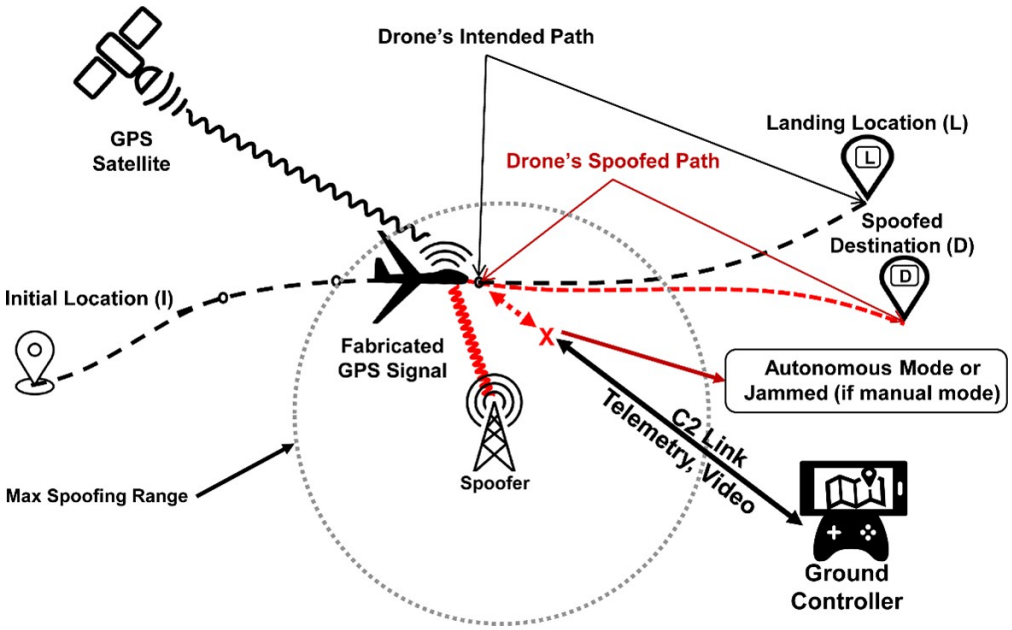
GPS Spoofing

Prelims: *Current events of national and international importance | Cybersecurity*

Why in news?

New Delhi's Indira Gandhi International (IGI) Airport witnessed multiple GPS spoofing incidents, disrupting more than 800 flight operations and causing delays across the Indian airspace.

- **GPS spoofing –** It is a form of ***cyber-attack***, is very different from GPS jamming, which blocks GPS signals.
- It refers to the practice of ***manipulating or tricking*** a GPS receiver by broadcasting false GPS signals.
- It is also known as GPS simulation.
- **Working –** Unlike jamming, GPS spoofing involves deliberate transmission of ***fake satellite signals*** to mislead aircraft navigation systems.



- **Impact –** It undermines the reliability of GPS data, which is vital for a variety of applications, from navigation to time synchronization and more.
- **GPS Spoofing cases -**

    - **Earlier incidents** – Between Nov, 2023 & Feb, 2025, 465 GPS spoofing incidents were reported in the India-Pakistan border region, mostly in Amritsar and Jammu (told by Centre in Lok Sabha).
    - **International Air Transport Association (IATA) report** – 4.3 lakh cases of GPS jamming and spoofing over conflict zones were recorded in 2024, ***up by 62%*** from 2023.
    - **GPS jam portal –** India's borders with Pakistan & Myanmar as among the top 5 regions where more than 10% of aircraft reported poor navigation accuracy.
- **Threats**
    - It can mislead aircraft, ships, and autonomous systems, causing navigation errors and safety risks.
    - It poses serious threats to national security, enabling military deception and border violations.
    - Critical infrastructure and financial systems relying on GPS timing are also vulnerable to disruption.
- **Parliamentary Standing Committee on Transport, 2025 report** – It warned about the outdated technology risks - operational & safety challenges, particularly at high-density airports like Delhi & Mumbai.
    - It called for a ***time-bound overhaul*** of India's Air Traffic Control (ATC) automation systems.

References

1. Mint | New Delhi's airport, witnessed multiple GPS spoofing incidents
2. India Today | GPS spoofing, common along Pak border

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