

VISUAL NAVIGATIONAL ALERT SYSTEM FOR INDIAN FISHERMAN IN ANDROID PLATFORM

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Abstract: The main aim is to give a well understandable user friendly environment for Indian Fisherman to handle hazardous situation with the help of modern technology gadgets. One of the huge problems faced by Indian Fisherman is being threatened by neighbor country coastal guards for crossing IMBL. This is because of lack in knowledge of position system. This paper comes with a reliable solution for this problem and protects the Indian fisherman from dangerous situation and being crossing the maritime boundary and save their life and improve the safety of fisherman. This made possible by developing an application in Android Mobile OS which is feeded in mobile computing smartphone device. The application uses the information of smartphone inbuilt GPS & GSM module. For positioning and give alert messages to base stations, friends & family. Keeping the lives of Fisherman in mind, this system has been developed to help them not to move beyond Indian Boundaries. On the whole it's an attempt to build a suitable device for fisherman at low cost & user friendly.

Keywords: Android, Mobile Computing, Smartphones, GSM, GPS.

I. INTRODUCTION

Today each & every Indian Fisherman face the problem of getting threaten by foreign navy and sea pirates due to lack in knowledge of IMBL due to this they face the problem of being arrested by the foreign coastal authority. Thus the fisherman families suffer & struggle a lot of their safety in foreign country. To avoid this situation this project takes in hand with some modern technological gadgets like mobile computing concept for application development in smartphone device and using GPS for positioning information and GSM for giving emergency alert information in hazardous situation. We use this technology in our project to get integrated and lead the fisherman to have a safe journey and feel the safety over the fishing course.

II. EXISTING SYSTEM

At present there is few system which runs in certain environment and support user for to locate the position and navigation and also guide in hazardous situation. The systems are radar and computer based GPS which were run over coastal guards based which needs regular monitoring and has chance of manual errors which leads to dangerous situation. In some system this manual monitoring are been supervised by computer programmed application run in PC which is not compact and less power consumable device and also not able to understand by common man which means not user friendly. In some system uses GPS when vessel cross the border it cuts off the fuel. The limitation of existing system are not being

user friendly, cannot be understand by common man, more expensive, not reliable, dangerous in some case and not effective.

III. PROPOSED SYSTEM

Our proposed system has the aim to give a well understandable user friendly technological mobile computing gadget. To support and give enough awareness of IMBL and protect them not to cross the maritime boundary at any cost. And give full secureness and reliable safety for Indian Fisherman lives. To perform this task some modern concepts of mobile computing method have to be taken into hands. By developing an application in android mobile OS which is being runned in mobile computing smartphones device that get positioning data from smartphones inbuilt GPS module and also uses AGPS positioning concepts for triangulation of current position and gives alarm for danger light indication & sound alarm and additionally gives SMS alert system with current location information with the help of smartphones in built GSM module.

Thus we keep safety for Indian fisherman all in mind and built a better solution for this problem and give reliable technological gadgets to support the human life

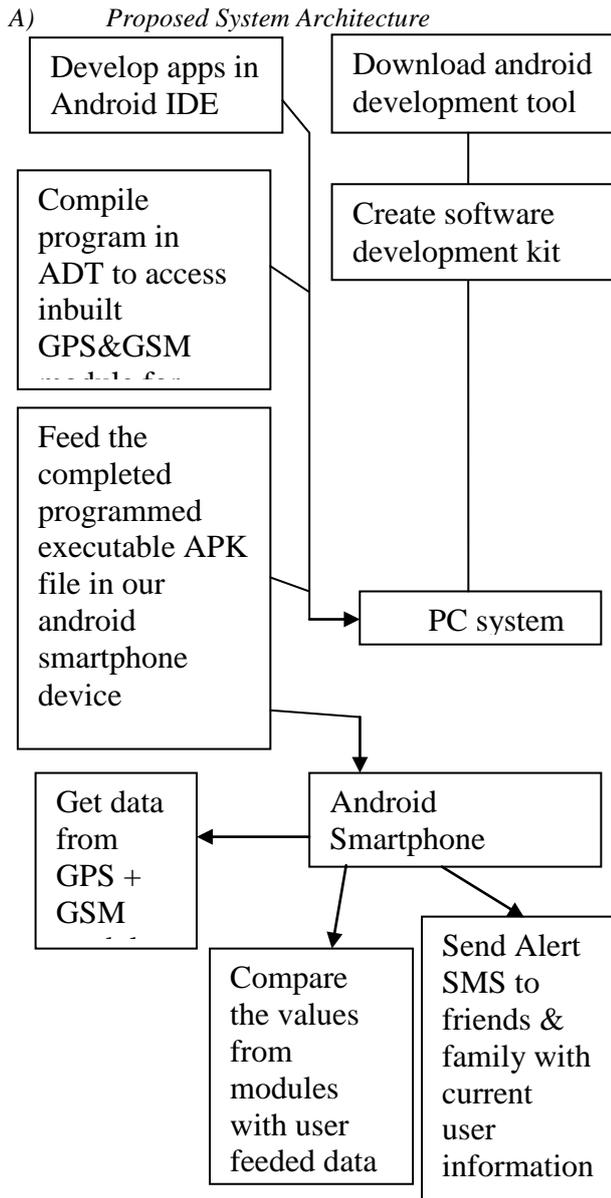


Fig. 1. Proposed System Architecture

IV. OBTAINING REQUIRED TOOLS

A. *Mobile Computing*

Mobile computing is human-computer interaction by which a computer is expected to be transported during normal usage. Mobile computing involves mobile communication, mobile hardware, and mobile software. Communication issues include ad hoc and infrastructure networks as well as communication properties, protocols, data formats and concrete technologies. Hardware includes mobile devices or device components. Mobile software deals with the characteristics and requirements of mobile applications.

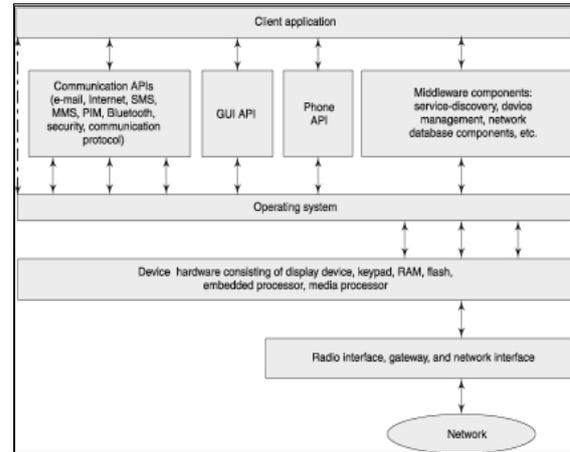


Fig. 2. Mobile computing Architecture

B. *Smartphones*

A smartphone, or smart phone, is a mobile phone built on a mobile operating system, with more advanced computing capability and connectivity than a feature phone.



Fig. 3. Smartphones

C. *Android*

Android is an operating system based on the Linux kernel, and designed primarily for touchscreen mobile devices such as smartphones and tablet computers. Initially developed by Android, Inc., which Google backed financially and later bought in 2005, Android was unveiled in 2007 along with the founding of the Open Handset Alliance: a consortium of hardware, software, and telecommunication companies devoted to advancing open standards for mobile devices. Android is open source and Google releases the source code under the Apache License. This open-source code and permissive licensing allows the software to be freely modified and distributed by device manufacturers, wireless carriers and enthusiast developers. However, most Android devices ship with additional proprietary software. Additionally, Android has a large community of developers writing applications ("apps") that extend the functionality of devices, written primarily in the Java programming language.

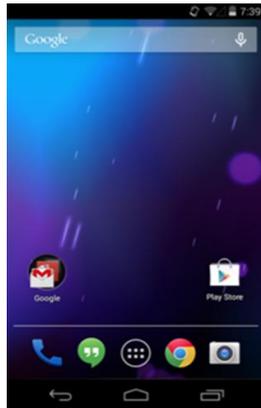


Fig. 4. Android

D. Android Development Tool (ADT)
a Eclipse

The first step towards developing any applications is obtaining the integrated development environment (IDE). In the case of Android, the recommended IDE is Eclipse, a multi-language software development environment featuring an extensible plug-in system. It can be used to develop various types of applications, using languages such as Java, Ada, C, C++, COBOL, Python, etc. for android development.

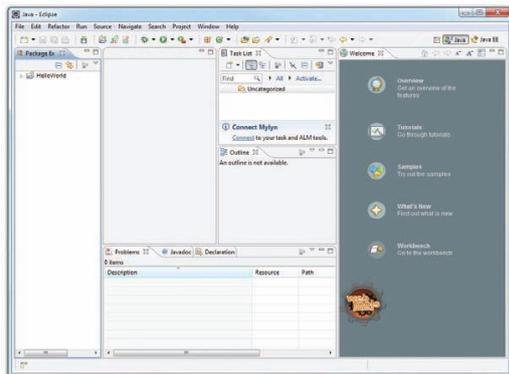


Fig. 5. Eclipse

a) Android SDK

The next important piece of software you need to download is, of course, the Android SDK. The Android SDK contains a debugger, libraries, an emulator, documentation, sample code, and tutorials.

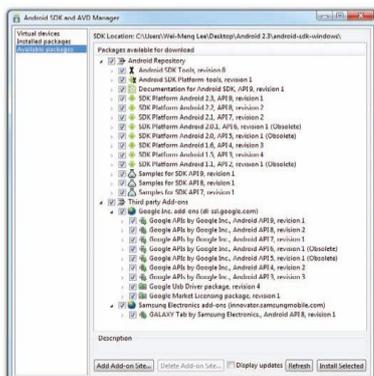


Fig. 6. Android SDK

b) Android Development Tools (ADT)

The Android Development Tools (ADT) plug-in for Eclipse is an extension to the Eclipse IDE that supports the creation and debugging of Android applications. Using the ADT, you will be able to do the following in Eclipse:

Create new Android application projects.

Access the tools for accessing your Android emulators and devices.

Compile and debug Android applications.

Export Android applications into Android Packages (APK).

Create digital certificates for code-signing your APK.

c) Creating Android Virtual Devices (AVD s)

The next step is to create AVD to be used for testing your Android applications. AVD stands for Android Virtual Devices. An AVD is an emulator instance that enables you to model an actual device. Each AVD consists of a hardware profile, a mapping to a system image, as well as emulated storage, such as a secure digital (SD) card.

You can create as many AVDs as you want in order to test your applications with several different Configurations. This testing is important to confirm the behavior of your application when it is run on different devices with varying capabilities.



Fig. 7. Android Virtual Device

d) Global Positioning System(GPS)

The Global Positioning System (GPS) is a space-based satellite navigation system that provides location and time information in all weather conditions, anywhere on or near the Earth where there is an unobstructed line of sight to four or more GPS satellites. The system provides critical capabilities to military, civil and commercial users around the world. It is maintained by the United States government and is freely accessible to anyone with a GPS receiver.

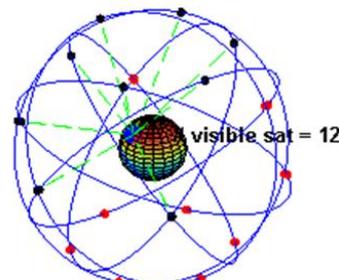


Fig. 8. Global Positioning Satellite view

Basic concept of GPS

A GPS receiver calculates its position by precisely timing the signals sent by GPS satellites high above the Earth. Each satellite continually transmits messages that include

- The time the message was transmitted
- Satellite position at time of message transmission

e) Assisted Global Positioning System (A-GPS)

Assisted GPS generally abbreviated as A-GPS or less commonly aGPS. "Standalone" or "autonomous" GPS operation uses radio signals from satellites alone. A-GPS additionally uses network resources to locate and use the satellites in poor signal conditions. An assisted GPS system can address these problems by using data available from a network. For billing purposes, network providers often count this as a data access, which can cost money depending on the plan.

Assistance falls into two categories:

1. Information used to acquire satellites more quickly [Mobile Station Based(MSB)]
2. Calculation of position by the server using information from the GPS receiver [Mobile Station Assisted(MSA)]

A typical A-GPS-enabled receiver will use a data connection (Internet or other) to contact the assistance server for aGPS information. If it also has functioning autonomous GPS, it may use standalone GPS, which is sometimes slower on time to first, fix, but does not depend on the network, and therefore can work beyond network range, and without incurring data usage fees. Some A-GPS devices do not have the option of falling back to standalone or autonomous GPS.

V. WORKING OF THE PROJECT

After downloading and installing the required development tools for android application. Let get dirt our hands by writing programs for our application. This application development process that develop programs in Eclipse IDE with Android SDK plugins library tools that can be able to access Smartphones inbuilt GPS & GSM module to carry out proposed system task.

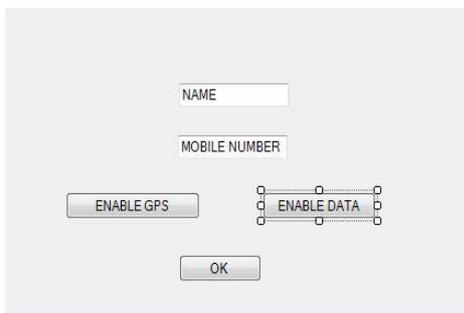


Fig. 1. Log in page

Step by step proposed system working description is as follows:

Project log in page to feed user information and to activate required modules for positioning and to send alert information's.

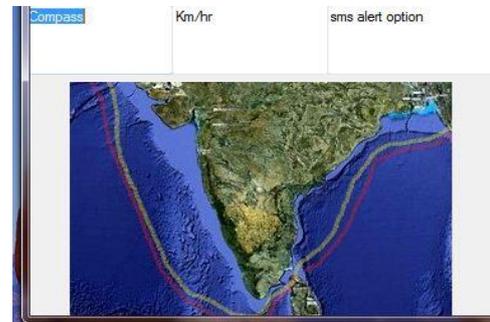


Fig. 2. Home Screen View

Project application home screen consist of map view with imaginary boundary lines created with the help of user feeded GPS coordinate points. Also displays current position, direction and current speed.



Fig. 3. Sms Alert Option

SMS alert option menu used to enter the longitude/latitude points of International Maritime Boundary and also base station, friends & family mobile numbers have to be entered to send caution message when user crosses the boundary.

VI. CONCLUSION

By this application built in Android platform over smartphone mobile computing device. Thus provide individual secureness to the maximum level over the Indian Maritime Boundary for the fisherman life. Keep individual to feel safe and give the hospitality to the maximum level and get connected with their friends & family and make both to be strong enough.

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