to the scientific prospects offered by the volume and assortment of information that is created by an organized economy to enhance the mechanical procedures to suggesting less support vacation, less blackouts and much reduced energy consumption[29].

Figure 7: IOT Applications in Smart Factory and Industry.

Smart Environment

Smart condition is a significant innovation in our regular daily existence which gives numerous offices and answers for some ecological applications, for example, water and air conditioning, climate and radiation observing, squander the board, cataclysmic event, and numerous other condition markers [33]. There are numerous utilizations of IoT in condition and that can be partitioned to two principle classes ecological assets the executives, and ecological quality and insurance management[34].The assets the board identifies with every single regular asset incorporate creatures, planets and woodlands, fowls and fishes, coal, oil, land, freshwater, air and substantial metals including iron, copper and gold. Every one of these assets is probably going to reduce fundamentally or influenced by a few elements, including pollution, waste, and misuse. IoT can gives a viable method to convey between every one of these assets sensors with examinant and checking focuses to settle on suitable choices in the utilization of these sources. Inexhaustible assets incorporate daylight, and twist likewise can be overseen and detected to Ideal use in a few uses, for example, the arrangement of sustainable power sources. IoT controls the sources and their use in a number of important applications in the environment [35].

The IoT innovation can observing and dealing with the air quality by to gathering information from remote sensor over the city, and giving full-time geographic inclusion to accomplish a method of better overseeing urban traffic in significant urban communities [36]. The IoT likewise can be utilized to gauge the degrees of contamination in water so as to advise choices on water use and treatment. Squander the board is likewise one of the most significant condition issues [37]. The different kinds of waste material compound or components can dirty nature and compromise life in various manners in ground impact on creatures, people groups and plants and notwithstanding air and water. IoT gives a natural assurance implies by control the modern contamination by ongoing observing and the board frameworks incorporated to management and dynamic systems to lessen squander, and improved condition [38].

Radiation obviously is one of the most major issues confronting environment of the earth. The radiation delivered by atomic force plants and a few enterprises adversely influenced safety of a natural and human wellbeing, creature and horticultural profitability [40]. For atomic radiations, radiation control IoT sensor arrange can consistent observing of radiation levels around atomic offices for spillage discovery and engendering anticipation [41]. The sensors organize shaped by remote connection many sensor gadgets in regions environmental factors atomic force plants with closes nearness to urban communities [42].

Figure 8: IOT Applications in Smart Transport.

Comparison of Quality of Service in Issues in Various IOT Applications

Table 1: Network Characteristics of IOT Technologies

Technology	Frequency	Limit / Range	Data Speed	Battery Life Span	Topology	Governing Body
RFID	1Giga Hertz	1 centimetres-100 meter	1-100 kilo bit per second	3-5 Years	P2P	Single Body
NFC	13.56 Mega Hertz	0.2 meter	424 kilo bit per second	3-5 Years	P2P	ISO/IEC
BLE	2.4 Giga Hertz	10-100 meter	1 mega bit per second	1 Years	P2P/Star/Tree /Mesh	Bluetooth SIG
Ant	2.4 Giga Hertz	30meter	1 mega bit per second	1 Years	P2P/Star/Tree /Mesh	Gamin
EnOcean	Sub-1 Giga Hertz	30-300meter	125 kilo bit per second	Months to Years	Mesh	EnOcean Alliance
Z-Wave	Sub-1 Giga Hertz	40-200meter	100 kilo bit per second s	Months to Years	Mesh	Z-wave Alliance
Insteon	sub-1 Giga Hertz	30– 50 meter	37.5 kilo bit per second	Months to Years	Mesh	Smart labs
ZigBee	sub-1Giga Hertz, 2.4 Giga Hertz	10-100meter	250 kilo bit per second	Months to Years	Star / Mesh / Tree	ZigBee Alliance
MiWi	sub-1Giga Hertz, 2.4 Giga Hertz	10-100meter	250 kilo bit per second	Months to Years	Star / Mesh / Tree	Microchip Technology

DigiMesh	sub-1Giga Hertz, 2.4 Giga Hertz	10-100meter	250 kilo bit per second	Months to Years	P2P Mesh	Digi International
Wireless HART	sub-1Giga Hertz, 2.4 Giga Hertz	10-100meter	250 kilo bit per second	Years	Mesh	HART Communication
Thread	sub-1 Giga Hertz, 2.4 Giga Hertz	10-100meter	250 kilo bit per second	Months to Years	Star / Mesh / Tree	Thread Group Alliance
6LowPAN	sub-1 Giga Hertz, 2.4 Giga Hertz	10-100meter	250 kilo bit per second	Months to Years	Star / Mesh / Tree	IETF
Wi-Fi	2.4 Giga Hertz, 5 sub-1 Giga Hertz (Wi-Fi HaLow)	100meter -1 kilo meter	1 mega bit per second to Giga bit per second	Days to Month	Star	Wi-Fi Alliance
NB-IoT	450 Mega Hertz-3.5 Giga Hertz	10-15 kilo meter	250 kilo bit per second	10+ years	Star	3GPP
Emtc	450 Mega Hertz-3.5 Giga Hertz	10-15 kilo meter	1 mega bit per second	10+ years	Star	3GPP
EC-GSM-IoT	90- 850 Mega Hertz	10-15 kilo meter	70-240 kilo bit per second	10+ years	Star	3GPP
LoRaWAN	sub-1 Giga Hertz	10-15 kilo meter	50 kilo bit per second	10+ years	Star of stars	LoRa Alliance
Symphony Link	sub-1 Giga Hertz	10-15 kilo meter	50 kilo bit per second	10+ years	Star	Link Labs
Weightless	sub-1 Giga Hertz	2 – 5 kilo meter	10 kilo bit per second- 10 mega bit per second	3-10 years	Star	Weightless SIG
SIGFOX	sub-1 Giga Hertz	10-15 kilo meter	100 kilo bit per second	10+years	Star	Sigfox
DASH7	sub-1 Giga Hertz	2 – 5 kilo meter	167 kilo bit per second	10+years	Star/Tree	Dash 7 Alliance

The tables clarify the network characteristics like frequency band, range, data rate, battery life, topology and governing body of the various technologies.

QoS issues of IoT Applications

Table 2: Traffic Characteristics of IOT Applications[47]

Application	Service	Traffic Rate	Delay Variance
Smart Home and Buildings	Building condition monitoring(excluding anomaly detection)	regular, 1 message every hour per device	low, tolerable delay 1 minutes
	Anomaly detection	irregular, rare	high, tolerable delay 3 seconds
	Lighting control	irregular, rare	high, tolerable delay 3 seconds
	Indoor climate control	regular, 1 message every 15 minutes per device	high, tolerable delay 5 seconds
	Smart appliances	irregular, rare	high, tolerable delay 3 seconds

	Energy and water use	irregular, rare	high, tolerable delay 3 seconds
Smart Health Care	Chronic disease management	regular, frequency based on the type of disease	high, tolerable delay based on the type of disease
	Personal condition monitoring	regular, 1 message every 10 seconds per device	high, tolerable delay 5 seconds
	Personal assistance	regular, 1 message every 10 seconds per device	high, tolerable delay 3 seconds
	Patients surveillance	regular, 1 message every 10 seconds per device	high, tolerable delay 3 seconds
Smart Environment	Forest fire detection	irregular, rare	medium, tolerable delay 15 Seconds
	Earthquake detection	irregular, rare	medium, tolerable delay 5 Seconds
	Tsunami detection	irregular, rare	medium, tolerable delay 5 Seconds
	Landslide and avalanche Detection	irregular, rare	high, tolerable delay 5 seconds
	Air pollution monitoring	regular, 1 message every 15 minutes per device	medium, tolerable delay 15 Seconds
	Wildlife tracking	regular, 1 message every 30 minutes per device	low, tolerable delay a few hours
Smart City	City energy and water consumption monitoring	regular, 1 message every 10 minutes per device	low, tolerable delay 1 minutes
	Lightning control	irregular, rare	medium, tolerable delay 15 seconds
	Parking tracking	irregular, rare	medium, tolerable delay 10 seconds
	Traffic management	regular, 1 message every 10 minutes per device; irregular for alarms	medium, tolerable delay 15 seconds; high for alarms
	Waste management	irregular, rare	medium, tolerable delay 30 seconds
	Urban conditions monitoring	regular, 1 message every 15 minutes per device; irregular for alarms	medium, tolerable delay 30 seconds; high for alarms
	Structural health monitoring	regular, 1 message every 15 minutes per device; irregular for alarms	medium, tolerable delay 30 seconds; high for alarms
Smart Energy and Grid	Smart metering	regular, 1 message every 15 minutes per device	medium, tolerable delay 15 seconds
	Asset management	regular, 1 message every 15 minutes per device	medium, tolerable delay 15 seconds
	Outage detection	Irregular, rare	high, tolerable delay near real time
Smart Transportation and Mobility	Vehicle automation	regular, 1 message every 24 hours per vehicle, irregular and frequent in vehicle-to-vehicle (V2V) communication	low, tolerable delay 1 minutes; high for V2V, tolerable delay near real-time
	Vehicle localization and Monitoring	regular, 1 message every 30 seconds per vehicle	medium, tolerable delay 10 seconds
	Quality of shipment conditions monitoring	regular, 1 message every 15 minutes per device	medium, tolerable delay 15 seconds
	Dynamic traffic lights	regular, 1 message every 1	high, tolerable delay 5

	control	minutes per device	seconds
	Road condition monitoring	irregular, rare	medium, tolerable delay 30 seconds
Smart Manufacturing and Retail	Production line	regular, frequency varies; irregular for alarms	usually high, tolerable delay a few seconds; high for alarms
	Inventory tracking	irregular, rare	medium, tolerable delay 10 Seconds
	Indoor localization	irregular, rare	high, tolerable delay 5 seconds
	Environment monitoring	regular, 1 message every 10 minutes per device; irregular for alarms	medium, tolerable delay 15 seconds; high for alarms
	Maintenance and repair Optimization	regular for condition re-reports, 1 message every 10 minutes per device; irregular for alarms	medium, tolerable delay 15 seconds; high for alarms
Smart Agriculture	Irrigation	regular, 1 message every 6 hours per device	low, tolerable delay 1 minutes
	Fertilization	regular, 1 message every 6 hours per device	low, tolerable delay 1 minutes
	Pest control	regular, 1 message every 6 hours per device	low, tolerable delay 1mi
	Animal monitoring	regular, 1 message every 6 hours per device; can be irregular	low, tolerable delay 1 minutes; high for alarms

Evaluation of Traffic Rate and Delay Variance

In the past segment, we characterized traffic qualities of IoT application services. To accomplish our goal, for example to decide with high exactness the requests on systems characterized by different IoT application situations, we recognized and examined the most regular administrations for each area, test ined the system setups proposed by different analysts, and joined the data with our exploration advantages to determine the results.

Together, we depicted 40 services from eight applications as appeared in Table. During the procedure; we experienced arrangements that were tending to a similar issue with marginally various designs, contingent upon the particular execution and creators' observation. We discover these distinctions totally adequate as there is no all inclusive response to every conceivable circumstance. The significant actuality is that the basic angles continued as before in all cases. In this way, our characterized traffic qualities can be viewed as the reference direct for proposing progressively effective arrangements and understanding the requests on organize advances from the IoT point of view.

Figure 9: Relationship Between Traffic Rate and Delay Variance in IOT Applications.

The connection between network traffic rate and network delay variance represented in Fig. 9. These qualities have been talked about for each help in IoT application areas, however no immediate correlation has been made between them. In any case, as appeared in Fig. 9, the connection is significant. In the dominant part cases, the network traffic rate additionally implies the system network delay variance, particularly concerning decent deferral. The normal model is the brilliant social insurance, where even minutes or changes in conditions can bring about a basic circumstance and along these lines administrations need to refresh information consistently and dependably.

In actuality, the network traffic rate and network delay variance are not equivalent each time in keen condition. This area doesn't send information all the time, however once an uncommon occasion is recognized, the framework should quickly trigger the alarm. Moreover, we might want to feature the issues and versatile model going to actualize to decrease the traffic rate and delay variance (Jitter) in different administrations of IoT applications. These investigations are fundamental for understanding the particular prerequisites of the IoT areas so we can plan more financially smart arrangements.

Preventive Model on Qos Issues in IOT Applications

Overview of Preventive Model

The proposed preventive model on Quality of service issues in IoT application consolidates three layers specifically physical, system (or) network and data (or) information. The essential objective is guarantee that to decrease real time traffic with less time prerequisites shows up to the end client with low postponement with unwavering quality necessities accomplishes a high throughput and high packet delivery ratio.

Figure 10: Preventive Model on Quality of Service Issues in IOT Application[47].

A. Physical Layer

It is accepted that the IoT application running over the heterogeneous traffic, information are produced routinely. Sensor hub produces a persistent progression of information at standard spans, for a considerable length of time a lot of online concurrent traffic the upstream way. IoT bargains trillion sensors, billion devices and million applications are producing and moving with utilization of Wireless Sensor Network (WSN) day by day. These sensors are making real time traffic, real time tolerant traffic, delay time traffic and delay tolerant traffic.

B. Network (or) System Layer

In network layer the sensor nodes have two way communications with the IoT access point. However no sensor-to-sensor communication is assumed. Each node generates packets of different types, depicted by different colors in the figure. The IoT access point, which acts as the IoT access point to the sensor network, relays the received packets to users through internet. The IoT access point may also act as cluster head for a particular physical space, hence the assumption of a multiple access point networks. The figure shows in comminutes traffic flows. Once they arrive at the IoT access point, they are allocated to the buffer queues. Here the main works of network layer differentiate the data based on its nature like RT-Rel

traffic source, RT traffic source, DT1 traffic source and DTn traffic source.

C. Data (or) Information Layer

It depicts queuing system for updating the buffer for data packets for transmission at the IoT access point. Upon arrival at the IoT access point at the IoT access point, the data will be allocated to different buffer queues based on its nature. To discriminate the traffic classes from each other, we assume that each sensor adds a traffic class identifier to its local sensor packets and put them into proper queues. This identifier represents the traffic class of each packet. A buffer is allocated for each traffic class. Hence increasing number of traffic classes imposes a greater number of required buffers as well as hardware requirements.

The figure illustrates a WFQ queuing system. Each class is served on a fixed weight to the related queue. The weight is allotted according to the traffic's QoS requirement, such as delay dead line. For instance let's consider a four class's job system with a finite buffer size K [60]. This means, the maximum number of packets that can be in the system at any time is K, and any additional packet are refused entry to system will depart immediately without service.

Example:

Weighted Fair Queue

WFQ calculates the finishing time all the packets and served based on the finishing time of the packets. WFQ is a dynamic process that divides bandwidth among queues based on weights. This process I designed so fair, such that WFQ ensures that all traffic is treated fairly with regard is weight. WFQ can prevent high-bandwidth traffic form over whelminutesg the resources of a network.

Packet	Arrival Time	Length	Finishing Time	Output Order
A	0	8	8	1
B	5	6	11	3
C	5	10	10	2
D	8	9	20	7
E	8	8	14	4
F	10	6	16	5
G	11	10	19	6
H	20	8	28	8

Figure 11: $\text{Finish}(i) = \text{Max}(\text{Arrive}(i), \text{Finish}(i-)) + \text{Length}/\text{weight}$

Table 3: Traffic Characteristics of IOT Applications[47]

Layer	Techniques	Process
Physical	Grouping	To group the data comes from various devices
	Router	Split the data into different IoT access point
Network	IoT Access Point	Received packets from sensor through internet
		Classify the flow based on Nature of data
		Allocates the data flow into the buffer queues
Data	Buffer	Store the data based on the flow types or traffic types
		Identify the traffic class of each packet
	Weighted Fair Queue	Fixed weight based on the Traffic
		Divides queue bandwidth based on weight of packet
		Execute the packet based on the finishing time
		Prevent high bandwidth traffic delay

CONCLUSIONS

The principle inspiration driving this research is to recognize the significance of IoT applications, for example smart home and buildings, smart health care, smart environment, smart city, smart energy and grid, smart transportation and mobility, smart manufacturing and retail, smart agriculture. Quality of Service (QoS) oversees information traffic to lessen bundle misfortune, idleness and jitter on the system. QoS controls and oversees organize assets by setting needs for explicit kinds of information on the system. It's important to decrease the system traffic and postpone fluctuation happens from heterogenous devices in different IoT applications, speed up and dependability of the information on the system. In this research QoS issues like jitter (delay variance) and traffic rate are recognized dependent on 8 applications with 40 services. A preventive model on QoS in IoT application proposed to handle various levels of real-time traffic and delay tolerant traffic with in sensor network. The proposed model is incorporated by three layers. The primary layer is the physical layer used to interface and gathering the information originates from different physical devices. The second layer is the system (or) data layer used to separate the information utilizing IoT access point and send the information to the buffer queue. The last layer is the information (or) data layer used to assign the different traffic streams into the buffer queues, Weighted Fair Queue Scheduling used to fix the weight dependent on the traffic; separates the line transfer speed dependent on loads of the every packet and execute the bundle dependent on the completing time. This model encourages the client to send the information in IoT applications with less time and low delay. This exploration encourages the researcher to distinguish the QoS issues in IoT application to tackle the issues with booking calculation. In future it is important to confirm the Quality of Service in IoT applications with WFQ algorithm, new algorithm going to implement based on the simulation tools and its results.

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