



Survey on GPS Tracking

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Abstract:

This paper deals with the introduction of GPS Tracking. And then a detailed view on Working of GPS Tracking and its uses are given. And finally, Pros and Cons are described detailed. GPS Tracking System were used globally by all type of sectors like, Airways, Railways, Government and even more by People on their mobiles.

Keywords — *GPS Tracking, Location, Common gadget, Augmented reality, Navigation.*

I. INTRODUCTION

The term "GPS Tracking" refers to the usage of a Global Positioning System. It includes a community of 24 satellites in orbit and ground-primarily based totally gadget that may pinpoint a person's or object's particular region on Earth. Positioning, Navigation, and Timing are the 3 information units tracked with the aid of using GPS Tracking.

II. WORKING OF GPS TRACKING

In modern world, GPS era is sort of unavoidable. The majority folks utilize it on a day-by-day foundation without giving it a 2nd thought. GPS Tracking wishes the setup of a monitoring tool in a vehicle, on a bit of equipment, or on a person. This monitoring machine gives correct area data in order that it may file on the precise area of a vehicle, piece of equipment, or person.[2]. The Global Navigation Satellite System (GNSS) community is utilized by a GPS Tracking machine to do this. This community is made from satellites that connect with GPS machine to offer statistics on a vehicle's cutting-edge area, direction, time, and speed. Location statistics may be broadcast in close to actual time over a GSM or 4G cell community, or it may be stored to inner reminiscence and downloaded later. The latter is called statistics logging, and it may be used to music belongings in far off locations. [7]

III. GPS TRACKING USED FOR

GPS used in Military:

GPS became first of all developed for army use, and it's miles nonetheless used to music troop movements, aircraft, marine navigation, and different things. For army devices placed in strange united states or at the flow at night, that is critical.

Search and Rescue:

Search and rescue efforts include GPS tracking as well. It allows rescuers to keep track of where they've looked and even obtain information from a missing person's phone or GPS device.

GPS Vehicle Tracking:

Commercial fleets frequently use GPS tracking to keep track of their vehicles [3]. Fleet managers may watch their driver's positions and statuses as well as gain valuable information about their fleet's performance by installing GPS devices on their vehicles. GPS tracking systems are an important part of fleet tracking because they allow fleet managers to keep track of their vehicle's location and activity, improving efficiency and safety [4]. Furthermore, GPS tracking improves the accuracy and efficiency of routing and dispatching.

GPS Recreational Uses:

GPS tracking is featured in most wearable technology, such as watches used for running, biking, and hiking, to provide users with information on distance travelled, speed, and location in the wilderness [5]. With the rise in smartphone usage, nearly everyone now keeps a GPS tracking gadget with them. This technology can be applied in a variety of ways, from augmented reality (AR) apps to location-based games.

IV. PERSONAL TRACKERS

Numerous GPS trackers are virtually compact. Wearables, or devices designed to be worn, are one form of GPS tracker. Some trackers are round the dimensions of a watch. Hikers and hunters can use those to speak their places within the occasion of an emergency. Some even characteristic a button that, usually the use of cell networks, may also broadcast a plea for help in conjunction with their location.

V. WEARABLE TRACKERS

Some devices, like a molecular phone, are a bit larger and subsequently now no longer wearable. They do, however, consist of a screen, letting them function each a tracker and a GPS navigation system. Although many wearables declare to be GPS devices, they may be now no longer. For instance, key finder pendants the scale of 1 / 4 usually hyperlink via Bluetooth.

VI. PLUG IN TRACKERS

Plug in GPS trackers literally plug into a port on a car. All American vehicles are required to have an OBD II port as of the middle of the 1990s. The computer of the mechanic is plugged into this to receive data from the car's sensors. A GPS tracker can receive data and power via the port. Plug-in trackers (like the GoTrackEZ) are compact, incredibly simple to install, and have the ability to detect whether a car is on or off. They can select between active and sleep modes as a result. They may also use it to send alerts anytime a vehicle is started or stopped. Both home and office customers should consider plug-in models [6].

VII. HARDWIRED TRACKERS

Hardwired devices are stressed without delay right into a automobile, such the Go Track 3-Wire. If a automobile lacks an OBD II port, this will be done. Older automobiles might not have OBD ports, and diesel vehicles may also make use of a separate OBD well known this is incompatible. GPS trackers which might be hardwired also can be disguised. They can be located everywhere below the dashboard due to the fact they're now no longer related to the OBD port. However, they nevertheless keep all of the advantages of the plug-in layout if nicely outfitted. A hardwired device may also sometimes deliver clients greater freedom than a plug-in variant. Hardwired GPS trackers can also be blanketed up. Because they're now no longer connected to the OBD port, they'll be placed everywhere underneath the dashboard. If outfitted nicely, they nevertheless experience all of the benefits of the plug-in layout. Customers may also sometimes have extra freedom with a hardwired tool than a plug-in model [6].

VIII. BATTERY POWERED TRACKING UNITS

GPS trackers that run on batteries, like the TTU-720 from GoTrack, are not dependent on a car's electrical system. They will be powered by a long-lasting battery of their own. They communicate their whereabouts to monitors much like any other tracking device. However, they might not check in as frequently to preserve battery life. When the vehicle is moving, vehicle mounted devices typically report in once every minute, and once every hour when it is not. While they detect motion, battery-powered GPS trackers typically send in a report once every 15 minutes, and once every four hours when they are at rest. The batteries may frequently function for months (or longer) without needing to be recharged. They are bigger than plug-in devices and frequently made to be fastened with bolts [6].

IX. GPS TRACKERS ARE LEGAL

Concerns about the privacy implications of GPS tracking have resulted in regulations governing how these devices can be used. Installing a GPS gadget on a vehicle or object you own is perfectly lawful. However, before installing a GPS Tracking device on a person's or another's vehicle or property, check the current federal, state, and municipal laws [6]. As new instances arise, these regulations change on a regular basis, so it's critical to stay current.

- If you or your company owns the asset or vehicle, using a GPS Tracking device is legal.
- Employers must make certain that their car tracking software is only utilized for commercial purpose.

X. GPS TRACKING IN FUTURE TECHNOLOGY

GPS tracking devices are already much smaller than smartphones, and this trend is expected to continue. Recent technological advancements have made it feasible to produce GPS receivers and batteries that are the size of a thumbnail, making GPS monitoring systems a long-lasting application. Fast advancements have been made in the GPS tracker's integrated software. Numerous firms may get real-time data from a specific location with the use of software. Improved mapping capabilities, the ability to interact with tools like Google Earth, and predictive diagnosis are all possible with the usage of software. Today, several devices may be tracked on a single screen owing to intelligent software. Using the program, it is also possible to assess the condition of the roads. This development is anticipated to lead to the rapid availability of GPS tracking software that is both accurate and scalable.

XI. PROS OF GPS TRACKING

GPS makes navigation a bit easier because it tells you which way to go for each turn you make; Otherwise, you'll have to guess your way to your destination.

GPS operates in all weather conditions, so you won't have to worry about the weather like you would with other navigation gadgets.

When compared to other navigation system, GPS is very inexpensive.

The most appealing feature of this approach is its complete coverage of the globe.

In larger bodies of water, we are frequently confused due to a lack of suitable directions, thus this is the most basic navigating strategy.

There is a GPS signal everywhere. As a result, it will be available to users at all times.

GPS is widely used throughout the world because it is powered by global satellites and can be accessed from anywhere. All you need is a good tracking system and a GPS receiver. [7]

XII. Cons of GPS Tracking

GPS might fail for a variety of reasons. Better you should have a backup map and directions with you at all times.

If you're using GPS on a battery-powered gadget, the battery may die, necessitating the use of an external power source, which isn't always possible.

Due to signal obstruction such as buildings and trees, as well as extreme meteorological circumstances such as geomagnetic storms, GPS signals are occasionally inaccurate.

The GPS chip consumes a lot of power thus the battery lasts for 8 to 12 hours. The battery on this device must be replaced or recharged on a regular basis.

GPS signals do not pass over solid constructions or walls. Large constructions or structures are also causing problems.[7]

XIII. CONCLUSION

This paper dealt with GPS Tracking and its working methods. In this paper, pros and cons of GPS tracking, Uses of GPS and Legalities of GPS tracking also shown. Nowadays GPS Tracking Systems are developed with more interesting features.

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