

Issues Plaguing Smart Cities: How IoT Can Help Turn These Into ‘Purely’ Smarter Ones

If you thought that the word ‘smart’ has really added value to the concept of smart cities announced by our Prime Minister Narendra Modi last year, then you could think again, as these smart cities still have nagging technical issues that need to be addressed on an urgent basis.

Experts feel that deployment of the Internet-of-Things (IoT) and smart concepts could solve majority of the plaguing issues.

“The proposed smart cities range from Varanasi to Dholera to Amravati, covering Brownfield and Greenfield areas. Benchmarks would be different for both; given lack of significant Internet penetration. Brownfield smart cities cannot, for instance, focus on skyscrapers or lavish promenades first.”, states Ajay Godara, director at Chandigarh-based Enovation Lab LLP. Ajay is also an avid IoT researcher who is also involved in designing and automating robots

With technical issues and effective IoT deployment being the criteria, let us look at some intense issues that have seemingly hit smart cities hard. We also consulted IoT domain experts who even suggested amicable solutions for these issues:

Issue 1 – Massive power shortage; even smart cities aren’t spared by the monster

A surprising aspect here is that the experts who we consulted rated power shortage as a major issue plaguing smart cities in India.



A Smart Electricity Meter

“Power is still a scarce resource in India. Even if it is available, the quality is mostly not guaranteed.”, states Shajee Kozhukkunnon who is a senior regional manager at Moxa India Industrial Networking Pvt. Ltd. Moxa is into smart solutions development.

If you felt that only some states/cities in India are hit by power shortage, you could be wrong; as the estimated power shortage is said to be a massive 30,000MW daily. Though

individual state governments are putting in efforts to mitigate this issue, the imbalance in the demand vs. supply ratio still exists and turns worse during the summer months.

Issue 2 – Tricky Indian climate

Seems strange, yet realistic, IoT experts with significant knowledge of smart cities feel that the varied climate also poses a challenge in making smart cities truly smarter.

“The electronics is out on the street namely camera, networking equipment, sensors, and computers”, states Shajee who also believes that there are currently very few smart solutions manufacturers present to provide solutions to ‘rugged’ challenges.

“India has such a varied climate in terms of Temperature, Humidity & Rain and very few manufacturers are present in this sector to provide rugged solutions. Users are finding it difficult to find the products and solutions for this kind of environment.” adds Shajee.

As smart city solutions need implementation outside of plush luxury settings (like the air-conditioned data centers), the actual hardware equipment must be built to withstand drastic climatic conditions. This also means that manufacturers should not tune these devices to operate in only the prevalent climatic conditions.

“Smart equipment for external deployment; such as earthquake sensors deployed at sensitive regions, should be tuned to digest climatic changes like sudden occurrence of draught, intense piercing sunlight, rise in temperatures, fall in temperature, and more,” states a seasoned smart solutions provider working exclusively on the smart cities vision of the Indian government, on the condition of anonymity.

Issue 3 – Vehicular traffic – the Achilles’ heel; can’t there be a smart system here?

To the common man, the issue of vehicular traffic resulting in an increase in the commuting times between any two points in a smart city looks unsolvable. However, IoT experts tend to think that they can build solutions to regulate traffic flow within cities. As per Ganesh, deployment of IoT solutions can help reduce traffic issues by enabling people find shared transportation much faster than the current system which means that there would be lesser number of people driving individually in their cars to work every day.

Actually, smart concepts can be implemented in situations where there has been a vehicular breakdown in a busy junction, and this information is communicated to all car owners (individually) in a city through the cloud via smartphone apps (even SMS is feasible) so that alternate routes can be taken by drivers.

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A Smart Traffic System

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“The alternate routes can have smart systems which dynamically create a ‘green traffic corridor’ during the peak hours for vehicles to pass through without having to wait in signals and choke this road as well”, opines the IoT expert (who requested anonymity).

Other solutions to handle traffic include smart alcohol detection kits, smart violation reporting and penalizing systems (without human intervention), along with smart traffic signal systems that are aware of the peak traffic hour and automatically accord priority to peak hour routes.

Issue 4 – E-Governance sucks

Main reasons for less than impressive implementation of e-governance aspects has been attributed (by experts) to poor security. However, Ajay feels that there is still time for this domain to oversee a rejuvenation.

Implementation/Deployment of secure Information and Communication Technologies (ICT) infrastructure consisting of wireless hotspots, fiber optics, and efficient Wi-Fi routers are aspects that can potentially mitigate connectivity issues plaguing e-governance in Indian smart cities.

Another aspect with respect to e-governance is complete digitization of land records; this project though announced ambitiously by all governments has failed to take off as expected. Ajay opines that implementation of smart sensors will help in proper survey of land thereby leading to creation of a digital land inventory which makes it easy to store records related to a particular piece of land.

Finally, refine conventional approaches

Issues here refer to the overall governance, security, and the general maintenance of smart cities. Expert suggest that

networking. For generalized security, there are solutions already available that can simply be tweaked to add the extra degree of smartness.



IoT will help in better digitizing land/property records in smart cities

“After becoming used to the smart facilities, people will not tolerate breakdowns and might create chaos. Hence the preventive/predictive maintenance will be a crucial factor for smart cities”.

“The connected equipment with predictive indicators/ health check indicators will be mandatory in future, and this can be incorporated with IoT solutions easily. This will give peace of mind to the users and consultants of smart cities.”, says Shajee.

As per the anonymous IoT expert, micromanagement plays a key role in making smart cities truly smarter. Not every aspect of smart cities are Internet-driven. Educating citizens is the need of the hour.

“By following the above recommendations, compound solutions can be designed to solve issues that can resolve commercial as well as social parametric losses over the long-term and help build a truly digital nation.”, adds Ganesh.

“We need to move beyond smart cities that defined solely by economic or software parameters.”



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