Online Shopping With Real-Time GPS Tracking

Abdul Hafeez Shaikh[1] Rakesh Jain[2] Shrinidhi A. Gindi[3]
[1,2]B.E. Student [3]Assistant Professor
[1,2,3]Department of Information and Technology
[1,2,3]M.H. Saboo Siddik College of Engineering Mumbai India

Abstract— As the popularity and increases trend of online shopping the fast delivery methods and security is concern. We proposed GPS based technique which track the actual location of the product on Google maps (i.e. on server side).The system include drone for on-time delivery purpose and GPS/GPRS module to location acquisition and transmission. We have to transfer actual location of the product to server in real-time. We have to show actual positioning of the product while it transferring from product warehouse for security purpose. When online shopping is started fraud and security is concern so that we have to provide Location Based Service method for tracking the actual position of product.

Key words: Online Shopping, Location Tracking, GPS, Google maps

I. INTRODUCTION

Insufficient trust is one of the reasons suggested that individuals hesitate to purchase via Internet. This study integrates the literature on familiarity and self-efficacy to determine their joint impact upon individual trust toward shopping online [1]. Online Shopping Software main purpose is to provide customers with the possibility to perform online purchases on products already on store. Customers are identified properly and are able to perform online transactions using three kind of methods: either using credit card or banking documents, but also through PayPal account. Online Customers are divided on two categories upon user account types: basic and business.

Basic accounts beside other attributes contain a specific one named Fidelity which deals with the number of years the user has been joining the online shop. On the other hand is business plan which is characterized uniquely by the Volume attribute that is the total amount of transactions performed within the online shop. On Line shopping has many advantages over traditional physical shopping such as low cost, real time, interaction, personalized, cross-domain etc [2]. The customer is able to operate throughout the system after properly authenticated. He is able to create a cart and add products to it or delete them as well. Then he decides whether he might go on with the checkout operation and complete the purchase. Once the user decided upon the plan to use: basic or business, he is given the alternatives to pay through the previously mentioned methods accordingly. Once the purchase is confirmed by the customer and admitted by shop commission, customer details come into use in order to define the shipping address and other supplementary information. Customer can also choose delivery option either normal deliver or on time delivery. In on time delivery option drone are used to deliver the product and at server side drone position is track and it also used for security purpose which is used in normal delivery process while mobile phone is used for tracking using GPS. Increasing commercial use of the Global Positioning System will soon make it possible to locate anything, anywhere, anytime. The Global Positioning System can provide extremely accurate location information for mobile objects and people which is far superior to earlier tracking techniques. The challenge today is integrating the necessary components into older systems and improving GPS accuracy in areas with numerous obstructions [3].

The proposed system view real time positioning and recorded tracks of a mobile phone adapted for the system. It reads the current GPS location of the mobile phone device using a GPS Receiver which may be external to or integrated in the device and sends data to a GSM network via GPRS where the data is forwarded to a main server database [4].

A. GPS Technology:

Global Positioning System (GPS) is a system composed of a network of 24 satellites of the United States, which are originally used in military services, and later allowed for commercial use. The satellites periodically emit radio signal of short pulses to GPS receivers. A GPS receiver receives the signal from at least three satellites to calculate distance and uses a triangulation technique to compute its two-dimension (latitude and longitude) position or at least four satellites to compute its three-dimension (latitude, longitude, and altitude) position. Once a location is computed, it can calculate an average speed and direction of traveling. Therefore, GPS is a key technology for giving device its position.

B. GPRS Technology:

General Packet Radio Service (GPRS) is an enhancement of GSM networks to support packet switched data services such as email and web browser in addition to existing GSM data services such as Short Message Service (SMS) and Circuit Switched Data (CSD) for fax transmission. GPRS operates on the existing GSM network infrastructure that it utilizes available time slots during each frame transmission. Thus, it does not overload the existing GSM network traffic and can efficiently provide data services. The GPRS can transfer data at the maximum rate of 115.2 kbps (with the eight available slots of each frame). Due to a very large coverage area of GSM networks around the world, GPRS becomes the largest data service network available and always-on; thus, it is most suitable for a real-time tracking management system.

C. Google Maps:

Google Maps is a desktop and mobile web mapping service application and technology provided by Google[5], offering satellite imagery, street maps, and Street View perspectives, as well as functions such as a route planner for traveling by foot, car, bicycle (beta test), or with public transportation. Also supported are maps embedded on third-party websites via the Google Maps API, and a locator for urban businesses and other organizations in numerous countries around the world. Google Maps satellite images are not updated in real

time; however, Google adds data to their Primary Database on a regular basis.

II. IMPLEMENTATION

Our real-time tracking management system is an open system that uses free and open source software and is composed of commodity hardware that is easy-to-find. Our system is composed of three components, a GPS Tracking Device, a server and a database as shown in Figure 1.

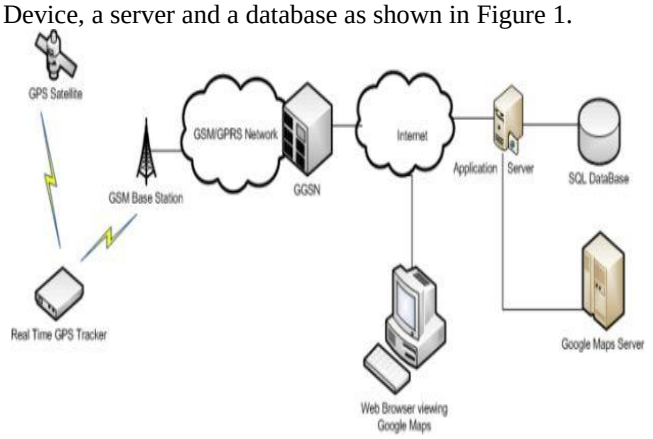

Fig. 1: Components

This project describes how you can build a mobile real time GPS tracker with integrated Google Maps. It shows in figure 1.

The GPS tracking device is an embedded system that transmits location information to the server through GPRS networks. The server is a personal computer that receives the information and put it in the database. The database formats the information in a special form that can search and display using Google Map.

The GPS chip outputs the positioning information which is transferred over a GPRS link to the mobile operator's GGSN (Gateway GPRS Support Node) and then to a remote server over a TCP connection.

The TCP server stores the incoming positional data in a mySQL database. When a user clicks on time delivery then user product is attach on drone and drone position is track in server side it also, serves up an HTML page with an embedded javascript code.

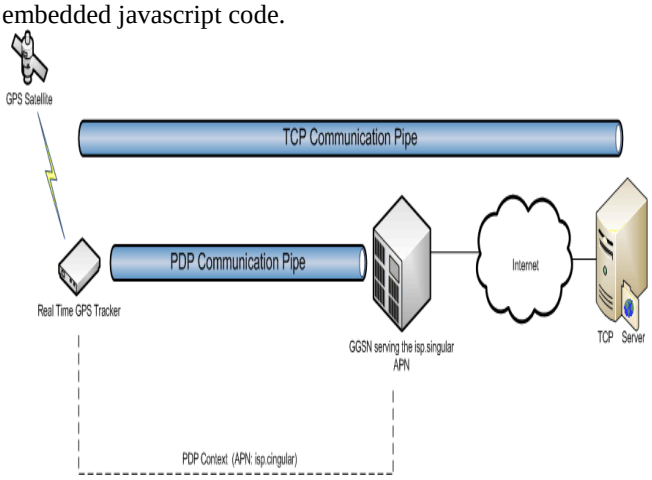

Fig. 2: Pipelining between components

The javascript would run in the user's browser and has instructions to retrieve the positional information from the mySQL database every second. It then integrates this information into Google Maps through Google Maps API which displays the position on a map. Since the positional information is retrieved every second and the maps updated at the same frequency, a real time GPS tracking effect is achieved.

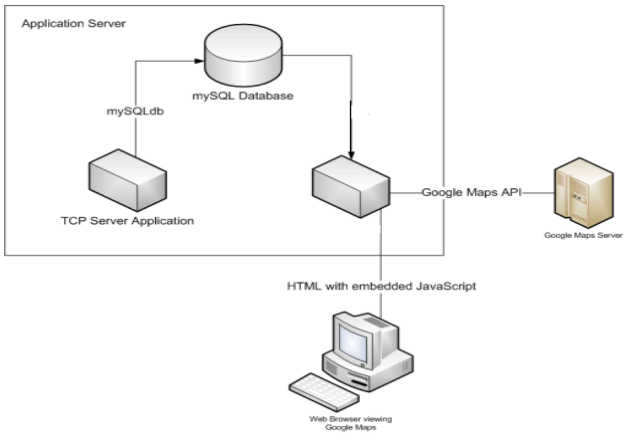

Fig. 3: Interaction Process

III. RESULT AND DISCUSSION

We have implemented a prototype based on the designed in Section II. Figure 1 shows the prototype of our GPS Tracking Module. Figure 4 shows the online shopping site in which customer can select the product and choose the delivery option which shown on Figure 5.If customer can chooses on-time delivery option then drone is used to deliver the product and at the server side drone and product location is tracked this method is also useful normal delivery process while delivery boy can deliver the product. Delivery boy mobile is connected to server side and mobile location of delivery is fetch so that product and delivery boy location is tracked. This concept is used for security purpose while delivering the product. Figure 6 shows the location tracking in google map.

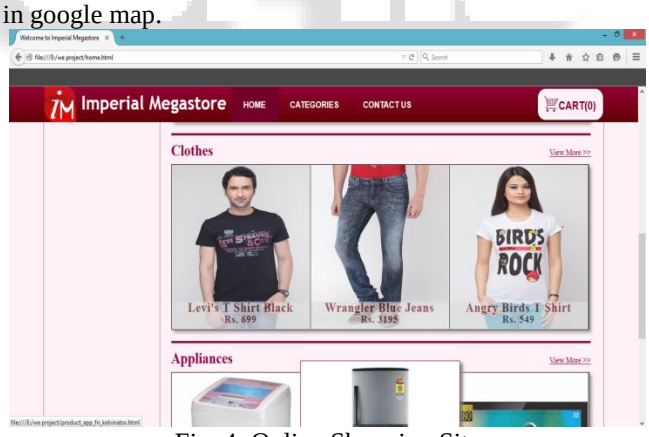

Fig. 4: Online Shopping Site

Fig. 5: Choosing Delivery Op

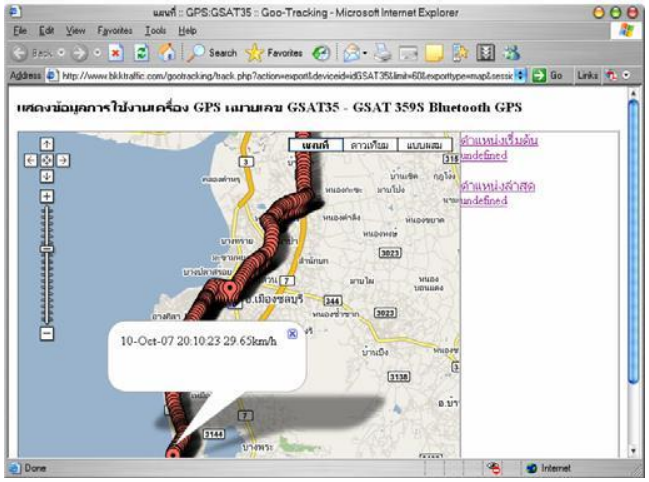

Fig. 6: Tracking of product on google map

IV. CONCLUSIONS

In this paper, we have proposed an open source GPS tracking system, for on time delivery process and for security purpose, using inbuilt mobile hardware and open source software. It is used to find actual positioning of product while delivering the product on on-time delivery process or while in normal delivery process for security purpose.

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