# Assignment - II

# Name : M.Kannan

# Roll No : 17UN**25**

# Class : III B.Sc. CS ‘B’

# Subject Name : WAD

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# Topic : Mobile GPS Tracking System

# Submitted To : N.SevugaPandi M.Phil.

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**GPS Position History:.**

Mobile Tracker Free lets you locate a mobile phone and have a history of GPS positions.

* Retrieve the GPS position of the phone every hour with the date, longitude, latitude and location address
* You can set the interval time to 15 minutes instead of 1 hour
* View GPS location on Google Map
* Retrieve position via mobile network if GPS is disabled

### Why will you find this feature useful?

Protect your children by keeping an eye on their travel.  
Monitor your employees' travel.

**GPS tracking unit**

A GPS tracking unit is a [navigation device](https://en.wikipedia.org/wiki/GPS_device) normally carried by a moving vehicle or person that uses the [Global Positioning System](https://en.wikipedia.org/wiki/Global_Positioning_System) (GPS) to track the device's movements and determine its location. The recorded location data can either be stored within the tracking unit or transmitted to an [Internet](https://en.wikipedia.org/wiki/Internet)-connected device using the [cellular](https://en.wikipedia.org/wiki/Cellular_Network_routing) ([GPRS](https://en.wikipedia.org/wiki/GPRS) or [SMS](https://en.wikipedia.org/wiki/SMS)), [radio](https://en.wikipedia.org/wiki/Radio), or [satellite modem](https://en.wikipedia.org/wiki/Satellite_modem) embedded in the unit.

This allows the location to be displayed against a map backdrop either in real time or when analyzing the track later, using GPS tracking software. Data tracking software is available for [smartphones](https://en.wikipedia.org/wiki/Smartphone) with GPS capability.

## **GPS tracking unit architecture**

A GPS "track me" essentially contains a GPS module that receives the [GPS signal](https://en.wikipedia.org/wiki/GPS_signal) and calculates the coordinates. For data loggers, it contains large memory to store the coordinates. Data pushers additionally contain a [GSM](https://en.wikipedia.org/wiki/GSM)/[GPRS](https://en.wikipedia.org/wiki/GPRS)/[CDMA](https://en.wikipedia.org/wiki/CDMA)/[LTE](https://en.wikipedia.org/wiki/LTE_(telecommunication)) modem to transmit this information to a central computer either via [SMS](https://en.wikipedia.org/wiki/SMS) or [GPRS](https://en.wikipedia.org/wiki/GPRS) in form of [IP](https://en.wikipedia.org/wiki/Internet_Protocol) packets. Satellite-based GPS tracking units will operate anywhere on the globe using satellite technology such as [Global Star](https://en.wikipedia.org/wiki/GlobalStar) or [Iridium](https://en.wikipedia.org/wiki/Iridium_satellite_constellation). They do not require a cellular connection.

## **What is GPS Tracking System? | GPS Tracker**

A GPS or GPS Tracking System is a Global Positioning System, which is used to determine the exact location with the help of GPS device and software to visualize. GPS location can be of great use in various situations of life. For example, in case of natural disaster exact location of a person can be life savior information. In case of vehicle theft, location information can help in recovering the vehicle, and with the help of current technology, there are loads of information that can help a businessman improve productivity by saving extra cost due to unwanted driver's behavior.

GPS Tracking system has two important aspects. First is hardware, and second is the software that translates the data in readable and useful format.

There are different hardware companies running in different countries. Basic information that Tracking system provides is the location information in terms of Latitude and Longitude, along with time stamp. An Advance tracking system which is either for personal use or vehicle management, have ‘Premium Features' which is discussed later in detail.

Hardware:

Device that has a Sim card inserted in it communicate with the server over a cellular network, once in every 10 seconds. In most of the devices, that are used for longer duration like a year or more, there are connecting wires to attach the power source. Most of the devices have an inbuilt battery as well, but that is only for emergency cases when either power source dies or device gets disconnected. The device has different indicators on it to check the working of sim card network, power status, server connection confirmation etc. Installation of a device is an easy job of 10-15 minutes if done by a skilled technician. There are devices used for short term emergency cases by Police, Army or detective that has a battery life of 4-5 days and a don't need any installation as device sticks to the object magnetically.

**Software:**

Software is the most crucial part because it communicates with the end user. With infinite ways to showcase the data to users, in accordance with the need, preference and choice, software becomes most important for both business and personal use. All the data communicated by hardware with the server and gets translated into meaningful information that a user can digest and take decisions for family and business.

1. **Live Tracking**: User can see the person or vehicle live on Google Maps with an accuracy of Google maps that depends on Place, Time and carrier network.
2. **Notifications of important locations**: Mobile notifications are very useful. For the places which matter most, like Home, Office, Garage, Shipment destination, warehouse etc., a notification on mobile can be of great use that confirms the arrival or departure of vehicle or person. Concern for a vehicle, family members, goods delivery etc. can be kept away with such notification. Peace of mind comes with such prompt and accurate notifications. A famous term in telematics industry for the explained scenario is Geofence or Safe Zone alerts.
3. **Travel History**: Past record of travel route with time and address is of extreme help in identifying problems and in verifying things. An extremely simple and beautiful interface can show the past records and travel route on a play video mode where a user can see the vehicle moving on a map. The user can pause the video to check the address and time and can view any history video saved on the server.
4. **Analytics and Insights**: For any business, data is the most reliable source to take business decisions. One can analyze data points if presented in a simple and meaningful format. For example, distance covered in a day and total run time can indicate a lot at a monthly level. The idle time that indicates the wastage of fuel with no productivity can help in controlling the cost. In cases, where over-speed is of concern, one can check the stats and discuss with the concerned person.

**GPS tracking system** is currently in its early stage and is growing every day. Analogous to how mobile and network providers grew from the year 2001. People take extra precautions to protect their assets (bus, car, truck, bike). Family comes first for everyone, and a when a small amount of money adds valuable security features to business and family, people will be happy to have the security added in their vehicle and for loved ones.