



# **SNS COLLEGE OF TECHNOLOGY**

**Coimbatore-35  
An Autonomous Institution**

Accredited by NBA – AICTE and Accredited by NAAC – UGC with ‘A++’ Grade  
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai



## **DEPARTMENT OF AUTOMOBILE ENGINEERING**

### **AUTOMOTIVE SAFETY & INFOTRONICS**

#### **UNIT V – INFOTRONICS FOR AUTOMOBILES**

##### **TOPIC 3 : NAVIGATION SYSTEM**



# PRESENTATION OUTLINE



- Introduction
- Example
- History
- GPS
- Navigation Modes
- Applications





# INTRODUCTION



- Automotive - Automation in Automobiles
- Navigation – Positioning & Navigating
- System – Combination of all i/p & o/p Devices



# EXAMPLE



- Maptech Navigator
- 12” Display
- Touchscreen
- GPS Navigation
- Operational Data



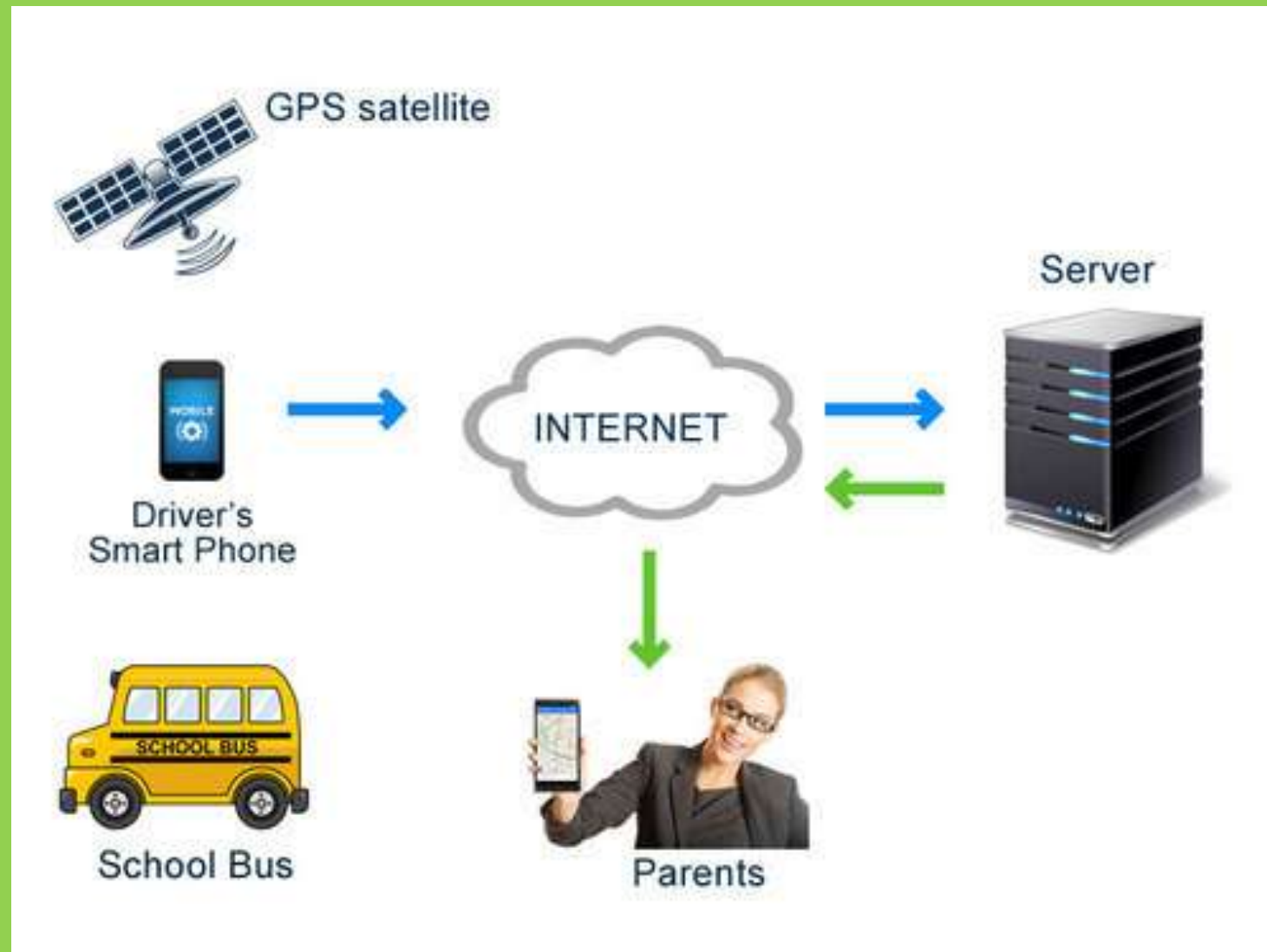
# HISTORY



- Introduced in 1977 with electronic compass
- In 1995 Mitsubishi Electric introduced original route guidance system
- Uses a 32 bit RISC processor, achieving the fastest route calculating performance
- Now Automotive Navigation System uses Global Positioning System



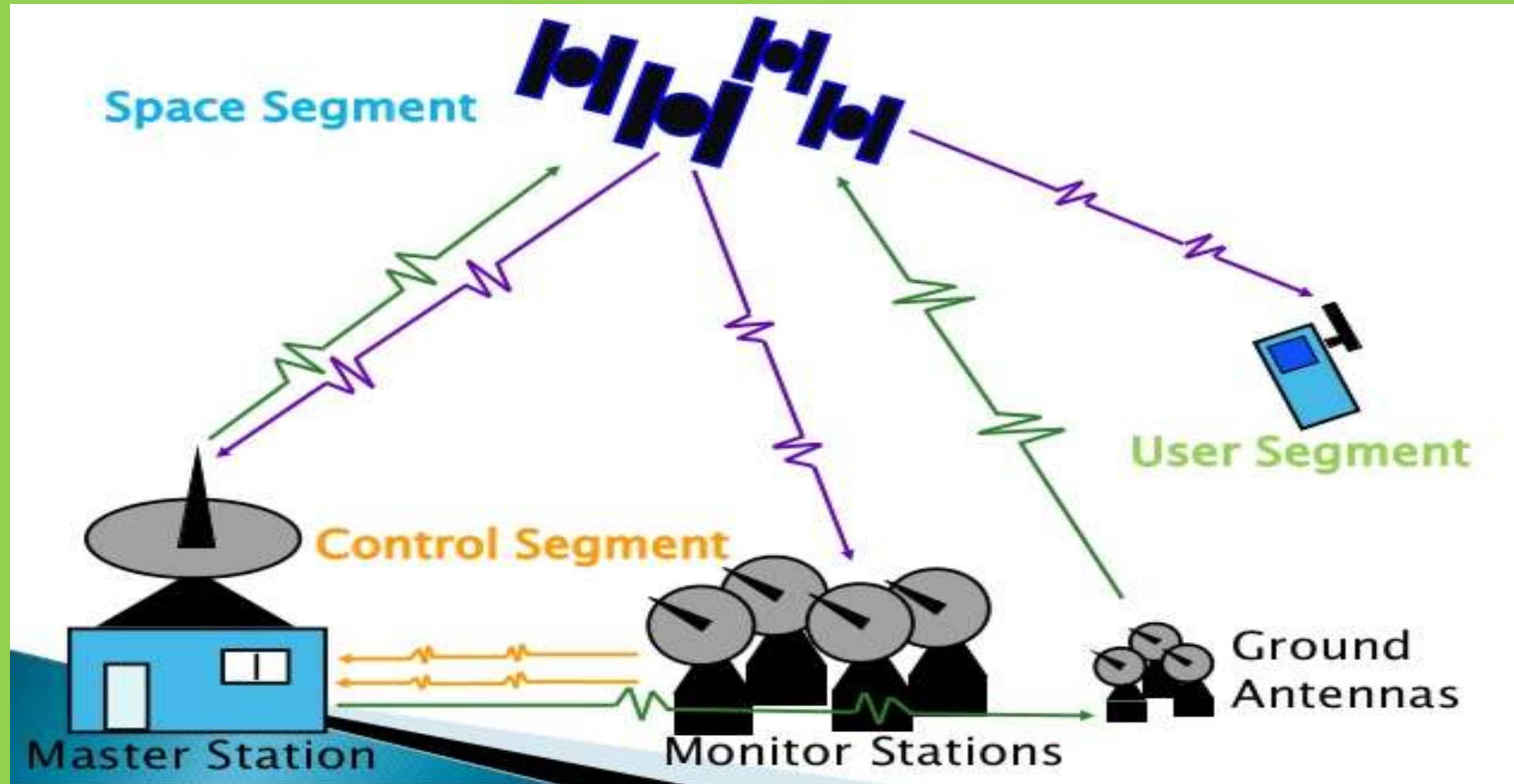
# GPS SYSTEM



- The Global Positioning System is a worldwide radio navigation system
- Provide 24 hour three dimensional position, velocity and time information
- Space Segment, User Segment & Control Segment



# THREE SEGMENT OF GPS





# GPS WORKING



- Triangulation
- Measuring Distance
- Getting Perfect Timing
- Satellites Position
- Determining a Position

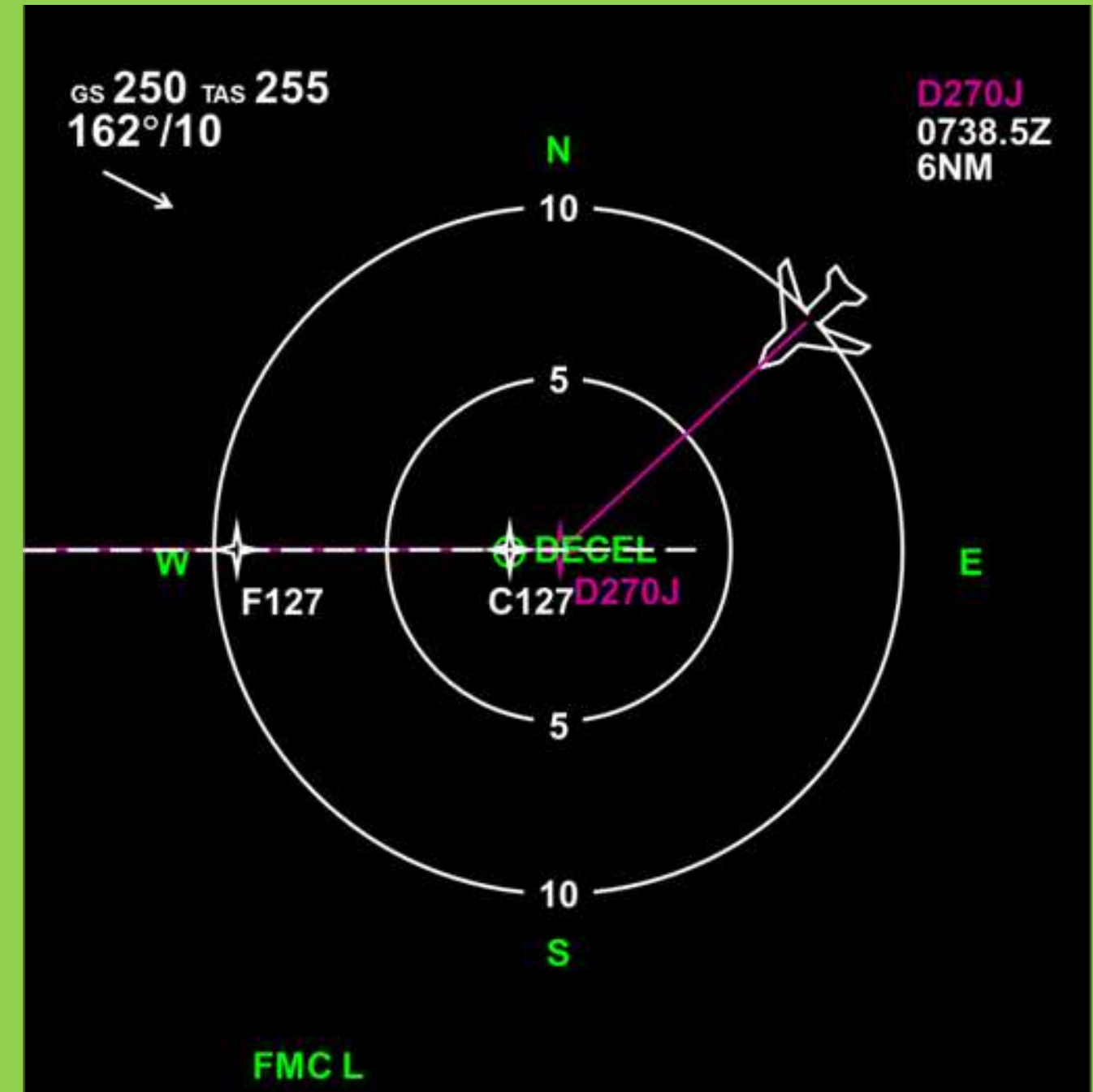




# NAVIGATION MODES

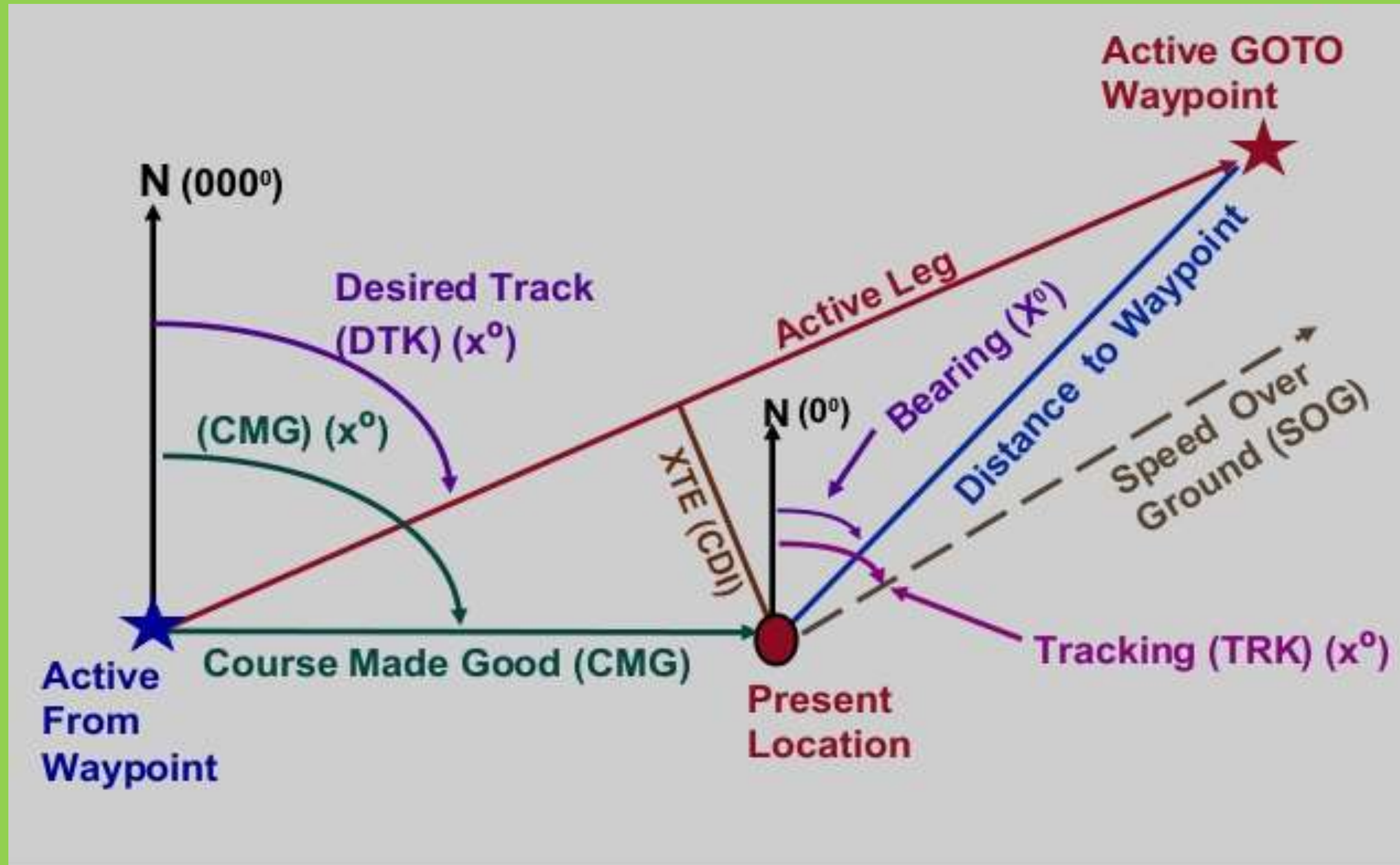


- 3D Navigation
  - At least 4 Satellites
  - Computes latitude, longitude, altitude and time
- 2D Navigation
  - Less than 4 satellites and fixed altitude is given
- DGPS Navigation
  - Differential Corrections are available through the auxiliary serial port



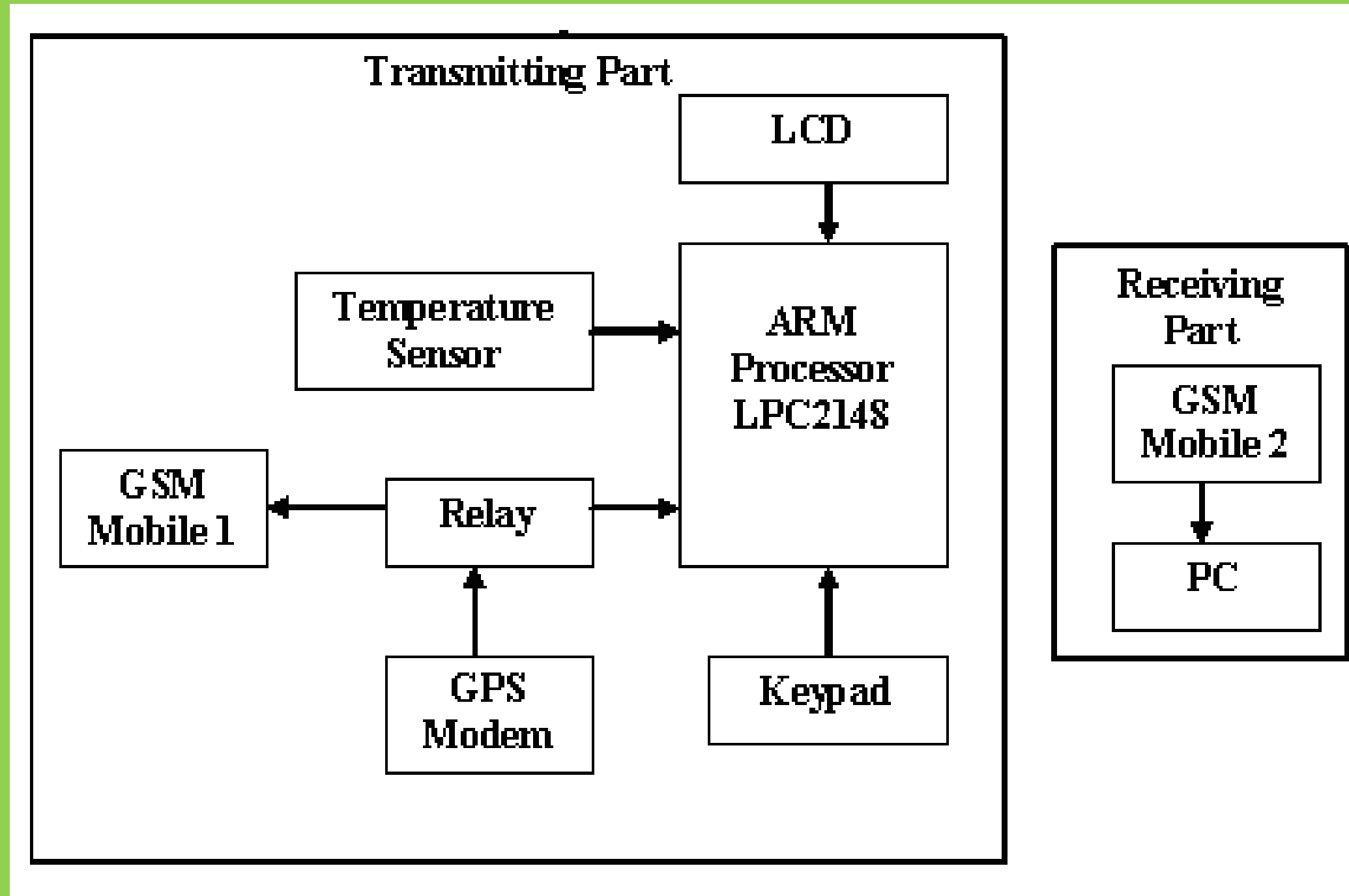


# GPS NAVIGATION TERMINOLOGY





# CAR NAVIGATION SYSTEM





# APPLICATION OF NAVIGATION SYSTEM



- Car Navigation
- Dynamic Vehicle Routing
- Tracking Rental Cars



# REFERENCES



- George A. Peters, Barbara J. Peters, “Automotive Vehicle Safety” CRC Press, 2002
- Richard Bishop, “Intelligent Vehicle Technology and Trends” Artech House, 2005

*Thank you*