

The background is a dark blue gradient with faint, light blue technical drawings. These include several circular gauges with radial scales and tick marks, some with arrows indicating direction. There are also dashed lines and concentric circles, suggesting a mechanical or engineering theme.

# KSK COLLEGE OF ENGINEERING AND TECHNOLOGY

- PUBLIC TRANSPORTATION  
OPTIMIZATION

# INTRODUCTION

- Public Transportation Optimization Is The Process Of Improving The Efficiency, Reliability, And Sustainability Of Urban Transit Systems.
- It Plays A Pivotal Role In Reducing Traffic Congestion, Lowering Emissions, And Providing Convenient Transportation Options To Urban Populations.

# PUBLIC TRANSPORT MANAGEMENT

Data on the number of public transport users, collected with IoT sensors, allows routes to be optimized or new ones to be designed. These sensors can be in the vehicle or also in the security cameras. The data would be used to create long-term strategies or to launch real-time warnings (e.g., of vehicle occupancy to users).

Likewise, analyzing the data also contributes in this case to reducing pollution and slowing down global warming.



# ELECTRIC VEHICLES INFRASTRUCTURE

As electric cars become more popular, a larger charging infrastructure will need to be deployed. The data collected by the sensors is used to design and remodel that infrastructure. Also, to alert drivers that there is a station nearby and managers if there is something to be repaired.

# IOT APPLIED TO LOGISTICS

If we talk about **IoT applied to logistics**, sensorized trucks and vans help to know where the goods are at all times. Also, this use of IoT optimizes the number of vehicles on the road or the routes they follow, in order to save fuel and maintenance costs. Other useful data that sensors can collect to make decisions include speed, temperature, number of driving hours...

# DRIVING SAFETY

IoT in transportation can also be used to design steering wheel **control systems**. Information on speed or kilometers traveled alerts driving times and rest breaks. It can also warn drivers or their managers if kilometer-per-hour limits are exceeded.

In addition, road and environmental information warn drivers about sharp curves or other driving hazards, such as landslides or animals. Such information is also very important for the type of vehicle that we will now discuss.



# AUTONOMOUS CARS

Connected autonomous cars have and will have dozens of sensors (GPS, cameras, radar...) that collect data to 'drive' according to the information collected.

With them, the driving of the individual user is safer. In addition, data collection is used to improve systems and thus perfect vehicles that are destined to revolutionize our roads.

# ADVANTAGE

- **Preservation of the environment.**
- **Increased performance** of companies, vehicles...
- **Increased safety.** Collecting and analyzing data on the state of the roads or the appearance of obstacles helps the population (drivers, pedestrians...) to have fewer chances of having an accident.
- **Better customer experience**, both for those waiting for goods to arrive and for those who use public transport or electric and autonomous vehicles. The brand image is also, therefore, more positive.
- **Improved facilities.** Train stations, airports, bus shelters... Everything that surrounds means of transport can also be optimized with the information provided by sensors.



# CONCLUSION

- Highlight Real-world Examples Of Cities That Successfully Optimized Their Public Transportation Systems, Showcasing The Before-and-after Impact.
- Discuss Key Takeaways From These Case Studies, Emphasizing The Importance Of Innovation, Community Engagement, And Data-driven Decision-making.
- Public Transportation Optimization Is A Critical Endeavor For Creating More Sustainable And Livable Cities. It Requires Collaboration, Innovation, And A Commitment To Addressing The Unique Needs Of Each Community.