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New SMS based Anti -Theft Security System for Two Wheelers using GSM and GPS

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ABSTRACT : Nowadays security is the primary problem in vehicles. The present days security offers little in terms of safety for the vehicles. The cost of an anti-theft security device is high priced hence an efficacious alternative is required. For monitoring a transferring target, a technique referred to as location-based delivery (LBD) which integrates short message service (SMS) and global position system(GPS) is proposed, and further, monitoring a moving target is established. It transmits the geo-region records of a target via wireless networks. It is efficacious when both the target and the tracker are inside Wi-Fi coverage place. When the target or the tracker is not able to access Wi-Fi, it's not possible to perform region monitoring. Therefore, SMS is a highly more dependable and flexible solution due to its full-size use. In this machine, a device is geared up with a global system for mobile communications (GSM) modem and a GPS unit. It transmits brief messages containing its GPS coordinates to the server at 30-s intervals. LBD reduces the amount of brief message offerings when monitoring the target in the range. The proposed method, LBD, entails three primary features: Short message format, dynamic threshold and location prediction. The result exhibits that LBD keeps up the location following exactness with commonly less messages.

KEYWORDS: Short Message Service (SMS), Location Tracking, Global Communication system for mobile (GSM), Global Positioning System (GPS).

I. INTRODUCTION

Location based tracking and handling the devices is based totally on the global position system(GPS) is common in the developing world, and therefore, several location tracking applications had been developed, including area based transport, machine or vehicle based shrewd transport, monitoring vehicles, tracking elders, children's and women employees for their safety motives or to save you them from the being lost. The GPS is specifically used to gain geographical location of the object (e.g., a transmitter device). The foremost aim of the device is to transfer the area and position of the objective to the mobile device to a GPS software server through the 802.11 wi-fi networks. This software lets in the server to concurrently monitor multiple targets. In this gadget, a hardware tool referred to as Star Box, which is equipped with a global gadget for cell communications (GSM) modem and a GPS unit. Star Box transmits short messages containing its GPS coordinates to the server at 30- s intervals. The customers can send short messages to the server to decide the expected arrival time of buses at their locations. Although transmitting the geo area statistics of a target through wireless networks is powerful when both the target and the tracker are inside Wi-Fi coverage area, the 802.11 wi-fi networks aren't constantly accessible. When the target or the tracker is unable to access Wi-Fi, it is impossible to perform location monitoring. In the Proposed System, a method called location-based delivery (LBD), which combines the short message service (SMS) and global position system (GPS). LBD transmits server messages containing its GPS coordinates to the server at 2 mins interval. Therefore, SMS is a particularly greater dependable and flexible solution because of its significant use. However, SMS is a user-pay service. The objective of this study is to decrease the transmission price of a monitoring gadget with the aid of minimizing the wide variety of SMS

II. RELATED WORK

A. Location-based delivery (LBD)

Location based service(LBS) combines the short message offerings (SMS) and global position system(GPS). LBS is an informative service, which is obtainable with mobile devices through the mobile network and which makes use of information at the geographical position of the mobile device. The proposed approach, LBD, consists of three primary features: Short message format, location prediction, and dynamic threshold. Location prediction is achieved by means of the usage of the present day location and moving speed to expect its next vicinity. When the gap between the anticipated location and therefore the actual location exceeds a particular threshold, the target transmits a brief message to the tracker to update its current location. The threshold is dynamically adjusted to keep the area tracking accuracy and the variety of short messages on the premise of the moving speed of the target. It maintains the location tracking accuracy with fairly fewer messages. The threshold is dynamically adjusted to hold the area monitoring accuracy.

B. Global position system

The Global Positioning System(GPS); is a space-based totally satellite route framework that gives location and time information in all weather conditions. GPS satellites transmit microwave signs at GPS recipients that utilizes facts from the signal to cognizance the location of the recipient. The framework depends on information given through GPS satellites to focus the contemporary area of transports taking part inside the framework. In spite of the truth that GPS devices maintain diminishing in value, they're included as a characteristic of top of the line cell telephones.

III. PROPOSED METHODOLOGY

In this framework, a system is geared up with a global system for mobile communications (GSM) modem and a GPS unit. Fig. 1 demonstrates that framework transmits brief messages containing its GPS guidelines to the server at 2mins intervals. Although transmitting the geo-area facts of a target through remote systems is powerful when both the target and the tracker are within the Wi-Fi zone, the 802.11 remote systems aren't generally available. When the target or the tracker isn't able to get Wi-Fi, it's tough to predict the location. In this way, SMS is a moderately more dependable and adaptable arrangement in view of its far attaining utilization. The transmission price of SMS transmissions while keeping up the location precision is high.

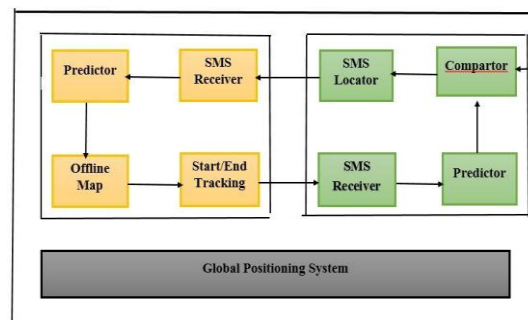


Fig 1. System Architecture

IV. PROPOSED MODULES

In the previous section, we've already shown machine structure and its performance. In this section describes module names and its functions. The modules are as follows.

A. Subscriber Identity Module (SIM)

SMS is the most normally utilized information application across the world. The proposed framework makes use of SMS to transmit messages and take delivery of that, the message differs among the tracker and the target is irrelevant. A short message is transmitted from the transportable station (MS) to the GSM base station (BTS) through a remote connection and is gotten in the spine machine of the management supplier. The versatile transfer focus (MSC), home location register (HLR), and visitor location register (VLR) focus an appropriate short message management focus

(SMSC), which forms the message by way of making use of the "store and forward" instrument. On the occasion that the beneficiary is inaccessible, the SMSC lines the message for a retry at a later time.

B. Location prediction

The location expectation module, which is implicit in both the target and the tracker, utilizes the statistics at the contemporary area. Area forecast is achieved by utilising the current vicinity, transferring velocity, and route of the focus to its next place. At the factor when the separation among the expected location and the real area surpasses a certain edge, the target transmits a short message to the tracker to upgrade its present vicinity.

C. Viewing map

At the factor when the tracker receives a reaction message from the target, it implies that the exactness of the predicted location is excessively low. Consequently, the Map upgrades the target location statistics as consistent with the acquired message instead of as per its expectation. Especially, the messages from the target are received by the SMS Receiver on the tracker side. The SMS Receiver extricates the area statistics from the received message and passes it to the Map, which hence suggests and imprints the target location with a guide.

V. PERFORMANCE ANALYSIS

As we illustrate from the above discussion, the paper concludes that a message is being dispatched stating that the target is at some precise distance which in turn does not give us the exact vicinity and that system lags in accuracy. In this paper we've conquered the main disadvantage that is accuracy. As the tracker starts to track the area of the target the location messages are being dispatched from the target to the tracker. When the target moves beyond the threshold value then there's a message that is sent to the tracker. By this manner the quantity of messages sent is decreased and for that reason reducing the message transfer and hence retaining the accuracy of the target wherein the tracker and targets area keeps changing and for that reason it gets updated.

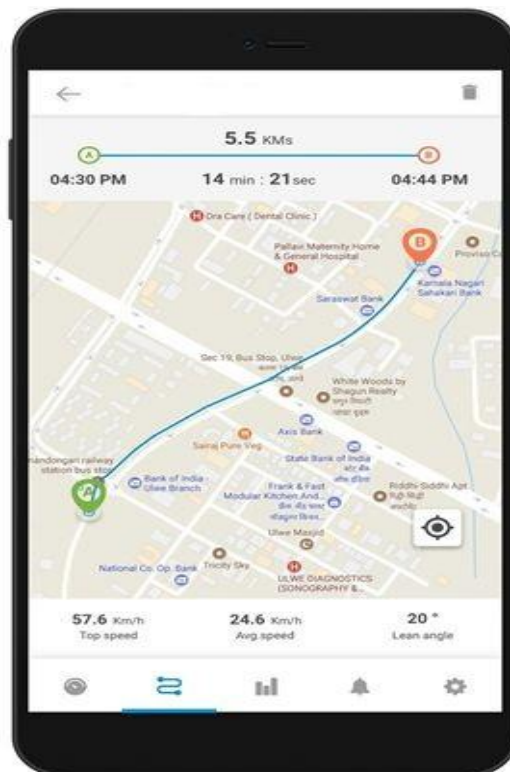


Fig 3 Mapping the Location

Fig 3. The update of latitude and longitudinal values shows us the exact location of both the tracker and the target . The map offers us the exact place of wherein the target truly is. As the tracker and the target location is being updated continuously. Thus, excessive accuracy is maintained via reducing the message transfer and simultaneously preserving the location monitoring.

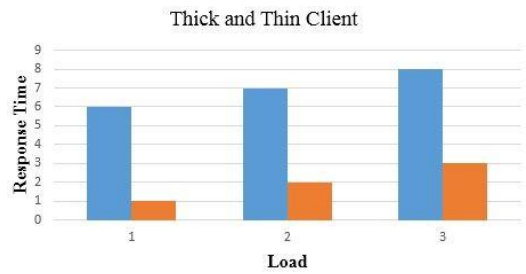


Fig.3. Time taken for delivering the short messages

Fig.3 Depicts the tracker and targets response time messages that are obtained at a regular time interval when there isn't always a good deal of load message i.e. queuing of messages. The reaction is quicker when there are much less of load messages.

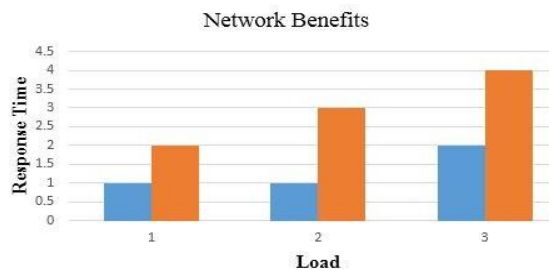


Fig 4. Network Benefits

Fig.4 Shows the network is appropriate for tracking. We may even use it in a wifi range. But it's far useful when both the trackers and target are in the wifi range. The graph shows that the response time is first-rate in 2G.

VI. CONCLUSION AND FUTURE WORK

Location tracking research is grown wisely through SMS. SMS is a client pay administration. The quantity of SMS transmissions must be minimized while keeping up the location to decrease the transmission cost. In addition to defining the fast message format, LBD makes use of the current location and speed to predict its next vicinity. In LBD, the shifting pattern information of the target is transmitted when the space between the anticipated location and the real location exceeds a certain threshold, which is dynamically adjusted according to the speed of the target. In LBD, the range of brief messages required is significantly reduced. In addition, LBD achieves an acceptable region tracking accuracy. Finally, the use of a dynamic threshold reduces the desired range of quick message transmissions as compared with the constant threshold. To discover the petrol degree inside the petrol tank. When a person attempts fuel theft then the microcontroller instructs the GSM modem to send a textual content message as an alert to the vehicle owner and similarly an alarm is raised through the buzzer installed inside the machine. In the SMS based petrol theft detection device, we've used a Level sensor to locate the petrol level inside the petrol tank. If the level goes beneath a certain threshold stage then this sensor gives a particular signal to the microcontroller. Then the microcontroller activates the buzzer and sends SMS to the car/bike proprietor.

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