

# Hi-Tech Smart City System: A Review Paper

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**Abstract:** This paper take one step towards the smart city. It offers a view of the city where service providers use information technologies to engage with citizens to create more effective urban organizations and systems that can improve the quality of life. Integrated cloud-oriented architecture of networks, software, sensors, human interfaces, and data analytics are essential for value creation. In this system mainly focus on roadways, bus station, parking system, Signal station and smart way to generate electricity.

**Index Terms:** Software Prototyping, Microcontroller, Display unit, Pollution detection, Green electricity generation on road, Automatic parking system.

## INTRODUCTION

The smart city concept represents a compelling platform for IT-enabled service innovation. The emerging Internet of Things (IoT) model is foundational to the development of smart cities. IoT smart-connected products and the services they provision will become essential for the future development of smart cities.

This system will explore the smart city concept and propose a strategy development model for the implementation of IoT systems in a smart city context

In this paper manually turning on of street light is converted into automatic street light turned on. If there is darkness in the atmosphere then only the street light will be turn on and also these light will be turn on up to 30 percent of brightness only as if there is no vehicle/person and if there is vehicle/person then there is 100 percent of brightness of street light turn on automatically. Using pollution detection sensor here we detect pollution rate. this sensors are placed near to signal station or bus stop and pollution rate is display on display. on this display there is also some other social updates or more artical those helpful for us.

Intelligent parking system is also there to detect the number of vehicles and display the count to the display. Electrical Energy generation from the vehicles is also going to implement in the same. To stop the vehicles when there is red signal, there will be mechanical rod which will come on red signal, which is mounted inside of road in the upside direction and whenever there is green signal, rod will be go downside so that vehicles can go easily.

## 1 LITERATURE SURVEY

[1] Chourabi, C. Nam, S. Walker et al.

They have proposed an Understanding smart cities. Making a city smart is emerging as a strategy to mitigate the problems generated by the urban population growth and rapid urbanization. Yet little academic research has sparingly discussed the phenomenon. To close the gap in the literature about smart cities and in response to the increasing use of the concept, this paper proposes a framework to understand the concept of smart cities. Based on the exploration of a wide and extensive array of literature from various disciplinary areas we identify eight critical factors of smart city initiatives: management and organization, technology, governance, policy context, people and communities, economy, built infrastructure, and natural environment. These factors form the basis of an integrative framework that can be used to examine how local governments are envisioning smart city initiatives. The framework suggests directions and agendas for smart city research and outlines practical implications for government professionals.

[2] R. E. Hall et al.

He has proposed "The vision of a smart city". The vision of Smart Cities is the urban center of the future, made safe, secure environmentally green, and efficient because all structures - whether for power, water, transportation, etc. are designed, constructed, and maintained making use of advanced, integrated materials, sensors, electronics, and networks which are interfaced with computerized systems comprised of databases, tracking, and decision-making algorithms.

[3] A. Markkanen et al.

He has proposed "The Internet of Things Will Drive Wireless Connected Devices". The smart city concept represents a compelling platform for IT-enabled service innovation. It offers a view of the city where service providers use information technologies to engage with citizens to create more effective urban organizations and systems that can improve the quality of life. The emerging Internet of Things (IoT) model is foundational to the development of smart cities. Integrated cloud-oriented architecture of networks, software, sensors, human interfaces, and data analytics are essential for value creation. IoT smart-connected products and the services they provision will become essential for the future development of smart cities. This paper will explore the smart city concept and propose a strategy development model for the implementation of IoT systems in a smart city context.

[4] T. Nam, T. A. Pardo et al.

They have proposed "Conceptualizing smart city with dimensions of technology people and institutions". This conceptual paper discusses how we can consider a particular city as a smart one, drawing on recent practices to make cities smart. A set of the common multidimensional components underlying the smart city concept and the core factors for a successful smart city initiative is identified by exploring current working definitions of smart city and a diversity of various conceptual relationships similar to smart city. The paper offers strategic principles aligning to the three main dimensions (technology, people, and institutions) of smart city.

[5] Rico, J., Sancho, J., Cendon B., Camus, M. They have proposed Parking easier by using context information of a smart city. In the great majority of cities it is difficult and hardly expensive to create more parking spaces for vehicles since they have almost reached its full occupancy. Combining this problem with an inefficient use of parking spaces leads to congestions due to aggregation of parking seekers and regular drivers. Recent advances in low-cost, low-power embedded systems bring the opportunity to develop new applications to solve these problems. In particular, Smart Cities greatly enrich their sustainability by introducing new resource management applications that rely in those constrained devices a significant part of the functionality of the system. The proposed Smart Parking solution consists mainly in the on-site deployment of an IoT solution to monitor and signalize the state of availability of each single parking space, as well as using context information generated by the city and its citizens to provide accurate responses to driver's demands. Furthermore, this system improves the management of parking resources by public authorities, for instance handling groups of parking spaces facilitating the whole city traffic management.

[6] Zhou, F., Li, Q.

They proposed "Parking Guidance System Based on ZigBee and Geomagnetic Sensor Technology". Lately the idea of savvy urban areas has increased extraordinary prevalence. Because of the development of Internet of things keen city now is by all accounts achievable. Predictable endeavours are being made in the arena of IOT keeping in notice the end goal to augment the profitability and dependability of urban foundation. Issues, for example, activity clog, restricted auto stopping offices and street wellbeing are being tended to by IOT. This paper shows an IOT based cloud incorporated keen stopping framework. The planned Smart Parking system comprises of an on location organization of an IOT based module which is utilized to signalize and screen the condition of availability of each single parking spot. A versatile application is likewise given that enables an end client to check the availability of parking spot and book a stopping opening as needs be. The paper similarly represents an abnormal state standpoint of the framework design.

[7] Shakun Srivastava, Ankit asthana.

They proposed produce electricity by the use of speed breakers. Now a days the Consumption of power has been increased tremendously. In order to meet the demand of Power by various units various setups has been introduced for effective power generation. In this Project electrical power is being generated as non-conventional method by simply passing vehicles on to the specially designed Roller Setup. This method of Electrical power generation needs no input power. This Project is implemented by using simple drive mechanism such as Roller, some interfaced Electrical components and chain drive Mechanism. The basic principle is simple energy conversion form mechanical to electrical energy by using the vehicles weight (potential energy) motion (kinetic energy). Here the process of Electric Power Generation comes under the Mechanism of Electro-Kinetic power Generator. The electro-kinetic power generator is a method of generating electricity by harnessing the kinetic energy of automobiles that drives over the track. The track operates by virtue of a number of specially designed rollers placed on it. When the vehicles pass on the rollers, pressure is exerted on them, which develops the mechanical energy and by means of a specially designed mechanism, a generator is driven, which is capable of producing AC/DC current.

[8] A. Mainwaring, D. Culler, J. Polastre, R. Szewczyk, and J. Anderson.

They have developed Wireless sensor networks for habitat monitoring. Sensor networks are currently an active research area mainly due to the potential of their applications. In this paper they investigate the use of Wireless Sensor Networks (WSN) for air pollution monitoring in Mauritius. With the fast growing industrial activities on the island, the problem of air pollution is becoming a major concern for the health of the population. They have proposed an innovative system named Wireless Sensor Network Air Pollution Monitoring System (WAPMS) to monitor air pollution in Mauritius through the use of wireless sensors deployed in huge numbers around the island. The proposed system makes use of an Air Quality Index (AQI) which is presently not available in Mauritius. In order to improve the efficiency of WAPMS, we have designed and implemented a new data aggregation algorithm named Recursive Converging Quartiles (RCQ). The algorithm is used to merge data to eliminate duplicates, filter out invalid readings and summarise them into a simpler form which significantly reduce the amount of data to be transmitted to the sink and thus saving energy. For better power management they used a hierarchical routing protocol in WAPMS and caused the motes to sleep during idle time.

## 2 CONCLUSION

The proposed IoT based smart system can be useful for people. This system is one step towards the smart city in that development

of Smart bus station, smart parking and smart roadways. In this system also generation of green electricity are done.

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