SNS COLLEGE OF TECHNOLOGY

Coimbatore-35
An Autonomous Institution

Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A++' (Cycle III)Grade
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

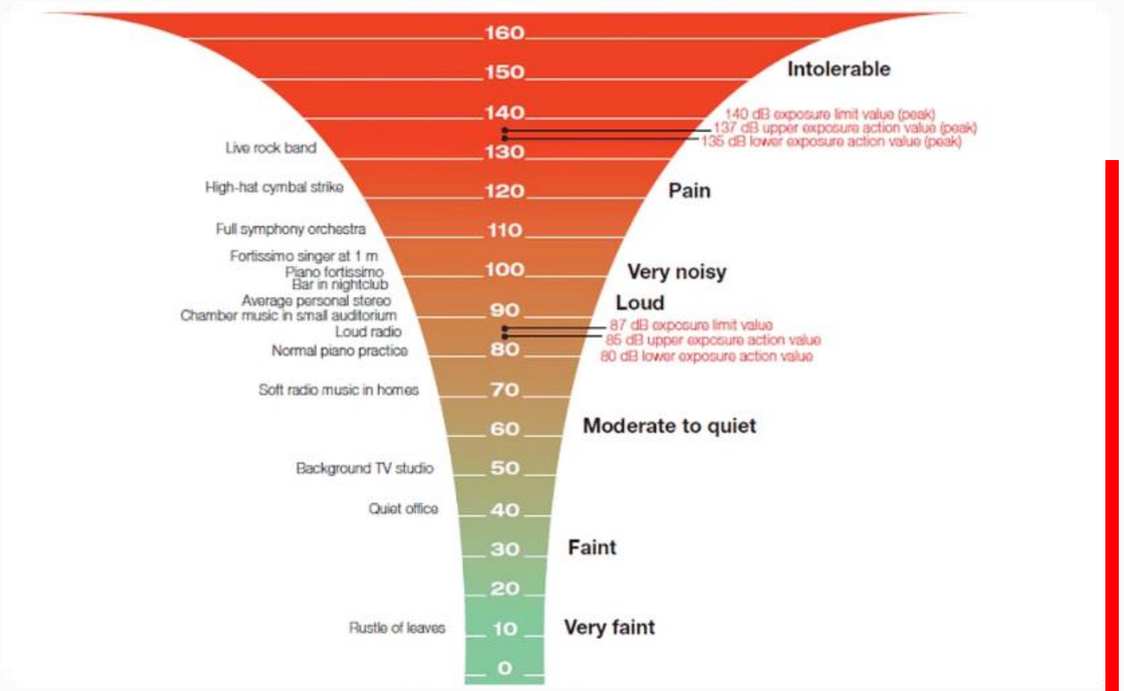
SMART IOT APPLICATIONS

III YEAR/ V SEMESTER

UNIT 1 –BASIC APPLICATIONS

TOPIC-7 SMART CITY SOLUTIONS FOR THE URBAN LANDSCAPE

Noise Urban Maps



Visualizing Soundscapes

Real-time noise monitoring networks create detailed maps of urban sound levels, guiding policies to reduce noise pollution.

Targeting Hotspots

Data-driven insights highlight noisy areas for targeted mitigation, improving quality of life for residents.

Smart Phone Detection

Traffic Monitoring

Anonymized cellular data tracks vehicle and pedestrian movements, enabling better infrastructure planning.

Public Safety

Smartphone signals can be used to locate people in emergencies, improving emergency response times.

Usage Analytics

Aggregate smartphone data reveals how public spaces are utilized, informing design decisions.

Electromagnetic Field Levels

Mapping Exposures

Sensors monitor electromagnetic radiation from power lines, cell towers, and other sources to identify high-exposure areas.

Public Awareness

Transparent data sharing helps educate citizens on EMF levels and potential health impacts.

Regulation Enforcement

EMF monitoring supports enforcement of safety standards, protecting vulnerable populations.

Traffic Congestion Monitoring

Sensor Networks

Traffic cameras, loop detectors, and connected vehicle data feed into real-time congestion maps.

Adaptive Signals

Smart traffic lights adjust timing dynamically to optimize traffic flow and reduce delays.

1

2

3

Predictive Analytics

AI models analyze patterns to forecast traffic conditions and identify areas prone to congestion.

Smart Lighting

Energy Efficiency

LED bulbs and motion sensors reduce energy consumption, lowering municipal costs and carbon footprints.

Improved Safety

Adaptive lighting adjusts brightness based on pedestrian and vehicle activity, enhancing visibility and security.

Remote Control

Central management platforms allow operators to monitor and control street lights from a single interface.

Waste Management

Smart Bins

Sensors in waste containers trigger collection when bins are full, optimizing pickup routes.

Recycling Insights

Data on waste composition and diversion rates informs targeted recycling education and policy.

Compaction

Automated compactors increase container capacity, reducing the frequency of waste collection.

ACTIVITY

1.What is the Noise Urban Maps?

2.What is Smart Phone Detection?

3.Define the applications of IOT

Smart Roads

1

Sensing Infrastructure

Embedded sensors monitor road conditions, traffic flow, and environmental factors in real-time.

2

Predictive Maintenance

Analytics predict when repairs are needed, enabling proactive and cost-effective infrastructure upkeep.

3

Connected Vehicles

Vehicles communicate with the road network, enabling autonomous driving and collision avoidance features.

Assessments and Benchmarking

Metric	Description	Benefits
Key Performance Indicators	Quantifiable measures of progress towards smart city goals	Identify areas for improvement, track progress, and benchmark against peers
Maturity Models	Frameworks to assess a city's level of smart city adoption and capabilities	Provide a roadmap fo advancing digital infrastructure and service delivery
Citizen Surveys	Solicit resident feedback on the quality and impact of smart city initiatives	Ensure solutions address community needs and priorities

Figure 1. Deloitte smart city framework

Source: Deloitte.

Deloitte Insights | deloitte.com/insights

The Road Ahead

Integrated Platforms

The future of smart cities lies in unified systems that combine data from multiple sources to drive holistic decision-making.

Citizen Engagement

Meaningful public participation is key to developing smart city solutions that truly improve quality of life.

Ethical Data Use

Responsible data governance policies must balance innovation with privacy protection and equitable access to digital services.

Assessment

1.What is smart city?

2.What is are the key performance indicators ?

3.List the applications of IOT in smart City

REFERENCES

1. Applications of Emerging Technological Models in Smart City Construction 2022 ,Tgk Vasista, D. Ramana.
2. Multi-layered urban strategies to foster the Smart Cities development Building The Future: Smart Cities and Their Development 2023, Harneet Kaur.
3. Role Of Technology In Building Smart Cities Euro Asia International Journals.

THANK YOU