



APPLICABILITY IOT FRAMEWORK IN SMART CITY

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ABSTRACT

In the near future population in the urban areas is going to increase to 70% of the total population of the world and hence the future cities are need to be well operated and managed with lots of automation in various spheres of human life. IoT will act as the backbone for these Smart Cities and regular mundane activities like electricity consumption, pollution control, car parking, health monitoring would be handled with the help of IoT based devises Designing a general framework for the smart city is not feasible due to difference in sensor types, total number of sensors, mode of connectivity and its security levels. This paper gives an outline on architecture system in the Smart City and proposes a framework for addressing traffic issues faced in transportation. The proposed framework caters the traffic issues faced by citizens using a RFID tagging methodology based on ubiquitous network architecture. The approach uses three tier architecture of sending and retrieval of alters to the users on a mobile phone aiding in transportation. With the expansion of urbanization, IoT is tending to become a necessity rather than a luxury. Studies are conducted at various levels to design optimized frameworks for IoT capable of storing and processing huge volume of data without compromising on security.

Keywords: - Smart City, Internet of Thing (IOT), IT, Government, Communication.

I. INTRODUCTION

The current trend of innovation in IT industry is Internet of Things (IoT) and it has extremely high potential to innovate all spheres of our life. There are different ways of implementing this technology which is being studied and implemented all across the world. Scientists are finding areas where IoT concepts can be used to make systems completely automated. There are different types of architectures which are used in IoT namely network centric, cloud centric and data centric IoT. Each of these infrastructures has their own respective communication and computation methods. IOT based systems can be categorized in two ways based on their internet based or object based frameworks. Internet based IoT depends on internet for connecting processing of information while in object base IoT, devices are controlled with the help of a controlling device which processes the data as well. In both the instances use of networks is essential.



II. THE SMART CITY

A City has three important dimensions given as below:

- a. Technologies applied in the city.
- b. Citizens and other people living in the city.
- c. Communities running in the city.

Depending on the functionality level of these three dimensions, a city can be defined in many ways e.g. digital city, ubiquitous city, creative city, smart community city etc. The smart city is a city which has a high level of commitment and functionality of aforementioned three dimensions.

The proliferation of human being is a serious issue for the ruling government in all countries worldwide. Governments have to face the challenges in providing the resources to inhabitants at economical prices without shortage and maintain the supply in respect to demands. Apart from this, it has to also be perceptive to the environment and avoid wastage juxtaposed with optimum utilization of the available resources. Maintaining security standards and managing the increasing traffic rush on the roads through better manageable techniques are considered. In urban development plans, it is proposed to bring many information and communication technology (ICT) to improve the quality of life. ICT enhances the quality and performance of urban services reduces the resource consumption and its associated cost and establishes a healthy and fruitful contact between government and citizens. The integration of ICT in the urban development plan has introduced the concept of smart cities, where all cities namely schools, libraries, hospitals, water supply, power supply, transportation, and security etc. will be managed by applying the modern technological solutions. City at the major level would be keeping up with track in and maintaining affordability at respective level. In a smart city, individual homes would be subsumed with the automation system. A home automation system includes several peripherals in the form of appliances or electrical load, responding to stimuli to sensor or detector generated by any human being. They are of wireless type over a single local host server operational through an android device or desktop.



Figure 1. Schematic of a smart city

Smart City Frameworks and City Information

Difficulties for the arranging, improvement, and operation of urban communities are empowering new reasoning in different callings. Experts crosswise over design, urban arranging, building, development, data innovation, frameworks and natural science, property advancement, back, and metropolitan government procure a more grounded comprehension of partners and get bits of knowledge with respect to how best to connect with them. Frameworks models that are equipped for seeing profoundly into how urban areas function, how individuals utilize the city, how they feel about it, where the city faces issues, and what sorts of progress can be connected could be utilized for savvy city advancements. A similar framework is utilized 24 hours per day, seven days seven days by different partners - residents, laborers, understudies, analysts, financial specialists or on the other hand business people. A city can be seen as an arrangement of stake holder slider group and group associations, business group what's more, business people, nearby individuals and occupants, neighborhood specialist and neighborhood administration, metro associations, scholastic group and instructive foundations with their contending advantages.

III. MODEL OF SMART CITY

IoT (internet of things) is the device of bodily articles gadgets, motors, systems and various things hooked up with hardware, programming, sensors, and device availability that empower these gadgets to acquire and change facts. The web of factors allows gadgets to be detected and managed remotely crosswise over existing gadget foundation.

The model is based on the Internet of Things (IoT) applications.



1. Smart Home.
2. Smart Apartments.
3. Smart Traffic Control.
4. Smart Environment and Pollution Control.
5. Smart Power Grids
6. Smart Health Care.
7. Smart Transportations
8. Smart Highway Systems.
9. Smart Weather Monitoring System.
10. Smart Garbage Disposal System.
11. Smart Logistic System
12. Smart Water Purification and Distributions.
13. Smart Banking.
14. Smart Education System.
15. Smart Tube Railway Ticketing System.
16. Smart Plate form Ticketing System
17. Smart manufacturing and Industries



Figure 2. Smart City Model

Smart Parking: Constant checking of parking places openness in the metropolitan city influencing tenants to recognize and hold the nearby available parking. Diminishing in surge hour gridlock stops up and extended salary from dynamic esteeming could be a segment of the points of interest and what's more less demanding commitment with respect to action administrators seeing safe utilize.

Smart Homes

Smart development is a strategy for interfacing your property through inventive advancement to control and supply settlement holders an "on-ask for get right of entry to to diverse systems all



through your house. From video, facts, phone, faraway, protection, environment, lighting and other home life-style factors that impact you and your own families little by little life. First-rate home advancement can help your stupendous hammer extra viably while also supporting relatives live in full scale comfort whilst at domestic or away.

Smart Apartments

A Smart Apartment can be characterized as a structure that utilizes computerized procedures to control building operations, for example, warming, ventilation, aerating and cooling, lighting, security, and different frameworks. A decent case is the vitality reserve funds conceivable by exploiting enhanced innovation and materials in structure, apparatuses, electrical frameworks, pipes, and HVAC. Through a computerized procedure of observing and control, a keen building can likewise add to inhabitants' solace level.

Smart Traffic Control

IOT is a development which utilizes web to control the physical things. Utilizing IOT we can get result which is more exact, fast and correct. In IOT all database will be put away in PC. This stockpiling is done through web. Later this database is utilized in like manner to their prerequisites and applications. Parts can be gotten to from far place by utilizing IOT, subsequently it decreases human work or contribution. This makes speculation of framework less. Every single distinctive convention can be utilized in like manner to particular area in IOT.

Smart Environment and Pollution Control

The IoT has a huge part to play in future brilliant cities. The IoT can be utilized as a part of essentially all situations for open administrations by governments. IT Sensor- empowered gadgets can help screen the ecological effect of urban communities, gather insights about sewers, air quality, and rubbish. Such gadgets can likewise help screen woods, streams, lakes, and seas. Numerous ecological patterns are complex to the point that they are hard to conceptualize.

Smart Grid

The vitality matrix improvement requires various highlights as recorded beneath keeping in mind the end goal to actualize the vision of the brilliant network idea.

- It will coordinate conventional and rising force sources and make the conveyance of vitality cleaner, more secure, and more efficient.
- Operators will have the straightforwardness and perceivability to screen and dissect



- The stream of vitality, and two-route correspondence with customers' savvy meters to dissect utilization designs.

Smart Health Care

The market for prosperity checking devices is at exhibit depicted by software-based game plans which are usually non-interoperable and are included different models. While solitary things are expected to cost centers around, the whole deal target of achieving lower development costs transversely finished present and future divisions will unavoidably be outstandingly trying unless a more solid approach is used. The IoT can be used as a piece of medical care in which hospitalized sufferers whose physiological fame requires close notion can be continually checked the usage of IoT - pushed, noninvasive watching.

Smart Transportation

Savvy transport uses can oversee every day movement in urban communities utilizing sensors and insightful data preparing frameworks. The fundamental purpose of astute transport systems is to confine action obstruct, ensure basic and trouble free ceasing, and stay away from mischances by legitimately directing movement and spotting alcoholic drivers. The sensor advances representing these sorts of utilizations are GPS sensors for area, accelerometers for speed, and gyrotors for bearing, RFIDs for vehicle recognizing confirmation, infrared sensors for checking voyagers and vehicles, and cameras for recording vehicle advancement and movement.

IV. CONCLUSION

IoT is the future of technology in creating SMART cities and it can be used for efficiently and effectively by planning the systems capable of processing data within minimum amount of time. The new technologies like 5G and IDRA can help in the application of IOT on a grand scale proficient in handling large amount of data and with optimum real time processing capacity. Thus generation of new ideas and frameworks for the creation of an automated system are required. IoT is the key to connect the world with the usage of sensor based technologies in every street and home and making human life smarter in the future days ahead.



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