



Geotagging Employees for Attendance Management



White Paper

www.indiumsoftware.com

Introduction

The market for geolocation-based services has boomed over the last few years. While it was valued at USD 36.2 billion in 2019, and it is expected to grow at a CAGR of 23.2 per cent to reach USD 126.4 billion by 2025.

No doubt, the increased use of smartphones has been a primary driving factor for geolocation based services – often referred to as geotagging. This is further boosted by the adoption of transformative technologies such as cloud and IoT, which are empowering enterprises to manage their workforce better even when there are working remote.

How it works

Geotagging has become very common, primarily because the global positioning system (GPS) available in your mobile phone or personal computer can identify your location and coordinates of the metadata associated with this location. This is primarily the latitude and the longitude of the location you are in, but it could be more, including the weather in your location, other people close to you, etc.

When you search for restaurants or shops, those near your current location are listed first using the coordinates based on your GPS information. There are other potential use cases of geotagging that can help businesses improve productivity, employee management and devise strategies that can target their potential customers in a more focused manner.

Use Cases

Across Industries

The potential for use of geotagging is unlimited. We are already seeing its pervasive presence in several areas across industries. We start off with some of the more obvious

Logistic services

Shipments can be tracked and any deviation from the specified delivery location can trigger an alert. This will help in taking timely action to make sure the shipment is not lost or delivered wrongly.

Cab services

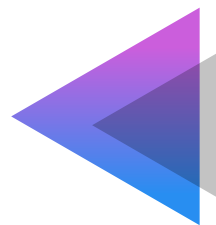
- When a passenger requests for a ride, geotagging can be used to identify the driver closest to the passenger. This will reduce the waiting time of the passenger as well as use the available drivers more effectively
- In places such as airports, cabs can be assigned for new rides based on the sequence of their arrival at the airport to minimize their waiting time
- This can also help understand patterns and introduce efficiency of drivers. This is a useful feature for the logistics industry as well

Across Functions

Geotagging can also be used for improving the efficiency of different functions

Attendance

- While biometric devices have changed the way we maintain the attendance register for employees, small to medium-sized enterprises with multiple office spaces may find this an expensive proposition. Geo-fencing based app is a cost-effective alternative



Sales Visit

- Enterprises track and rate the performance of their sales and services executives using an OTP system. But this is vulnerable to misuse. SMS gateway issues may cause the SMS not be delivered to the retail shop owner, causing difficulty in sharing OTP. A geolocation-based validation is very simple and reliable. The app can record the geolocations which can be auto-verified to confirm the sales executive's claims. This can also be used for the payment of commissions and incentives to mutual satisfaction
- When employees raise a claim for fuel consumption while on duty, the geolocation data can validate the claims

Marketing and Promotions

- Retail outlets, restaurants and other similar entities can create push promotions to potential customers in their neighborhood, share menu details and ratings based on the geolocation information of their customers.
- Location-specific event promotions can benefit from geotagging information
- Furthermore, with the significant ongoing investments for integration of 3D maps applications with smartphones, market players, such as Nokia, Samsung, and other OEMs, are entering this market. Online web services providers, such as Amazon Inc. and Microsoft Corp., among others, have also started offering 3D maps on their platforms. For instance, Parrot, a prominent player providing wireless devices for mobile phones, has positioned its consumer drones, for 3D modeling, mapping, and agricultural uses. These instances are expected to drive market demand across emerging economies during the forecast period.
- In October 2018, GSMA Global data said that there were more than 9.166 billion mobile connections, including M2M connections and 5.169 billion unique mobile subscribers. With the increased penetration of mobile connectivity, technological advancement in network connectivity and economies of scale have impacted the market positively.
- Furthermore, many retail companies are already implementing geofencing in their marketing strategy. For instance, Walgreens is using geofencing to promote customer loyalty by pushing a notification that allows the user to open their app every time they enter the geofenced area. The user can further view promotional offers by looking at their account details. The implementation of geo-marketing in retail is, thus, boosting the market for locationbased services.
- The location-based services currently face tremendous risks from government policies and regulations on consumer privacy. Most of the software application developers are becoming aware of the increasing international privacy laws, as well as industry codes of self-regulation, that govern its usage. Google is planning to implement a new policy change that will require all of the app developers to undergo an approval process before their apps collect the user's location information while running in the background. This policy is applied for all new apps from August 2020.

Attendance App

Indium Software developed a secure employee attendance management system for a global HR solutions provider for end-to-end employee management. Many of the customers of the HR solution provider have offices in different locations across the country. For marking attendance of their employees, they did not want to use a biometric device due to the high cost of hardware and the maintenance and service it would require. Instead, a mobile app could be used to capture the presence of the employee within the office premises using geotagging. An app is easy to install, more cost effective and can be upgraded when required.

In addition to fixing the location based on the latitude and the longitude of the office, some geofencing details were also provided for greater accuracy. This ensured that each employee would be logged only when they went to their specific office and not the one closest to their home

The Variations

The HR client wanted two conditions factored in. For the companies that have multiple offices in one city, an employee who works in a specific facility should be marked as present only from that specific location. This was to prevent employees from misusing the app to sign in from any facility closest to wherever they were and missing work. The second was to factor in the need for executives to have external appointments with a partner or customer first thing in the morning before they went to office. For this, the executives should be able to send the location coordinates of their meeting venue to the system in the office.

Tools

Indium used the Google Geolocation Service for capturing latitude and longitude information. For geofencing, OpenStreet Map was added for greater accuracy. Fire-based cloud messaging and live tracking of the device enabled capturing meeting information. These tools are used for ride sharing, rider management, salary and compensation system as well as for raising the invoice based on the delivery of service.

Indium Software

Indium Software has been leveraging cutting edge technologies to improve the productivity and efficiency of different industry segments. Geotagging is one of its various capabilities. It has also successfully used geospatial analytics for a ride-hailing company in a southeast Asian country to improve their revenues. Through reports and dashboards, Indium helped the taxi service provider understand the demand distribution geographically at different times during the day and places its cabs accordingly. This cut down on the distance a driver had to travel to pick up a passenger, thus also saving on fuel costs.

There are many such different applications that Indium has capabilities for. Its team of geotagging professionals have crossdomain and cross-technology exposure and experience. If you are looking to improve your productivity and efficiency using geotagging, kindly get in touch with us



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