GLS UNIVERSITY

COMPUTER FUNDAMENTALS & INFORMATION TECHNOLOGY.
UNIT– II

Automotive Navigation System

- **Automotive:** This refers to automation in Automobiles

  Navigation: Positioning & Locating

  System: Combination of all i/p-o/p devices

- An **automotive navigation system** is part of the automobile controls or a third party add-on used to **find direction** in an automobile.
- It typically uses a **satellite navigation** device to get its position data which is then correlated to a position on a road.
- When directions are needed routing can be calculated.
- On the fly traffic information can be used to adjust the route.
- Mathematically, automotive navigation is based on the shortest path problem, within graph theory, which examines how to identify the path that best meets some criteria (shortest, cheapest, fastest, etc.) between two points in a large network.

Essential features in automotive navigation

- **Route planning and waypoints :** Planning a route is the easiest and most basic thing a navigation system should be able to do. Usually, a navigation system offers alternative ways based on your preference for the fastest, the cheapest, or the most convenient route.
- **Turn-by-turn directions:** Turn-by-turn directions include visual data on the screen along with voice instructions, so your attention can remain on the road. The system voices the direction of the turn, street names, and the distance to the next turn. It can also warn you about traffic congestion and toll roads ahead.

- **Offline maps :** you can’t always rely on a cell connection, especially when you travel to remote areas. So an offline map is among the most essential features in automotive navigation.Offline maps don’t provide POIs or traffic reports, they can navigate you by showing the current position of your car according to the GPS tracker.