



# A SMART CITY REVIEW INCLUDING IOT TECHNOLOGY

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**Abstract:** A city can become a smart city through the use of numerous IOT-based components, such as traffic light control, street lighting, smart water supply management, and many more systems. A smart city has all the amenities that are required, including simple access to energy, water, transportation, and security, as well as a community that fosters safety and health.

With the advancement of technology, the world is changing quickly these days. There are numerous safety concerns world wide as a result. The primary goal of this paper is to ensure that everyone who lives in a city has a life that they deserve. The definition of smart cities is typically based on three factors: geographic, environmental, and economic.

**Keywords:** amenities, fosters, deserve, geographic

## I. INTRODUCTION

Providing an advanced and developed city is the main goal of a smart city. That in order to address the issues that typical cities encounter, we will offer an efficient water supply system, an advanced traffic light management system, and well-maintained public transportation.

The Internet of Things (IOT) is comparable to a fully networked world in which every nation has a variety of sensors, computers, and other equipment combined into one system.

The goal of a smart city can therefore be achieved through IOT, which means that smart cities can be developed at a low cost and with high efficiency thanks to IOT technology. Infrastructures are expanding quickly to meet the increased demand for basic services as urban population density rises.

A smart city can be identified in a number of ways. Information and communication technology (ICT) use to alter the working environment and way humans live in that specific area.

## II. TECHNOLOGY FOR SMART CITIES

The essential components that construct the IOT-based smart city system are followed by the modern technology that allow these domains to exist, which includes the artificial algorithms used in IOT-based smart city systems, the networking technologies employed, and the architectures used.

Regarding the works of, as displayed in figure, we offer an in-depth analysis of the many basic units and technologies exploited in smart city implementations.

The table demonstrates various types of applications for sensors, communication modules, software, microcontrollers, and other disciplines.

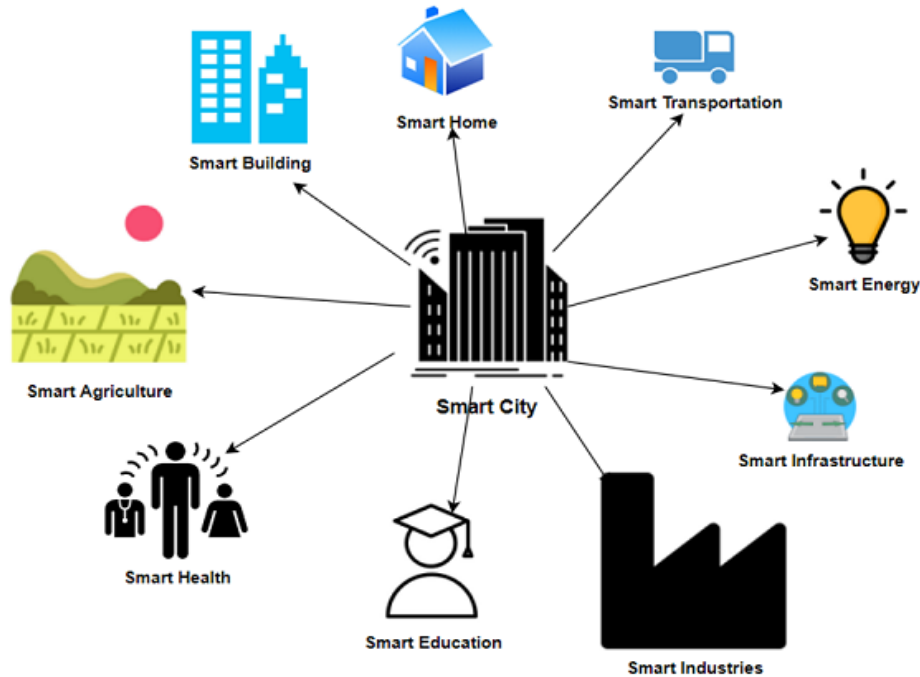


Fig. 1: An IOT block schematic for smart cities

Table: Facilities available in different smart cities in world

City	Solutions
Singapore	Autonomous Fleet to help older people, Robotics and AI powered chat boats talk to elder to provide relevant information and reduce loneliness.
Helsinki	Waste management system, Digital Forms, An incentive for people to walk or use environmentally friendly transport.
Zurich	Pikmi – on demand taxi service, LoRaWan - Long Range Wide Area Network HoloLens - future buildings, underground pipelines, made visible on-site as semi-transparent 3D holograms
Auckland	Smart Street Pilot – which utilizes data in a real-world situation to improve operational effectiveness, efficiency, safety, and resilience across all transport modes. Hospital Digital Twin – allows for troubleshooting quickly and tracking asset management, helping to reduce cost. Scan & Go – a Covid 19 response to make shopping safer.
Oslo	Oslo Toll Ring – an automated toll system. Future Built – a programme that involves setting up 50 building and neighbourhood development projects. Smart Oslo Accelerator – a platform that makes it easier for local councillors and the private sector.



### III. APPLICATIONS FOR SMART CITIES

**SMART SYSTEM FOR WATER SUPPLY:** A vital part of a smart city is a smart water supply, since the primary objective of this project is to give everyone in the city access to clean drinking water. Water is crucial for every person's ability to stay alive.

A system for supplying water that uses data sciences and IOT to monitor pumping facilities and pipelines.

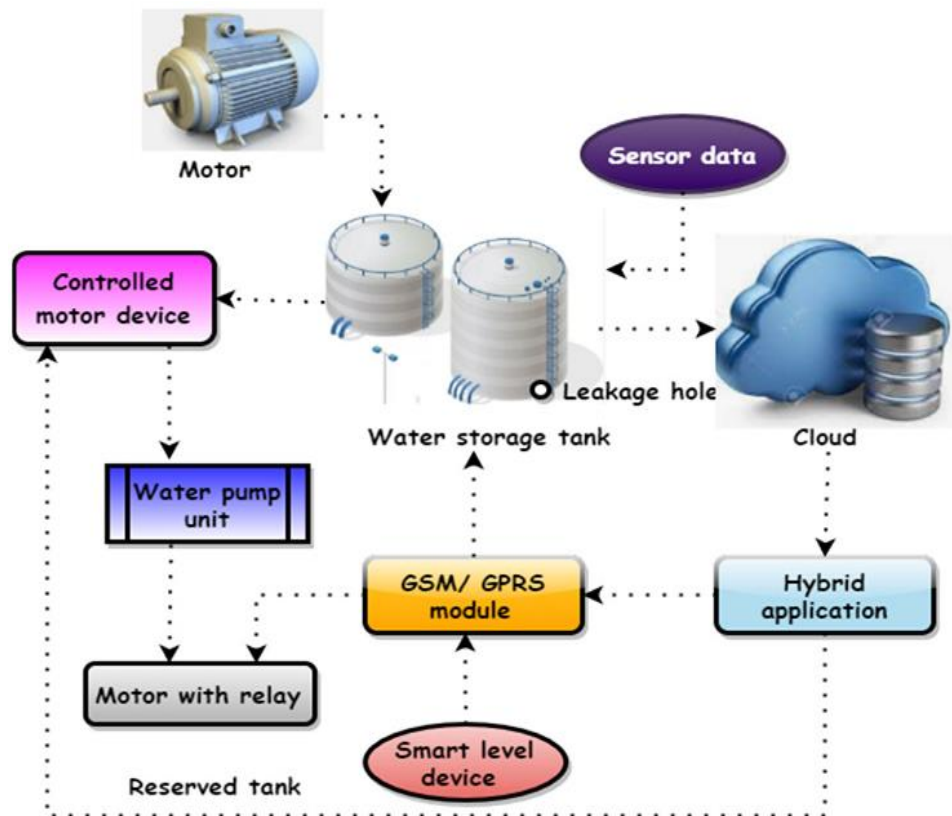


Fig. 1: An IOT based smart water management system

**CONTROL SYSTEM FOR STREET LIGHTING:** Supervisors may regulate street lights with Internet of Things (IoT)-based lighting via wireless connections. These lights have been built to be fail-safe or fall-resistant, so even in the event of a disaster, the lights will continue to function correctly. "These lights are embedded [1] with sensors that react to the brightness or light conditions of their surroundings. For example, in foggy conditions, the sensors would turn on the light even at noon."

**CONTROL OF ROAD TRAFFIC USING IOT:** These days, traffic congestion is a major concern for smart cities, and a micro controller can help alleviate the traffic signal problem. The purpose of this signal system is to lessen traffic congestion. This system has a transmitter and a receiver on either side of the road. When a car passes in front of the transmitter and receiver, the microcontroller-controlled IR system activates, counting the number of vehicles that have passed on the road.

After storing this data in memory, the microcontroller ought to choose how to adjust the traffic signal delay in order to relieve traffic congestion.

**MONITORING OF NOISE POLLUTION AND CONTROL:** A IOT can provide a noise monitoring service to measure the amount of noise produced at any particular time in the locations that adopt the service. Sound detection algorithms can also be used to tackle noise pollution in the city, as noise is considered aural contaminants on par with carbon dioxide (CO) in the air.



**INTELLIGENT PARKING:** An efficient smart city has smart parking systems. You can thus follow the location in the departure from the city and the arrival of various parking cars by activating smart parking. Thus, it is important to plan for the number of smart car parking spaces in each sector.

**SMART HOUSING:** The intelligent house may be watched over using the data that the sensors produce. An creative demand response or function may, for instance, be put into practice by keeping an eye on contamination and pollution levels. If they go above a certain level, the client could be alerted.

#### IV. SMART CITIES POWERED BY IOT

Many nations throughout the world are establishing IOT-based smart cities and providing comprehensive smart city visions, as illustrated in fig.

#### V. CONCLUSION

The role of IOT for smart cities is the main topic of this review study. A smart city is made up of many different components, such as a traffic control system, technology for smart homes, public transportation, street lighting, water supply and administration systems, and many more features. IOT is only a technology which makes it possible for the development of smart cities at low cost and high efficiency while offering occupants a safe and healthy environment.

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