4. Social Media Location Analytics

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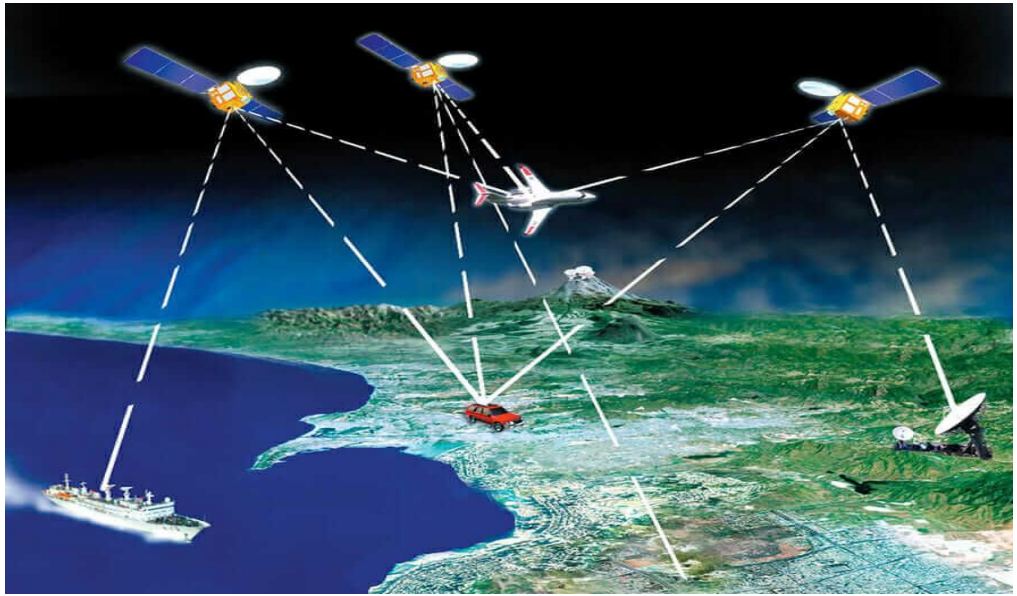
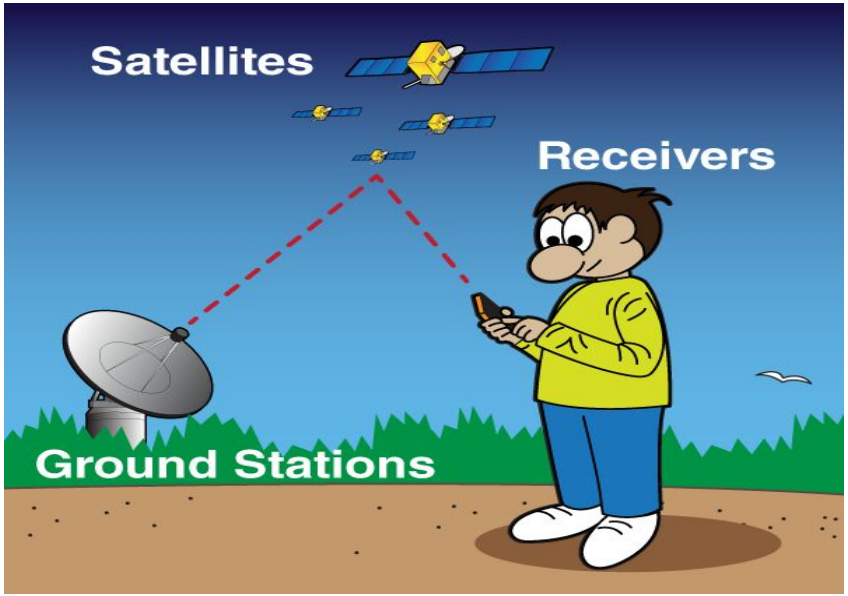
- Location Analytics and Privacy Concerns
- Location Analytics Tools

GPS :

The Global Positioning System, originally Navstar GPS, is a satellite-based radionavigation system owned by the United States government and operated by the United States Space Force.



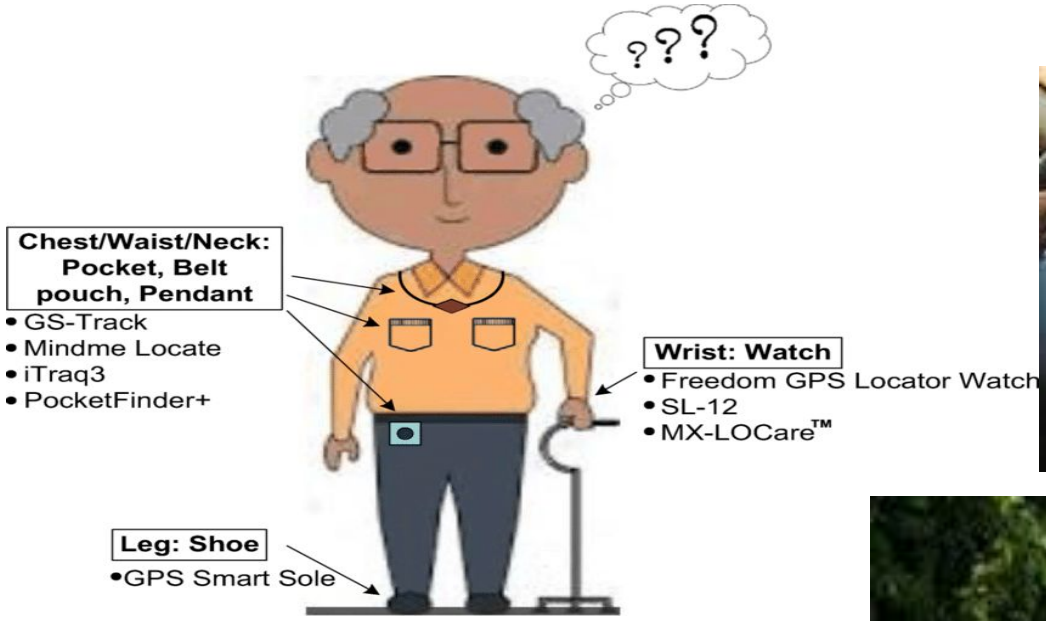


Uses of GPS

- Find Nearest Shop
- Find Schools
- Find Your Way Home
- Help You Avoid Traffic
- Track Stolen Phone
- Preventing Car Theft

Location Technology :

- A location is **the place where a particular point or object exists**.
- The set of hardware and software tools that may be used to compute the **location** of a mobile object.
- Location-aware technology includes **sensors and methods for detecting or calculating the geographical position of a person, a mobile device or other moving objects**.


???
Chest/Waist/Neck: Pocket, Belt pouch, Pendant
• GS-Track
• Mindme Locate
• iTraq3
• PocketFinder+
Wrist: Watch
• Freedom GPS Locator Watch
• SL-12
• MX-LOCare™
Leg: Shoe
•GPS Smart Sole


Schulstraße
Iranische Str.
Heinz-Galinski-Straße


Aircraft GPS
Tracking
தமிழ்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runkeeper
STRAVA


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- Location based marketing / Advertising :

- Case Study : **OWL Bus**

- **GPS coordinates** are a unique identifier of a precise **geographic location** on the earth
- GPS coordinates are usually expressed as the combination of latitude and longitude.
- Citiflo, Ola, Uber
- Restaurants near me

Location Analytics

- **Location analytics**, also known as spatial analysis or geo-analytics, involves **mapping, visualizing, and mining** the location of people, data, and other resources.

- GPS-enabled mobile devices make it possible to provide location-based services, products, and information....Citiflo

- Location analytics can be used in various sectors and can be instrumental in understanding cities and human behaviors in space and time.

What are the Benefits of Location-Based Analytics?

- Location analytics is highly visual and therefore easier for non-experts to understand insights found in the data.
- By combining sales and location data, companies can create heat maps that show the most profitable areas and those where improvements could be made.
- Aside from sales, companies can use their location data by comparing it to customer satisfaction metrics. This lets companies determine regional preferences, effective sales strategies, and peak purchasing periods to better plan their global efforts.
- Supply chain and logistics companies can also reduce time wasted and find optimal travel routes for their supplies by determining the efficiency of existing chains. Using location data, they can visualize routes, find bottlenecks, and discover the best way to structure their operations for optimal performance.

Sources of Location Data

- Postal Address
- Latitude Longitude
- GPS-based
- IP-based

- **Social media location information comes mainly from GPS and IP.**

- **POSTAL ADDRESS**
  - Most business analytics applications rely on address information of their customers, including city names, locality names, and postal or zip codes.
- **LATITUDE AND LONGITUDE**
  - In geography, latitude (shown as a horizontal line on a globe) and longitude (shown as a vertical line on a globe) are used to find exact location on Earth.
- **GPS-BASED**
  - GPS is a satellite-based navigation system that can be used find exact location people and resources.
  - Mobile analytics mostly rely on GPS-based location data.
  - GPS-based location analytics can provide us the most accurate location for social media users.
- **IP-BASED**
  - Public IP (Internet protocol) can be used to determine the location of Internet users.
  - A public IP address is an exclusive numerical address (like a home address) assigned to a device connected to the Internet.
  - Different regions in the world are assigned a specific block of public IP addresses; hence, it

Categories of Location Analytics

- Based on its scope, location analytics can be broadly classified into two categories:

  1) Business data-driven location analytics

  2) Social media data- driven location analytics.

Business Driven Location Analytics

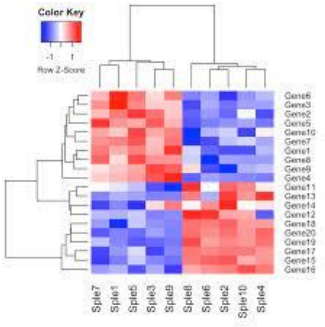
- Business data-driven location analytics involves **mapping, visualizing, and mining location data** to reveal patterns and trends in business data.

- By capitalizing on data stored in a business database, location analytics can provide **location-specific information, products, and services** based on where customers are.

- Examples of how this can be used include **recommending the nearest convenience store or taxi**, or making decisions about the best potential location for a business warehouse.

Applications of Business Driven Location Analytics

- **Powerful Intelligence**
  - Simple maps can be useful,
  - sophisticated mapping techniques like
    - Clustering,
    - Heat mapping,
    - Data aggregation
    - Color-coded mapping can provide more detailed and insightful business intelligence.



- **Geo Enrichment :**
  - **Simple data maps** can be enhanced with customer information such as demographics, spending habits, lifestyle, and location.
  - This can help to answer questions such as **where a company's loyal customers spend most of their time.**
- **Collaboration and Sharing :**
  - Maps are easy to understand and are useful for communication and collaboration within an organization.
  - Location analytics can be used to **map business data for collaboration and information** sharing with customers.
  - Business data -Google Fusion Tables, allows for the creation of maps, tables, and charts.

2) Social Media Data Driven Location Analytics

- Social media location–based services are becoming a day-to-day reality. Organizations use location-based services for a variety of purposes, including the following….

2) Social Media Data Driven Location Analytics

- **Recommendation Purposes**
- **Customer Segmentation -**Tweepsmap (https://tweepsmap.com/), can be used to geo-locate your Twitter followers country, state, or city.
- **Advertisement-**Location-based advertisement allows targeted marketing and promotion campaign mostly delivered through mobile devices to reach specific target audiences.
- **Information Request-** Based on their current location, customers can request a product, service, or resource (e.g., the nearest coffee shop, restaurant, or parking lot).
- **Alerts -** Location data can be used to send and receive alerts and notifications, such as sales and promotion alerts traffic congestion alerts, speed limit warnings, and storm warnings etc.
- ***Search and Rescue*** **-** Location data is vital in search and rescue operations e.g. disaster management.
- **Navigation -** Mobile and GPS-based navigation services and apps can help users find addresses. An example of this is the BE-ON-ROAD app for Android devices, which offers offline turn-by-turn GPS navigation.

Location Analytics and Privacy Concerns

- Location-based services can bring **convenience and value to businesses**, but they also raise privacy concerns.
- These concerns include the **need for transparency about location tracking**, user control over the storage of location information, and options for preserving anonymity.
- There are also questions about **legal protection for historical location data** against unreasonable searches, and the appropriate level of disclosure control.
- There is a need for **appropriate governmental regulation** to protect citizens' privacy rights in the era of location-aware mobile devices.

Location Analytics Tools

- **Google Fusion Tables** is a web service for geo-tagging, storing, sharing, querying, and visualizing tabular business data on Google Maps.
- **Agos** is a platform for geo-tagging and reporting that helps communities address climate change and disaster risk reduction.
- **Tweepsmap maps** Twitter followers by location.
- **Trendsmap** is a real-time tool that maps the latest trends from Twitter.
- **Followerwonk** is a tool for performing basic Twitter analytics such as analyzing followers, location, and tweeting patterns.
- **Esri's GIS** software is used for mapping, visualizing, questioning, analyzing, and interpreting data to understand relationships, patterns, and trends.

Questions

- Define location analytics.
- Explain the two main categories of location analytics.
- What are the sources of location data.
- What are the main applications of business data-driven location analytics?
- What are the main applications of social media data-driven location analytics?
- Discuss privacy concerns related to location analytics.