Utilizing Mobile for On Campus Location Tracking And Video Calling

Jadhav Sumit, Patil Tejas, Patil Vaibhav, Tayade Vishal

***Abstract*— A Wi-Fi phone uses wireless technology. There are designated areas in cafes and public**

areas known as hotspots where you can use a Wi-Fi phone. The Wi-Fi phone has all the same features as a regular phone. With normal cell phones, you can make calls, text message, receive voice-mail track friend location over Wi-Fi network .The Wi-Fi phone has greater data retrieval capabilities and wider Internet access. There is no need for telephone lines to connect to the Internet. Wi-Fi enabled mobile phones are popular in college going student, so we are developing an application in which users will be able to chat on android phone over IP within

WI-FI networks. This system is designed to make voice communication between the users. In this project we implement a simple and cost effective system that assists users in tracking colleagues and friends within a campus environment.

***Index Terms*— Wifi, Location, Tracking, video calling, free messaging**

I. INTRODUCTION

In this topic we report on the design and implementation of an indoor location tracking system that uses the existing on campus Wi-Fi infrastructure and signal strength to determine a users location. The solution presented is cost effective, does not require any additional hardware resources, and is transparent to the GSM operator in the country. The proposed solution uses Wi-Fi enabled mobile phones and access points in addition to a web server equipped with a GSM (Global System for Mobile Communications) modem. It reports to subscribers the most recent location of a user as well as a history of his or her previous locations within a specified time window.

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A. LITERATURE SURVEY

1) Indoor Localization using Smartphone Inertial Sensors [2014] :

[1] Since the publication of the white paper, the group has produced several more in-

depth materials, including a standard terminology definition and use cases for Indoor

Localization that act as references for vendors and operators considering implementing

localization

2) A Signal Strength Based Location Estimation Algorithm within a Wireless Net-

work [2013]:

[2] This paper proposed the notice board system which saves time, energy and hence environment. Cost of printing and photocopying is also reduced as information can be given to a large number of people from our fingertips. Thus we can conclude that this paper gives an idea to make use of GSM in communications to a next level.

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3) Indoor localization on mobile phone platforms using embed- ded inertial sensors [2013] :

[3] In this survey we found a simple and cost effective system that assists users in track-

ing colleagues and friends within a campus environment which was brought in the IEEE

paper. The report on the design and implementation of an indoor location track- ing sys-

tem that uses the existing on campus Wi-Fi infrastructure and signal strength to determine

a user s location.

Project name	Year	Author	Advantages	Limitation	Application
Indoor Localization using Smartphone Inertial Sensors	2014	Yang Liu, Marzieh Dashti, Mohd Amiruddin Abd Rahman, Jie Zhang	1. Knowledge about Wifi Services. 2. Tracking user indoor environment	Tracking is not cost effective and free.	Indoor tracking
Indoor localization on mobile phone platforms using embedded inertial sensors	2013	Y.Liu, M.Dashti, J Zhang	1. we can use in android platforms. 2. we can use in public ultility areas	There is limitation on platforms of Android	Android-driven
A signal strength based location estimation algorithm within a wireless network	2011	Kevin Chin Yiu Shun, Quan Jia Cheng	1. Effective use of Signal strength 2. Effective use of Algorithm	Algorithm may encounter bugs	Wireless network application
Pedestrian localization for indoor environment	2010	O.Woodman and R. Harle	1. Quick response for pedestrian 2. Effective for hit and miss scenarios.	Only superficial activity	Street view application

SURVEY TABLE

B. User Classes and Characteristics

1) Web Server: The main tasks of PHP server are: register users, update the database, retrieve user location, sends out user location information via SMS and post it online.

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2) Android Application: On the mobile side, the application was developed and implemented using Android SDK. The application runs on any Android OS based phone. Note that the application can only operate on a Wi-Fi enabled mobile phone.

3) Database: The server uses a MySQL database. MySQL is an open source relational

database management system which uses Structured Query Language (SQL). MySQL was chosen because of its reliability, speed and flexibility. The server receives requests from the application program. The request can be either to register a new user, update

user information, or locate an existing user. The server tokenizes the user requests, and issues the appropriate SQL statement to perform the required action.

4) GSM Modem: A GSM modem is used to send/receive the SMS messages. The GSM

modem is connected to the web server. The GSM modem was programmed to send/receive

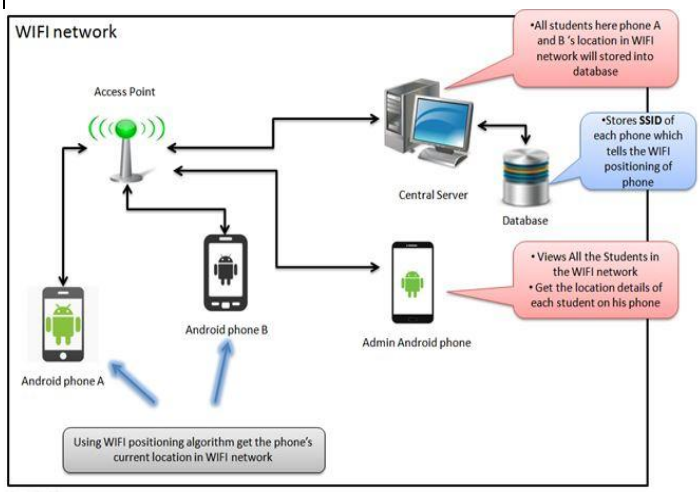
the SMS messages.

C. Functions

1) Track a particular phone/student: Admin will be able to track a particular student and know his/her details on phone.

2) Chatting/Voice and Video Calling: One user can chat with other online users.Users can make voice calls within the Wi-Fi network with online users for free.Users will be able to make Video call without 3G network or Sim Card.

D. System Architecture



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5. Track a particular phone/student Admin will be able to track a particular student and know phone

6. Chatting One user can chat with other users

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7. Voice Calls: Users can make voice calls within the Wi-Fi network with online users for free

8. Video Call: Users will be able to make Video call without 3G network

E. Conclusion

This partial report has presented on campus location tracking, a wifi based platform optimized for tracking. This Project presents Economical and Reliable Mobile Tracking System using WiFi. Our proposed mobile location system consists of an array of access points that constantly collects data packates within the wireless media. The Collected data such as MAC

and IP addresses and SSID is then relayed and stored in database. This Project brings out users as beneficiaries by allowing then Free Messaging and Voice/Video Calling among themselves. In future work our project leads to indoor localization and tracking beyond campus and in other locations such as Malls and railway station realizing the smart cities networks.

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