Abstract

A geofence is a virtual barrier or perimeter around a real-world geographic area. This virtual boundary can tied to a physical location (e.g., a house, school, or store), or it can be dynamically generated with a radius around specific latitudinal and longitudinal points.

Applications

Geofencing technology has several applications that have been utilized for security and marketing purposes. In the area of security, child location services can be notified if a child enters or leaves a designated area, and parents can create a geofence around their home to notify them when their child arrives home after school. The automotive industry deploys geofencing technology to send an alert if a vehicle is stolen. For businesses with a wireless local area network, geofencing can provide security by allowing Wi-Fi access to devices that are only located within the boundaries of the office building. Government agencies can also leverage GPS technology by prohibiting drone access to protected airspace.

Businesses make use of geofencing with creative marketing methods and location-based advertisements. Potential customers who are within the vicinity of a particular business can receive ads or coupons directly to their mobile device. Businesses with a corresponding mobile app can create real-world games or location-based challenges and offer rewards for completing tasks or visiting a physical store. Geofencing also widens the spectrum of marketing analytics by studying customer behavior: Did a particular advertisement bring the customer into the store? How long did they shop? Geofencing technology provides another layer of understanding into customer behavior.

How NOVAtime Utilizes Geofencing for Time & Attendance

NOVAtime harnesses the power of geofencing technology by monitoring employees working in specific locations or doing remote field work. Utilizing a smart phone or a GPS-enabled device such as NOVAtime's native mobile app for iPhones and Android smartphones (NOVAmobile), employees are able to use the NOVAmobile application to log their field work in the following ways:

- Punch Lock-Out Based on GPS Location: NOVAmobile time punches will be accepted if a punch falls within the designated geofence radius. For example, John can punch or transfer if he clocks in/out within 1 mile of the Los Angeles store location. John's punch will be locked out and rejected if he is out of range.

- Automatic Punch Transfer Based on Punch Location: NOVAmobile punches will be automatically transferred to a pre-defined labor group. For example, if John punches in within a 1-mile radius of the Los Angeles store location, the system will automatically transfer John to the Los Angeles store location.

Geofencing in Security

With the ability to track a mobile device as it enters or exits a physical space within the real world, geofencing provides various security applications.

Geofencing in Marketing

Creative marketing techniques can utilize geofencing for location-based ads, games, and capturing and analyzing customer behavior.

Geofencing in Workforce Management

NOVAtime utilizes geofencing in its NOVAmobile application, and offers GPS-enabled features for a mobile workforce.

The portable and rugged NT65M is the ideal hardware solution for a mobile workforce. The certified Wi-Fi and Wireless WAN capabilities provide secure communication for real-time data transfer and up-to-date information, while the IP67 rating ensures complete protection against dust and water damage.

Conclusion

Geofencing technology is increasing in utilization and functionality, and it is currently used for various security solutions and business applications. NOVAtime has also adopted this technology to provide more options for businesses with remote employees. The Punch Lock-Out and Automatic Punch Transfer features, in conjunction with NOVAtime's NT65M, offer a complete mobile solution for businesses that require security and flexibility in managing their remote workforce.