



SNS COLLEGE OF ENGINEERING

(Autonomous)

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING



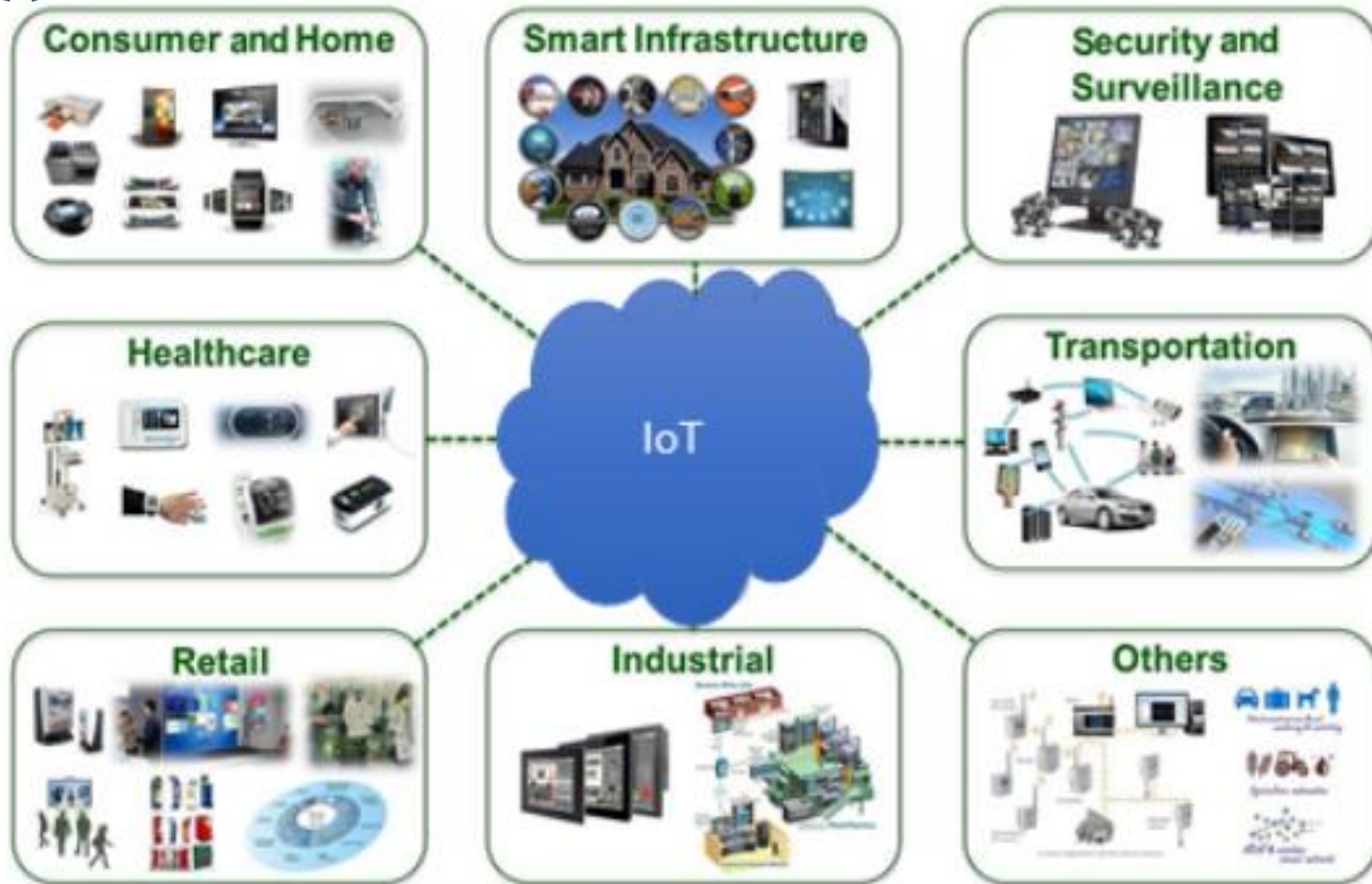
Review of various IoT application domain

Prepared by,
K.Sangeetha

Assistant Professor/ECE
SNS College of Engineering



INTERNET OF THINGS APPLICATIONS





INTERNET OF THINGS



By enabling easy access to, and interaction with, a wide variety of physical devices or things such as vehicles, machines, medical sensors, and more, IoT facilitates the development of applications in many different domains. The following diagram highlights the key application domains of IoT.

These include healthcare, industrial automation (that is, Industry 4.0), energy management and smart grids, transportation, smart infrastructure (such as the smart home and the smart city), retail, and many other areas that will transform our lives and societies for the better. These applications will have a global economic impact of \$4 to \$11 trillion per year by 2025

Volume

- How much data?
- Billion devices will generate data in ZetaBytes.

Velocity

- How fast can I access?
- IoT data can be accessed in real time.

Variety

- What type of data?
- Structured & unstructured IoT data
- Heterogenous format of IoT data

Veracity

- Is IoT data reliable?
- Most IoT data are.
- Crowdsensing data may not be.

Variability

- What are the rate of different IoT data flows?
- Flow rate depends on applications, time, and space.

Value

- Usability and utility of data.
- Most IoT data tremendously useful.





INTERNET OF THINGS

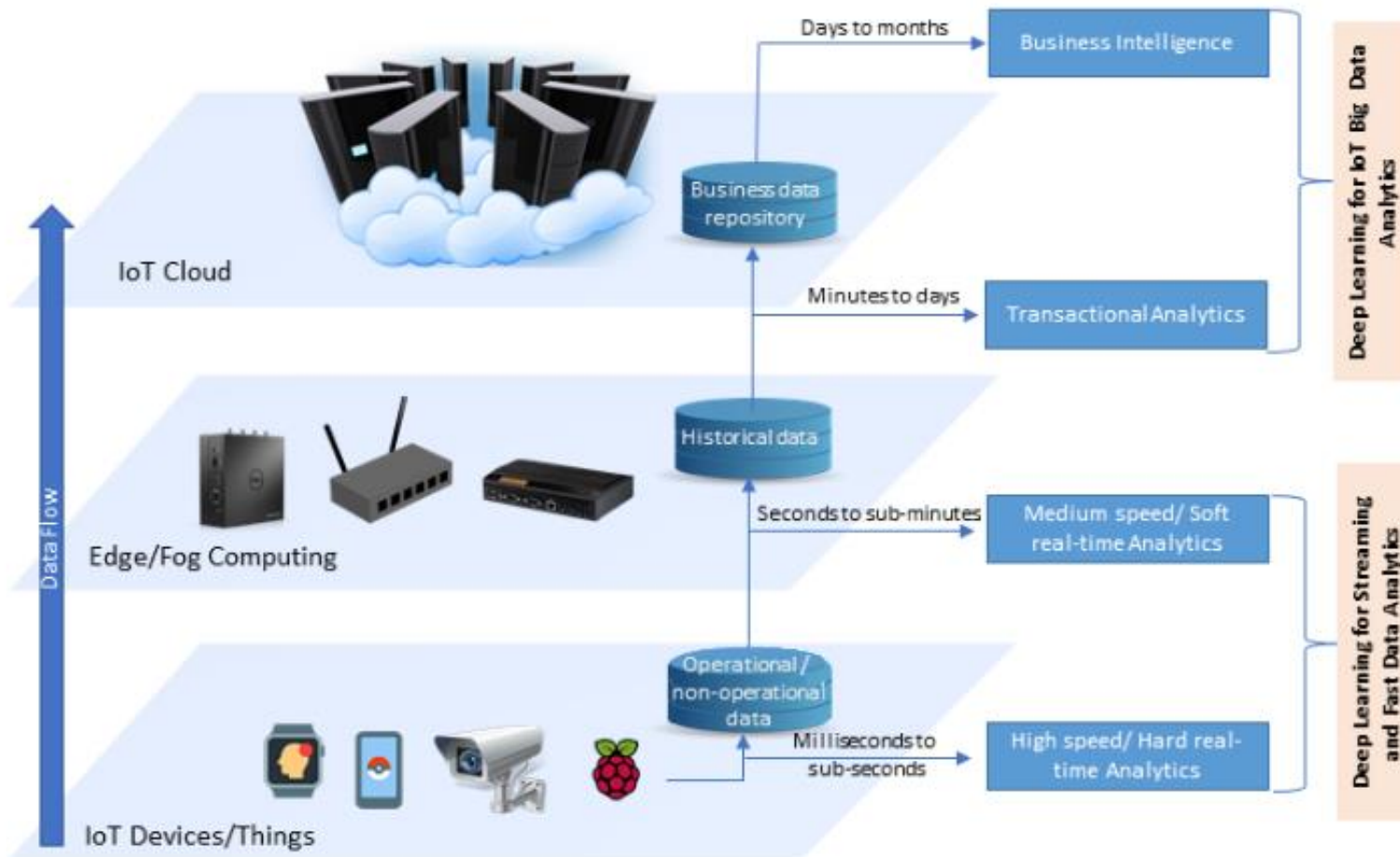


The key contributors (in order of their predicted contribution) of this quantity of money include the following:

- Factories or industries, including operation management and predictive maintenance
- Cities, including public safety, health, traffic control, and resource management
- Healthcare, including monitoring and managing illnesses and improving wellness
- Retail, including self-checkouts and inventory management
- Energy, including the smart grid



REQUIREMENTS OF IOT DATA





REAL LIFE EXAMPLE INTERNET OF THINGS



➤ Remote patient monitoring is one of the most obvious and popular applications of IoT in healthcare.

➤ **Telehealth**, a patient will be connected to their care providers and get real-time feedback if necessary.

➤ The data generated by this application, such as variability in heart rate or blood pressure, is streaming data and needs to be processed quickly so that care providers can respond promptly to the patient's situation.

➤ The following diagram presents a snapshot of a commercially available remote patient monitoring system:





INTERNET OF THINGS IN SMART CITIES



By now I assume, most of you must have heard about the term **Smart City**.

- The hypothesis of the optimized traffic system I mentioned earlier, is one of the many aspects that constitute a smart city.
- The thing about the smart city concept is that it's very specific to a city. The problems faced in Mumbai are very different than those in Delhi. The problems in Hong Kong are different from New York.
- Even global issues, like finite clean drinking water, deteriorating air quality and increasing urban density, occur in different intensities across cities. Hence, they affect each city differently.





INTERNET OF THINGS IN HEALTH CARE



IoT applications can turn reactive medical-based systems into proactive wellness-based systems.

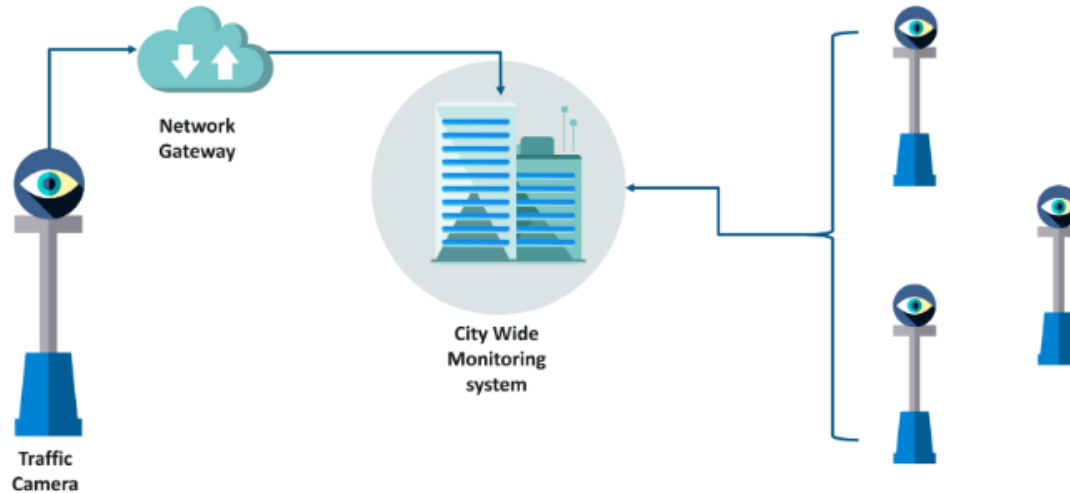
➤ The resources that current medical research uses, lack critical real-world information. It mostly uses leftover data, controlled environments, and volunteers for medical examination. IoT opens ways to a sea of valuable data through analysis, real-time field data, and testing.

➤ The Internet of Things also improves the current devices in power, precision, and availability. IoT focuses on creating systems rather than just equipment.

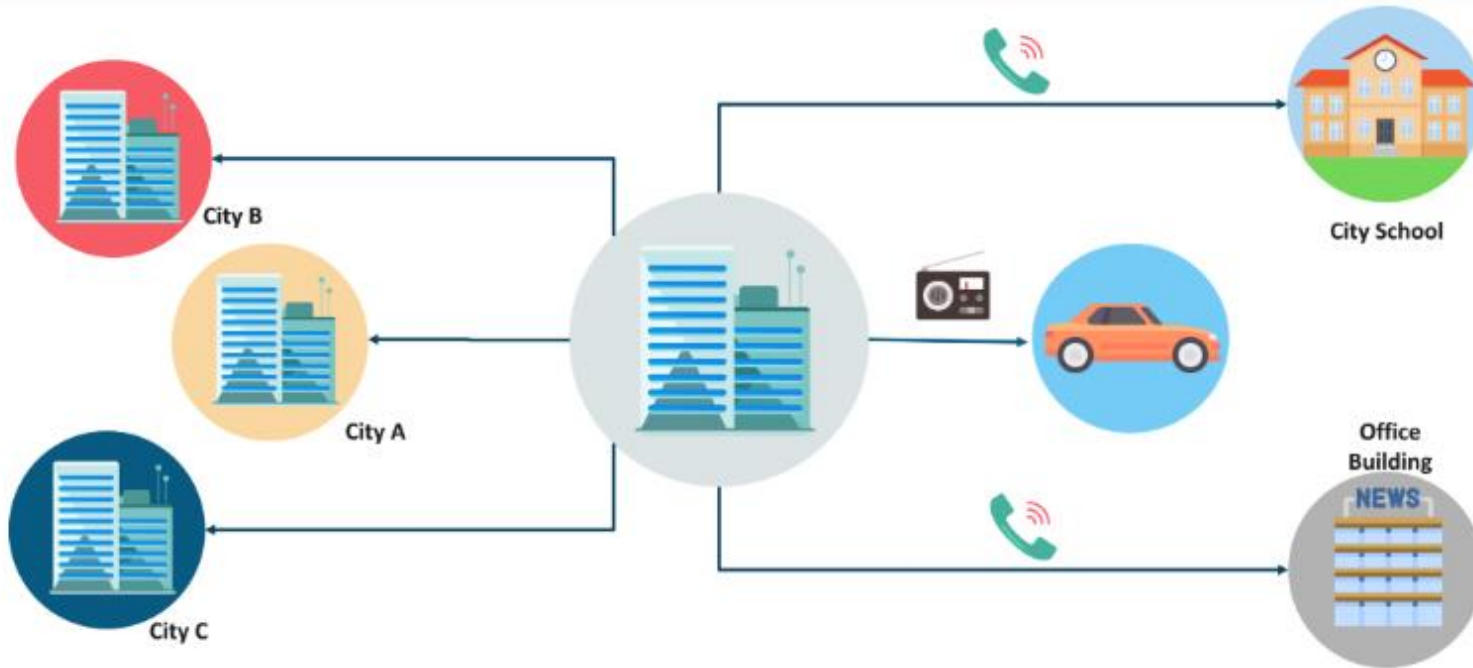


Don't think so? Well, here's a thought.

➤ Imagine an intelligent device such as a traffic camera. The camera can monitor the streets for traffic congestion, accidents, weather conditions, and communicate this data to a common gateway. This gateway also receives data from other such cameras and relays the information further to a city-wide traffic monitoring system.



IoT IN TRAFFIC SYSTEM



This creates a network of self-dependent systems which leverage real-time control. This is just one example of IoT Applications.



Thank you