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"Detailed Study on Making Prototype of Proposed Smart and High Tech City"

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Abstract: Smart and high- tech metropolises represent the zenith of civic invention, using slice- edge technologies to enhance effectiveness, sustainability, and quality of life for residers. This composition provides a comprehensive study of the crucial technologies driving the elaboration of smart metropolises, including Internet of effects (IoT) bias, artificial intelligence(AI), big data analytics, renewable energy, and civic mobility results. Also, it explores the counter accusations of these advancements on colourful aspects of civic life, similar as transportation, energy operation, healthcare, and governance. By examining recent developments and unborn prospects, this paper aims to contribute to a deeper understanding of the openings and challenges associated with the metamorphosis towards smarter and further sustainable metropolises.

Keywords: smart city, Artificial intelligence, Internet of effects, detectors.

I. INTRODUCTION

A smart mega city is an civic area that leverages digital technology and data to ameliorate the effectiveness, sustainability, and quality of life for its residers. It integrates advanced communication networks, data analytics, the Internet of effects (IoT), and other innovative technologies to optimize the use of coffers, enhance public services, and foster profitable growth. Agitating about sources from lorakart.com the global smart metropolises technology request is presently anticipated to grow from$8.8 billion annually in 2014 to further than$27.5 billion by 2023. According to this report, The leading players in this request not only have the capacity to give perfect leadership on large- scale systems by fulfilling the colorful conditions of these Smart metropolises, but also they're delivering the smart structure, IT, and smart dispatches results to these metropolises, which are supporting metropolises across the multiple functional and structure problems, and also having established the global presence. " This kind of reports examine the perfect strategies and the prosecution of the 16 different leading smart megacity suppliers with good capacity to give the leadership on veritably large- scale smart megacity systems and gauging over multiple functional and service areas. These smart mega city systems suppliers are rated always on 10 different criteria vision, go- to- request strategy, mates, product strategy, geographic reach, request share, deals and marketing, product performance and features, product integration, and staying power.

II. OBJECTIVE

The main goal of a smart city is to optimise city functions and promote economic growth while also improving the quality of life for citizens by using smart technologies and data analysis.

1) *Resilience* - A smart city utilizes technology that works to decrease fatalities caused by things such as road traffic, fires, and homicides. Applications designed to increase public safety include things like gunshot detection, smart surveillance, and real-time crime mapping. When citizens have access to such tools they will be able to shave a significant amount off of emergency response times, which could make all the difference in a life or death situation. Additionally, smart cities are able to ease traffic congestion by having intelligent traffic signal systems, real-time navigation alerts, and smart-parking apps. Each of these tools can safely and efficiently guide citizens where they need to go no matter what may be happening on the roads.
2) *Sustainability* - Sustainability has only become more popular as things like industrialization and consumption rates continue to rise. A city becoming more sustainable will not happen right away, but arming citizens with tools that make them more aware of their carbon footprint will decrease emissions significantly. Water-consumption tracking and air-quality monitoring applications provide real- time information with the public enabling them to adjust their lifestyle to be more sustainable, and protect themselves from harmful airborne pollutants.

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3) *Inclusivity* - The role of technology in healthcare, transportation, and social connectedness works to create more inclusive cities. Utilization of technology in healthcare has created options for patients to easily receive the medical attention that they need and prevent the spread of diseases. Options such as telehealth are helpful for citizens with a chronic illness or disability; telehealth combats physician shortages and is a convenient option for people who are unable to drive or get to an appointment on their own. If telehealth is not an option, applications that allow users to easily navigate public transit, or e-hail a ride, make transportation more accessible than ever. Inclusion may also stem from the increase in social connectivity that has resulted from smart cities. Social media platforms are a great example of inclusion, as they give people a way to communicate with their local officials and other community members. Additionally, online tools like E-career centers contribute to a community's inclusiveness by helping people to get employed at any skill level. Although smart technologies may eliminate some jobs, things such as maintenance, driving roles, and temporary installation jobs have created new opportunities as well.

III. LITERATURE

A. *Amsterdam*

To promote efforts from local residents, the City runs the Amsterdam Smart City Challenge annually, accepting proposals for applications and developments that fit within the City's framework. A number of homes have also been provided with smart energy meters, with incentives provided to those that actively reduce energy consumption. Smart traffic management for Amsterdam where traffic is monitored in real time by the City and information about current travel time on certain roads is broadcast to allow motorists to determine the best routes to take.

B. *Barcelona*

It has established a number of projects that can be considered 'smart city' applications within its "CityOS" strategy. Barcelona has also designed a new bus network based on data analysis of the most common traffic flows in Barcelona, utilising primarily vertical, horizontal and diagonal routes with a number of interchanges.

C. *Copenhagen*

In 2014, Copenhagen claimed the prestigious World Smart Cities Award for its "Connecting Copenhagen" smart city development strategy Positioned in the Technical and Environmental Administration of Copenhagen, the smart city initiatives are coordinated by Copenhagen Solutions Lab, the city's administrative unit for smart city development.

D. *Dubai*

In 2013, the Smart Dubai project was initiated by Shaikh Mohammad bin Rashid Al Maktoum, vice president of UAE, which contained more than 100 initiatives to make Dubai a smart city by 2030. There is also the Dubai Municipality's Digital City initiative which assigns each building a unique QR code that citizens can scan containing information about the building, plot, and location.

IV. PROPOSED DETAILED METHODOLOGY OF SOLVING IDENTIFIED PROBLEMS

A smart city roadmap consists of four/three the first is a preliminary check major component:

1) Define exactly what is the community may be that definition can condition what you are doing in the subsequent steps; it relates to geography, links between cities and countryside and flows of people between them; maybe – even – that in some Countries the definition of City/community that is stated does not correspond effectively to what – in fact – happens in real life.
2) Study the Community: Before deciding to build a smart city, first we need to know This can be done by determining the benefits of such an initiative. Study the community to know the citizens, the business's needs – know the citizens and the community's unique attributes, such as the age of the citizens, their education, hobbies, and attractions of the city.
3) Develop a smart city Policy: Develop a policy to drive the initiatives, where roles, responsibilities, objective, and goals, can be defined. Create plans and strategies on how the goals will be achieved.
4) Engage The Citizens: This can be done by engaging the citizens through the use of e- government initiatives, open data, sport events, etc.

In short, People, Processes, and Technology (PPT) are the three principles of the success of a smart city initiative. Cities must study their citizens and communities, know the processes, business drivers, create policies, and objectives to meet the citizens' needs.

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Then, technology can be implemented to meet the citizens' need, in order to improve the quality of life and create real economic opportunities.

V. SCOPE OF SMART CITY IN INDIA

India started the development of these smart city projects at the global level. Indian Prime Minister Narendra Modi's vision of 'Digital India', has a plan to build atleast 100 smart cities across India. Which he use to speak in his speeches also and highlighting that, "Cities in the past were built on riverbanks but now these cities are built along highways. But in the future, these cities will be built based on availability of optical fiber networks and next- generation infrastructure." The Government of India has launched several initiatives aimed at fostering the development of smart cities and promoting green building practices across the country. These initiatives are part of the government's broader vision to create sustainable urban environments and improve the quality of life for residents. Here are some key initiatives:

A. Smart Cities Mission:

Launched in 2015, the Smart Cities Mission aims to transform 100 cities across India into smart cities by leveraging technology and innovation. The mission focuses on improving urban infrastructure, enhancing quality of life, promoting sustainable development, and fostering economic growth. Each selected smart city develops its own Smart City Proposal (SCP) outlining its vision, goals, and specific projects across various sectors such as transportation, housing, water management, and waste management. hrough the Smart Cities Mission, the government provides financial support and technical assistance to implement smart solutions tailored to the unique needs of each city.

B. Atal Mission for Rejuvenation and Urban Transformation (AMRUT):

Launched in 2015, the AMRUT scheme aims to improve basic urban infrastructure in 500 cities across India. The mission focuses on providing basic services like water supply, sewerage, and urban transport, with an emphasis on sustainability and inclusivity. AMRUT projects aim to enhance the quality of life for urban residents, particularly those in low-income communities, by ensuring access to essential services and infrastructure.

C. Green Building Initiatives:

The government has introduced various initiatives to promote green building practices and sustainable construction methods across the country. The Leadership in Energy and Environmental Design (LEED) India certification, administered by the Indian Green Building Council (IGBC), recognizes buildings that meet high standards of environmental performance and energy efficiency. The Bureau of Energy Efficiency (BEE) implements the Energy Conservation Building Code (ECBC), which sets minimum energy performance standards for new commercial buildings and major renovations. The National Mission on Sustainable Habitat (NMSH) aims to promote sustainable urban planning and development practices, including green building design and construction.

D. Pradhan Mantri Awas Yojana (PMAY):

Launched in 2015, PMAY aims to provide affordable housing to all eligible beneficiaries by 2022. The mission includes the construction of affordable and sustainable housing units, with a focus on promoting green building practices and incorporating energy-efficient design features. PMAY aims to address the housing needs of economically weaker sections, low-income groups, and middle-income groups through various housing schemes and financial assistance programs.

VI. FUTURE SMART CITIES APPLICATION FRAMEWORK

The use of the latest technology is inevitable for solving urban issues in a citizen-centric way. Smart cities are based on six fundamental pillars, which are composed of smart life, smart economy, smart governance, smart environment, smart power, smart communication, and smart transportation.

VII. CONCLUSION

The concept of smart cities represents a paradigm shift in urban development, harnessing the power of technology to address the complex challenges faced by rapidly growing urban populations. Through the integration of Internet of Things (IoT) devices, artificial intelligence (AI), big data analytics, renewable energy, and sustainable infrastructure, smart cities aim to optimize resource usage, enhance efficiency, and improve the overall quality of life for residents.

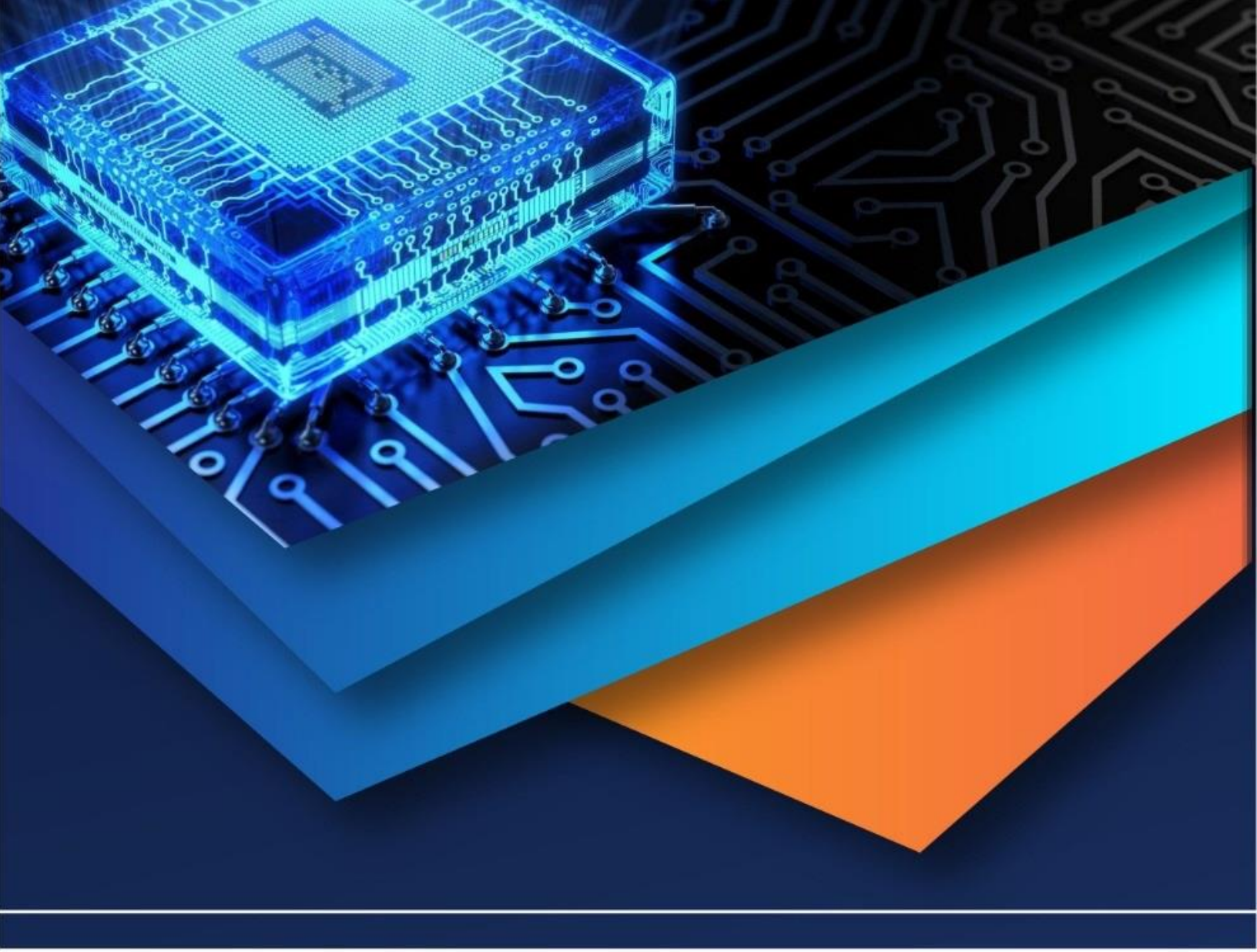
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Looking ahead, future directions for smart cities will involve the continued integration of emerging technologies such as 5G, blockchain, and Internet of Everything (IoE), as well as a focus on addressing equity and inclusivity, ensuring data privacy and security, and fostering cross-sectoral collaboration and stakeholder engagement. By embracing innovation, leveraging partnerships, and prioritizing the needs of citizens, smart cities have the potential to unlock new opportunities for economic growth, social development, and environmental stewardship in the years to come.

REFERENCES

[1] Deakin, Mark; Al Waer, Husam,"From Intelligent to Smart Cities". Journal of Intelligent Buildings International: From Intelligent Cities to Smart Cities. 3 (3): 140–152 (2011).
[2] Deakin, Mark "From intelligent to smart cities". In Deakin, Mark (ed.). Smart Cities: Governing, Modelling and Analysing the Transition. Taylor and Francis.p. 15. (2013).
[3] Castro P S, Zhang D, Li S. Urban traffic modelling and prediction using large scale taxi GPS traces. In: Proceedings of 10th International Conference, Pervasive 2012, Newcastle, 2012. 57–72.
[4] Al-Hader M, Rodzi A, Sharif A R, et al. Smart city components architecture. In: Proceedings of International Conference on Computational Intelligence, Modelling and Simulation, Brno, 2009. 93–97
[5] Bowerman B, Braverman J, Taylor J, et al. The vision of a smart city. In: Proceedings of 2nd International Life Extension Technology Workshop, Paris, 2000 Chourabi H, Nam T, Walker S, et al. Understanding smart cities: an integrative framework. In: Proceedings of 45th Hawaii International Conference on System Science, Maui, 2012. 2289–2297
[6] Tiwari A. Urban sciences, big data and India's smart initiative. Global J Multidiscip Stud, 2014.

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